UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

CASSAVA SCIENCES, INC.,

Plaintiff,

v.

DAVID BREDT; GEOFFREY PITT; QUINTESSENTIAL CAPITAL MANAGEMENT LLC; ADRIAN HEILBUT; JESSE BRODKIN; ENEA MILIORIS; and PATRICK MARKEY,

Defendants.

Civil Action No. 22-cv-9409

COMPLAINT

Jury Trial Demanded

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Plaintiff Cassava Sciences, Inc. ("Cassava" or "the Company"), through its attorneys, brings this Complaint against Defendants David Bredt, Geoffrey Pitt, Quintessential Capital Management LLC, Adrian Heilbut, Jesse Brodkin, Enea Milioris, and Patrick Markey (collectively, the "Defendants") for defamation *per se*.

I. INTRODUCTION

1. Defendants placed personal enrichment over science, over the health of patients, and over the truth. Defendants saw an opportunity to manipulate a stock price and financially benefit from their "short positions" by defaming a company developing a drug for people with Alzheimer's disease, a condition that afflicts millions of people. Defendants seized that opportunity and, while enriching themselves, caused irreparable harm to the company, its attempts to find a treatment for the disease, and patients waiting for that treatment. Defendants' conduct is beyond shameful. It is unlawful.

2. Cassava is a small biotechnology company based in Austin, Texas. It is publicly traded on the NASDAQ stock market in New York. Cassava is developing a drug called "simufilam" as a potential treatment for Alzheimer's disease, which afflicts 6 million people in the United States and millions more around the world. The drug has not received approval from the U.S. Food and Drug Administration ("FDA"), but clinical trials are under way.

3. Cassava has been developing simufilam for over a decade at a cost of over $100,000,000. Simufilam has successfully completed several phases of testing and, after extensive review, was greenlighted by FDA in 2021 for late stage, "Phase 3" testing.

4. The Company's successful efforts at developing and testing simufilam should have been grounds for optimism within the Company and the Alzheimer's community. Alzheimer's disease is a terrible condition that robs people of their memory and causes a long, slow death. Because Alzheimer's disease is such a complex disorder of the brain, successful treatments have

been elusive. The time, effort, and money that Cassava had invested in tackling this challenge appeared to be paying off as simufilam showed promise as a treatment. More work was left to be done but Cassava was heading in the right direction.

5. Unfortunately, Defendants had another plan in mind. In Cassava, Defendants saw an opportunity for profiteering. As investors and patients learned about the Company's successful completion of early clinical testing for simufilam, the stock price of Cassava began to rise. As Cassava's stock price increased, Defendants decided they could personally profit by publishing disinformation about the Company, which would cause its stock price to plummet. The practice of profiting from a drop in stock price is called "short-selling." The practice of profiteering by publishing false information that causes a drop in stock price is called "short-and-distort."

6. Starting in August 2021, intensifying in November 2021, and continuing through today, Defendants embarked on a multi-prong disinformation campaign against Cassava while taking sizeable short positions in Cassava's stock to earn substantial profits from the market's negative reaction to their disinformation campaign.

7. The overall messages conveyed by the Defendants' disinformation campaign was that Cassava had manipulated the testing of simufilam, Cassava had manipulated the results associated with simufilam, and Cassava was a fraud. Defendants pressed these charges through letters, presentations, and reports that they published and republished on various open-access websites as well as social media posts. In all, Defendants published ***over 240 false and defamatory statements*** about Cassava in letters, reports, and presentations and ***over 840 false and defamatory statements*** about Cassava on social media.

8. Defendants' disinformation campaign had its intended results. The disinformation campaign conveyed a precise, powerful conclusion: Cassava was a fraud so investors should run

away from the Company. They did. The disinformation campaign caused Cassava's stock price to plummet, falling from over $100 per share to under $50 per share. This is what Defendants wanted and needed. Defendants had taken "short" positions in Cassava's stock. They bet on the Company's stock price falling. As Cassava's stock price fell based on their disinformation, Defendants personally made money. It was easy money, albeit ill-gotten.

9. Cassava, of course, did what it could to stem the negative tide. Cassava responded to Defendants' false attacks with a factual rebuttal. It submitted information to science journals for validation. It cooperated with agencies (private and public) that had questions stemming from Defendants' disinformation. And, over time, Defendants' lies have been exposed. Cassava did not manipulate any tests or results relating to simufilam. But the damage has been done. ***Cassava's market capitalization plummeted by more than $2 billion.*** Cassava's name and brand has been irreparably tarnished. Clinical testing of Cassava's drug for people with Alzheimer's disease has been delayed. Testing sites have run away from participating in Cassava's clinical trials. A potential drug for Alzheimer's disease is even farther away thanks to Defendants.

10. With this action, Cassava seeks to hold accountable Defendants who decided that making a quick buck was more important than treating people with Alzheimer's. Defendants are a new breed of profiteers. Instead of selling illegal goods on a black market, they sell lies to artificially drive down a stock price and enrich themselves. Cassava will not be the last victim of these Defendants unless they are held to account for their actions. Disinformation under the guise of science is still disinformation; and, calling a company a fraud is defamation *per se* even if the company is pursuing a new drug treatment for a complex disease.

II. PARTIES

11. Plaintiff Cassava is a clinical-stage biotechnology company focused on neuroscience. The company's principal place of business is Austin, Texas. It is incorporated in

Delaware. Cassava is responsible for the development of simufilam, an oral drug that restores the normal shape and function of a protein in the brain called filamin A (FLNA). Cassava is currently conducting late-stage clinical studies to test the efficacy and safety of simufilam in treating Alzheimer's disease.

12. Cassava is a publicly traded company. Cassava went public in July 2000 (under its predecessor name). Its common stock is listed on the NASDAQ stock exchange, which is headquartered in New York, under the ticker symbol "SAVA." Cassava's stock was trading at well over $100 per share prior to Defendants' disinformation campaign. After their disinformation campaign, Cassava's stock has been trading at under $50 per share.

13. Defendant Geoffrey Pitt is a cardiologist at Weill Cornell Medicine. Pitt is a resident of New York, New York.

14. Defendant David Bredt is a neuroscientist who served as Vice President of Integrative Biology at Eli Lilly and Company from 2004 to 2011. From 2011 to 2021, he served as the Global Head of Neuroscience Discovery at Johnson & Johnson Pharmaceuticals. Bredt is a resident of La Jolla, San Diego County, California.

15. On or before August 18, 2021, Pitt and Bredt reached an agreement to publish defamatory information about Cassava in an effort to artificially deflate the Company's stock price. Bredt and Pitt agreed they would take short positions in Cassava stock so that they would financially gain from their effort when the Company's stock price fell. As part of their scheme, Pitt and Bredt (a) retained a New York-based attorney, Jordan Thomas, to represent them, (b) participated in drafting private and public letters to FDA officials that include factually inaccurate and defamatory statements about Cassava, (c) instructed Thomas to transmit the letters to the FDA from his New York-based firm, and (d) instructed or authorized Thomas to issue a press release

about the Citizen Petition from his New York-based firm which contained a link to the letters to the FDA. Pitt and Bredt are referred to collectively as the "Citizen Petition Defendants."

16. Defendant Quintessential Capital Management LLC ("QCM") is a hedge fund that publishes reports as part of its efforts to influence and/or manipulate the trading price for its investments. QCM's principal place of business is New York, New York. QCM is organized under the laws of New York.

17. In November 2021, QCM published a report that included factually inaccurate and defamatory statements about Cassava. QCM published the report on the website of its New York-based company and from its New York-based company. QCM continued to publish factually inaccurate and defamatory statements about Cassava after November 2021 on social media. QCM took short positions in Cassava stock prior to and after publishing its factually inaccurate and defamatory statements so that it would financially gain when the Company's stock price fell.

18. Defendant Adrian Heilbut, PhD, is one of the founders of the website "cassavafraud.com." Heilbut is a resident of New York, New York. Heilbut published factually inaccurate and defamatory information about Cassava on the website "cassavafraud.com" as well as on Twitter, where he posts under the handle "@Adrian_H."

19. Defendant Enea Milioris, PhD, is one of the founders of the website "cassavafraud.com." Milioris is a resident of London, England. Milioris published factually inaccurate and defamatory information about Cassava on the website "cassavafraud.com" as well as on Twitter, where he posts under the handle "@DRnotaDR."

20. Defendant Jesse Brodkin, PhD, is one of the founders of the website "cassavafraud.com." Brodkin is a resident of Basking Ridge, Somerset County, New Jersey. Brodkin published factually inaccurate and defamatory information about Cassava on the website

"cassavafraud.com" as well as on Twitter, where he posts under the handle "@jesse_brodkin."

21. Defendant Patrick Markey, PhD, is one of the founders of the website "cassavafraud.com." Markey is a resident of Germany. Markey published factually inaccurate and defamatory information about Cassava on the website "cassavafraud.com" as well as on Twitter, where he posts under the handle "@PatricioMarceso."

22. On or before November 2, 2021, Heilbut, Milioris, Brodkin, and Markey reached an agreement to publish defamatory information about Cassava in an effort to artificially deflate the Company's stock price. Heilbut, Milioris, Brodkin, and Markey agreed they would take short positions in Cassava stock so that they would financially gain when the Company's stock price fell. As part of their scheme, Heilbut, Milioris, Brodkin, and Markey (a) hired a vendor to host a new website called "cassavafraud.com," (b) created content for the website "cassavafraud.com," (c) hired a vendor to host a new website called "simuflimflam.com," (d) created content for the website "simuflimflam.com," (e) jointly drafted letters, reports, and presentations to be posted on those open-access websites that include factually inaccurate and defamatory statements about Cassava, (f) coordinated the publication of factually inaccurate and defamatory social media posts about Cassava, and (g) coordinated the distribution of factually inaccurate and defamatory information to New York-based institutions, including the City University of New York ("CUNY"). Heilbut, Milioris, Brodkin, and Markey are referred to collectively as the "Dot.com Defendants."

23. The Citizen Petition Defendants, QCM Defendant, and Dot.com Defendants are collectively referred to as the "Defendants" in this Complaint. Allegations in the Complaint referring the "Defendants" apply to each of the individual defendants, meaning that the allegation refers to action taken by each of the Defendants, information available to each of the Defendants,

or consequences of the activities of each of the Defendants. The Complaint will refer to an individual defendant or defendant group when the allegation does not apply to all Defendants.

III. JURISDICTION AND VENUE

24. This Court has subject matter jurisdiction over the Defendants pursuant to 28 U.S.C. § 1332 because the amount in controversy exceeds $75,000 and all Defendants are of different citizenship than the Plaintiff. Plaintiff is a citizen of Texas and Delaware. Pitt is a citizen of New York, Bredt is a citizen of California, QCM is a citizen of New York, Heilbut is a citizen of New York, Milioris is a citizen of England, Brodkin is a citizen of New Jersey, and Markey is a citizen of Germany.

25. The Court has personal jurisdiction over Pitt pursuant to CPLR § 301. Pitt is a resident of New York, New York. Upon information and belief, Pitt engaged in the misconduct at issue in this litigation, including preparation and publication of the defamatory statements, from New York. Moreover, Pitt (a) retained a New York-based attorney, Jordan Thomas, to represent him and Bredt, (b) participated in drafting letters to the FDA that includes factually inaccurate and defamatory statements about Cassava, (c) instructed Thomas to transmit the letters to the FDA from his New York-based firm, (d) instructed or authorized Thomas to issue a press release about the Citizen Petition from his New York-based firm which contained a link to the letters to the FDA, and (e) participated in drafting and publishing of factually inaccurate and defamatory statements about Dr. Hoau-Yan Wang, a professor at a New York-based university (CUNY), as part of the campaign to characterize Cassava as a fraud.

26. The Court has personal jurisdiction over Bredt pursuant to CPLR § 302. Bredt knowingly and willfully transacted business in New York and defamed Cassava through certain New York transactions to obtain benefit in other New York transactions, joined a conspiracy with Pitt to defame Cassava, and published defamatory statements about Cassava, all to make money

by taking short positions in Cassava stock. First, Bredt transacted business in New York by retaining a New York-based attorney, Jordan Thomas, to represent him and Pitt, participating in drafting letters to the FDA that include factually inaccurate and defamatory statements about Cassava, and then instructing Thomas, the attorney with whom he transacted, to transmit the letters to the FDA from his New York-based firm. Bredt further instructed or authorized Thomas to issue a press release about the Citizen Petition from his New York-based firm which contained a link to the letters to the FDA, and participated in drafting and publishing factually inaccurate and defamatory statements about Dr. Hoau-Yan Wang, a professor at a New York-based university (CUNY), as part of the campaign to characterize Cassava as a fraud. In conjunction with these transactions, Bredt took short positions in Cassava stock, which is traded on the NASDAQ stock exchange. NASDAQ is owned and operated by Nasdaq, Inc. in New York, New York. Bredt used false and defamatory statements to manipulate the value of Cassava's stock and make money through the short positions he obtained in New York transactions. These multiple interconnected actions represent an intentional, well-defined nexus between Bredt's transaction of business in New York and defamatory conduct. Second, Bredt conspired with Pitt, a New York citizen, to defame Cassava and make money through short positions through the same conduct just described.

27. Upon information and belief, Jordan Thomas was a knowing participant in the conspiracy to defame Cassava with Pitt and Bredt. Cassava makes this allegation based on the following: (a) Thomas knew or should have known that the ostensible request in the letters to the FDA were outside the purview of the FDA and, therefore, the letters were being sent for an ulterior purpose, (b) Thomas knew or should have known that posting a link to the letters in a press release issued by his law firm served no legitimate purpose other than to further disseminate the factually inaccurate and defamatory statements in the letters, (c) Thomas knew or should have known that

the statements made in the FDA letters were factually inaccurate, (d) Thomas knew Pitt and Bredt held short positions in Cassava stock that he did not disclose in the letters to the FDA, (e) Thomas knew or should have known that Bredt is a named inventor on a patent that competes with Cassava, (f) Thomas knew or should have known that Bredt's competing patent was not disclosed in the letters to the FDA, (g) Thomas avoided the use of cautionary language in his communications to the press, the public or to the FDA, and (h) Thomas knew or should have known that Pitt and Bredt would not (and did not) hold on to their short position prior to hearing back from the FDA, and therefore their misconduct had to be nothing more than a money-making scheme.

28. The Court has personal jurisdiction over QCM pursuant to CPLR § 301 for four reasons. One, QCM is a resident of New York, New York. Two, upon information and belief, QCM engaged in the misconduct at issue in this litigation, including preparation and publication of the defamatory statements, from New York. Three, QCM disseminated the factually inaccurate and defamatory statements about Cassava from its New York-based office, including through publication on its website. Four, QCM participated in drafting and publishing factually inaccurate and defamatory statements about Dr. Hoau-Yan Wang, a professor at a New York-based university (CUNY), as part of the campaign to characterize Cassava as a fraud.

29. The Court has personal jurisdiction over Heilbut pursuant to CPLR § 301. Heilbut is a resident of New York, New York. Heilbut engaged in the misconduct at issue in this litigation, including preparation and publication of the defamatory statements, from New York and disseminated the defamatory statements to New York residents, including CUNY.

30. The Court has personal jurisdiction over Milioris, Brodkin, and Markey pursuant to CPLR § 302 for four reasons. One, Milioris, Brodkin, and Markey engaged in business transactions in New York by taking short positions in Cassava's stock, which is traded on the

NASDAQ stock exchange in New York. They then published false and defamatory statements about Cassava on a website available in New York, as well as through Heilbut—a citizen of New York—who engaged in both the publication of defamatory statements on the website and directly in New York. These multiple interconnected actions represent an intentional, well-defined nexus between transactions of business in New York by Milioris, Brodkin, and Markey, and their defamatory conduct. Two, Milioris, Brodkin, and Markey knowingly and willfully joined a conspiracy with Heilbut to defame Cassava, publish defamatory statements about Cassava, and make money based on their conspiracy by taking short positions in Cassava stock. As part of the conspiracy, and in furtherance of the conspiracy, Heilbut published defamatory statements about Cassava from New York and to New York residents, including CUNY. Three, Milioris, Brodkin, and Markey participated in drafting and publishing of factually inaccurate and defamatory statements about Dr. Hoau-Yan Wang, a professor at a New York-based university (CUNY), as part of the campaign to characterize Cassava as a fraud. Four, upon information and belief, Milioris, Brodkin, and Markey transmitted communications to Heilbut in New York and received communications from Heilbut from New York as part of their coordination and execution of the conspiracy.

31. By way of example, as part of the Dot.com Defendants' conspiracy and scheme to defame Cassava, in October 2022, Heilbut attended a public hearing in New York City and made a statement to CUNY that repeated many of the factually inaccurate and defamatory statements made by the Dot.com Defendants in earlier publications. (Exhibit 1, Exhibit 2 at 22–24.) Heilbut's statements at this hearing are among the false and defamatory statements at issue, including the following:

a. Dr. Hoau-Yan Wang of City College and the School of Medicine perpetrated a massive biomedical research fraud. CUNY has not taken

action to stop the misconduct and cover-ups, and is still not doing its investigation under timelines dictated by policy.

b. Wang fabricated data for 20 years. His fantasies were the basis for a purported Alzheimer's drug now in clinical trials. Wang was also responsible for Phase 2 biomarker data, and most of that was also made up.

c. These fabrications may have led to False Claims to FDA and NIH, and potential securities fraud. Concerns were documented in an August 2021 petition to FDA and on PubPeer and given to CUNY.

d. Based on entirely fabricated research, a fake drug is being dosed to humans and peddled as a cure for Alzheimer's, in service of a likely securities fraud. IT IS ALL MADE UP. The ongoing charade makes a mockery of ethics, the FDA, Federal Law, and the entire biomedical research system.

(Exhibit 2 at 22–24). Milioris, Brodkin, and Markey have never distanced themselves from Heilbut or ended their participation in their conspiracy with Heilbut. To the contrary, his actions continue to receive their endorsement and support.

32. Moreover, the Court has personal jurisdiction over each of the Defendants because they transacted business through and with a New York corporation that was an integral part of their misconduct. Cassava stock trades on the NASDAQ stock exchange. NASDAQ is owned and operated by Nasdaq, Inc., a financial services corporation headquartered in New York, New York. Each of the Defendants acquired "short" positions in Cassava stock, meaning they agreed to sell Cassava stock at an existing price and buy the stock (to cover the sell) at a later date. Defendants relied upon and utilized NASDAQ to execute their scheme to profit from defaming Cassava. Defendants could not have executed on their scheme without utilizing the NASDAQ stock exchange, which is owned and operated by a New York-based company.

33. The Court also has personal jurisdiction over each of the Defendants because they disseminated their factually inaccurate and defamatory statements to New York and New York residents. Defendants used various open-access websites to publish their factually inaccurate and defamatory statements, making the statements available to New York residents. Defendants did

not place any restrictions on who could review or read their statements. Defendants intended for readers, including New York residents, to sell Cassava stock so that the price of the stock would decline. Each of those sales, which were a necessary component of the scheme, were executed though the NASDAQ stock exchange, which is owned and operated by a New York corporation.

34. Requiring Defendants to litigate these claims in New York does not offend traditional notions of fair play and substantial justice and is permitted by the Due Process Clause of the United States Constitution. One, Cassava's claims arise from defamatory statements made by New York residents and individuals who conspired with New York residents. Two, transactions that used a New York-based stock exchange was an integral and necessary part of the Defendants' scheme to profit from artificially deflating the value of Cassava's stock and, thereby, profiting from their short positions. Three, Defendants drafted and published factually inaccurate and defamatory statements about Dr. Hoau-Yan Wang, a professor at a New York-based university (CUNY), as part of the campaign to characterize Cassava as a fraud.

35. Venue is proper in this District pursuant to 28 U.S.C. § 1391(b) because a substantial part of the events giving rise to the claims in this Complaint occurred in this District and each of the Defendants are subject to the Court's personal jurisdiction in this District.

IV. BACKGROUND ON CASSAVA AND SIMUFILAM[1]

36. Cassava is a clinical-stage biotechnology company based in Austin, Texas. Its mission is to detect and treat neurodegenerative diseases, such as Alzheimer's disease.

37. Cassava currently has two biopharmaceutical assets under development. Its lead

[1] The United States Adopted Names (USAN) Council assigned Cassava's lead drug candidate, PTI-125, the chemical drug name "sumifilam" in August 2020. In November 2020, the World Health Organization advised USAN to modify the chemical drug name to "simufilam" to avoid a potential trademark conflict with a drug marketed in the Far East. All references in this Complaint will be to "simufilam."

therapeutic product candidate, called simufilam, is a potential treatment for Alzheimer's disease. Its lead investigational diagnostic product candidate, called SavaDx, is a way to detect the presence of Alzheimer's disease from a small sample of blood.

38. Simufilam is a proprietary small molecule (oral) drug. It targets an altered form of a protein called filamin A (FLNA) in the Alzheimer's brain. Published studies in science journals have demonstrated that the altered form of FLNA causes neuronal dysfunction, neuronal degeneration and neuroinflammation. Simufilam seeks to simultaneously suppress both neurodegeneration and neuroinflammation.

39. Testing to date demonstrates that simufilam can improve brain health by reverting altered FLNA back to its native, healthy conformation, thus countering the downstream toxic effects of altered FLNA. Cassava has generated and published experimental and clinical evidence of improved brain health with simufilam. Importantly, simufilam is not dependent on clearing amyloid from the brain. Since simufilam has a unique mechanism of action, its potential therapeutic effects may be additive or synergistic with those of other therapeutic candidates aiming to treat neurodegeneration.

A. Overview of the Science Behind Simufilam

40. Proteins are essential for cell function because they participate in virtually every biological process. If protein function is impaired, the health consequences can be devastating. With aging, genetic mutations and other factors conspire against healthy cells, resulting in altered proteins. Sometimes a cell can rid itself of altered proteins. However, when disease changes the shape and function of critical proteins, multiple downstream processes are impaired. There are many clinical conditions in which proteins become structurally altered and impair the normal function of cells, tissues, and organs, leading to disease. Conversely, restoring altered proteins

back to health—called proteostasis—is a well-accepted therapeutic strategy in clinical medicine.

41. For over 100 years, scientists have ascribed various neurodegenerative diseases to proteins that misfold and are rendered pathological. In Alzheimer's disease, certain proteins, such as amyloid and tau, lose their normal shape and function. Such misfolded proteins can breakdown or aggregate in clumps and form plaque or tangles in the brain. Destruction of neuronal synapses, accelerated nerve cell death, and dysfunction of the brain support cells are all widely believed to be direct consequences of misfolded proteins.

42. FLNA is a scaffolding protein found in high levels in the brain. A healthy scaffolding protein brings multiple proteins together, coordinating their interaction. However, an altered form of FLNA protein is found in the Alzheimer's brain. Cassava's experimental evidence shows that altered FLNA protein contributes to Alzheimer's disease by disrupting the normal function of neurons, leading to neurodegeneration and brain inflammation. Simufilam aims to counter the altered and toxic form of FLNA in the brain, thus restoring the normal function of this critical protein.

43. Simufilam binds to altered FLNA with very high (femtomolar) affinity. This drug effect restores the normal shape of FLNA and the normal function of key brain receptors, including: the alpha-7 nicotinic acetylcholine receptor; the N-methyl-D-aspartate (NMDA) receptor; and the insulin receptor. These receptors have pivotal roles in brain cell survival, cognition, and memory.

44. In animal models, treatment with simufilam resulted in dramatic improvements in brain health, such as reduced amyloid and tau deposits, improved receptor signaling and improved learning and memory. In addition, simufilam has another beneficial treatment effect of significantly reducing inflammatory cytokines in the brain. In animal models of disease, treatment

with simufilam greatly reduced levels of cytokine interleukin 6 (IL-6) and suppressed *tumor necrosis factor (TNF)* alpha and IL-1beta levels by 86% and 80%, respectively, illustrating a powerful anti-neuroinflammatory effect.

45. By restoring function to multiple receptors and exerting powerful anti-inflammatory effects, testing to date shows that simufilam has potential to slow the progression of neurodegeneration in patients. Simufilam is designed to slow or, potentially, even reverse the deterioration of brain cells.

46. Cassava's science is published in multiple peer-reviewed journals. In addition, Cassava's research has been supported by the National Institutes of Health (NIH) under multiple research grant awards. Each grant was awarded following an in-depth, peer-reviewed evaluation of Cassava's approach for scientific and technical merit by a panel of outside experts in the field. Strong, long-term support from NIH has allowed Cassava to advance its two product candidates for neurodegeneration, simufilam and SavaDx, into clinical development.

B. Development and Approval Process for Drugs in the United States

47. In the United States, the FDA is authorized to regulate drugs under the Federal Food, Drug, and Cosmetic Act (FDCA). Drugs and diagnostics are also subject to other federal, state, and local statutes and regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or post-market may subject an applicant to administrative or judicial sanctions.

48. Product candidates must be approved by FDA before they may be commercialized in the United States. The drug approval process generally involves the following:

a. Completion of extensive preclinical studies in accordance with applicable

regulations, including studies conducted in accordance with good laboratory practice.

b. Submission to FDA of an Investigative New Drug application (IND), which must become effective before human clinical studies may begin.

c. Approval by an independent institutional review board (IRB) or ethics committee before each study may be initiated.

d. Performance of adequate and well-controlled human clinical studies in accordance with applicable IND regulations, code of good clinical practice (cGCP) requirements and other clinical trial-related regulations to establish the safety and efficacy of the investigational product for each proposed indication.

e. Submission to FDA of a New Drug Application (NDA).

f. A determination by FDA within 60 days of its receipt of an NDA to accept the filing for review.

g. Satisfactory completion of a FDA pre-approval inspection of the manufacturing facility or facilities where the drug will be produced to assess compliance with cGMP requirements to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity.

h. Potential FDA audit of the preclinical study and/or clinical study sites that generated the data in support of the NDA.

i. FDA review and approval of the NDA, including consideration of the views of any FDA advisory committee, prior to any commercial marketing or sale of the drug in the United States.

j. Compliance with any post-approval requirements, including the potential requirement to conduct post-approval studies.

49. The data required to support a NDA are generated in two distinct developmental stages: preclinical and clinical. The preclinical and clinical testing and approval process requires substantial time, effort, and financial resources.

1. Preclinical Studies and IND

50. The preclinical developmental stage generally involves laboratory evaluations of drug chemistry, formulation, and stability, as well as studies to evaluate toxicity in animals, which

support subsequent clinical testing. As sponsor, Cassava must submit the results of the preclinical studies, together with manufacturing information, analytical data, any available clinical data or literature, and a proposed clinical protocol, to the FDA as part of the IND. An IND is a request for authorization from FDA to administer an investigational product to humans and must become effective before human clinical studies may begin.

51. Preclinical studies include laboratory evaluation of product chemistry and formulation, as well as in vitro and animal studies to assess the potential for adverse events and in some cases to establish a rationale for therapeutic use. The conduct of preclinical studies is subject to federal regulations and requirements, including cGCP regulations for safety/toxicology studies. An IND sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and plans for clinical studies, among other things, to FDA as part of an IND. Some long-term preclinical testing, such as long-term toxicity tests, animal tests of reproductive adverse events, and carcinogenicity, may continue after the IND is submitted.

2. Clinical Studies

52. The clinical stage of development involves the administration of the investigational drug to healthy volunteers or patients under the supervision of qualified investigators, generally physicians not employed by or under the study sponsor's control, in accordance with cGCP requirements, which include the requirement that all research subjects provide their informed consent for their participation in any clinical trial.

53. Clinical studies are conducted under written protocols detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria, and the parameters to be used to monitor subject safety and assess efficacy. Each protocol,

and any subsequent amendments to the protocol, must be submitted to FDA as part of the IND.

54. Furthermore, each clinical study must be reviewed and approved by an IRB for each institution at which the clinical study will be conducted to ensure that the risks to individuals participating in the clinical studies are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the informed consent form that must be provided to each clinical study subject or his or her legal representative and must monitor the clinical study until completed. There also are requirements governing the reporting of ongoing clinical studies and completed clinical study results to public registries.

55. Clinical studies in the United States generally are conducted in three sequential phases, known as Phase 1, Phase 2, and Phase 3.

56. Phase 1 clinical studies generally involve a small number of healthy volunteers or disease-affected patients who are initially exposed to a single dose and then multiple doses of the product candidate. The primary purpose of these clinical studies is to assess the metabolism, pharmacologic action, tolerability and safety of a drug candidate.

57. Phase 2 clinical studies involve studies in disease-affected patients to determine the proper dose required to produce the desired benefits. At the same time, safety and further pharmacokinetic and pharmacodynamic information is collected, possible adverse effects and safety risks are identified, and a preliminary evaluation of efficacy may be observed.

58. Phase 3 clinical studies generally involve many patients at multiple sites and are designed to provide the data necessary to demonstrate the effectiveness of the product for its intended use, its safety in use, and to establish the overall benefit/risk relationship of the product and provide an adequate basis for product approval. These studies may include comparisons with placebo and/or other comparator treatments. The duration of treatment is often extended to mimic

the actual use of a product during marketing.

59. Post-approval studies, sometimes referred to as Phase 4 clinical studies, may be conducted after initial marketing approval. These studies are used to gain additional experience from the treatment of patients in the intended therapeutic indication. In certain instances, FDA may mandate the performance of Phase 4 clinical studies as a condition of approval of an NDA.

3. NDA Review Process

60. Following completion of the clinical studies, data is analyzed to assess whether the investigational product is safe and effective for the proposed indicated use or uses. The results of preclinical studies and clinical studies are then submitted to FDA as part of an NDA, along with proposed labeling, chemistry, and manufacturing information to ensure product quality and other relevant data.

61. The NDA is a request for approval to market a drug for one or more specified indications and must contain proof of safety and efficacy for a drug's purity and potency. The application may include both negative and ambiguous results of preclinical studies and clinical studies, as well as positive findings. Data may come from company-sponsored clinical studies intended to test the safety and efficacy of a product's use or from several alternative sources, including studies initiated by investigators.

62. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety and efficacy of the investigational product to the satisfaction of FDA. FDA approval of an NDA must be obtained before a drug may be marketed in the United States.

C. Cassava's Development and Testing of Simufilam

63. At great expense, Cassava continues to develop simufilam as a potential drug treatment for people with Alzheimer's disease. At all times, Cassava has been in material

compliance with all statutes, rules and regulations of the FDA. At each stage of development, Cassava's work has been carried out with due regard for the drug development process outlined by the FDA. In particular, Cassava's Phase 3 clinical program—which is an on-going, multi-national clinical testing program with approximately 1,800 Alzheimer's patients that will cost over $150,000,000—was carefully crafted with assistance from the FDA to ensure that simufilam demonstrates whether or not it offers a treatment benefit.

1. IND submission to FDA

64. Over the past ten years, Cassava successfully conducted basic research, in vitro studies, and preclinical studies in support of an Investigational New Drug (IND) submission to FDA for simufilam, including requisite studies around safety pharmacology, toxicology, genotoxicity, and bioanalytical methods. Cassava filed an IND with FDA for simufilam in 2017. The FDA accepted the IND that same year.

2. Phase 1 Study

65. Following the FDA's acceptance of the IND, Cassava investigated the safety, dosing, and pharmacokinetic profile of simufilam in healthy human volunteers. The design of its first-in-human Phase 1 study was based on regulatory feedback, clinical and scientific rationale, and observations from previously conducted preclinical and in vitro studies.

66. In the Phase 1 study, simufilam was evaluated in 24 healthy human volunteers in a single site in the United States for safety, tolerability, and pharmacokinetics. Study subjects were administered a single oral dose of 50, 100, or 200 mg of simufilam. The drug was well-tolerated in all subjects. Simufilam showed no treatment-related adverse effects and no dose-limiting safety findings. Pharmacokinetic measurements demonstrated that simufilam was rapidly absorbed.

Dose-proportionality was observed over the full dose range of 50 to 200 mg.

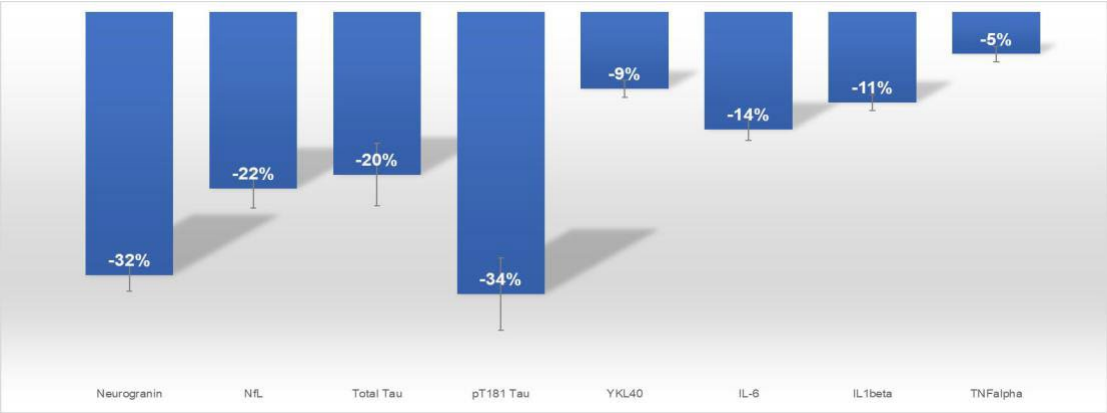
67. Given the absence of any observable dose-limiting effects in healthy adults in a Phase 1 study, a strong scientific rationale, and multiple peer-reviewed publications and research grant awards, Cassava concluded that the program demonstrated favorable proof-of-principle for the development of simufilam in Alzheimer's disease.

3. Phase 2a Clinical Study

68. In 2019, Cassava completed a first-in-patient, clinical proof-of-concept study of simufilam in the United States. Cassava's Phase 2a clinical study was an open-label, multi-center, safety, and pharmacokinetic study of simufilam. Thirteen (13) patients with mild-to-moderate Alzheimer's disease, age 50–85, received 100 mg oral simufilam twice daily for 28 days. A diagnosis of Alzheimer's disease was confirmed with Mini-Mental State Examination (MMSE) $\geq$ 16 and $\leq$ 24 and a cerebrospinal fluid (CSF) T-tau/Aβ_{42} ratio $\geq$ 0.30. Safety was assessed by ECGs, clinical labs, adverse event monitoring, and physical examinations. CSF was drawn from patients before dosing started and again after 28 continuous days of dosing with simufilam. CSF samples were then analyzed for biomarkers of Alzheimer's pathology (T-tau, P-tau, Aβ_{42}); neurodegeneration (NfL, neurogranin); and neuroinflammation (YKL-40, IL-6, IL-1β and TNFα). A consulting biostatistician conducted an independent analysis of the data set.

69. A key objective of the Phase 2a study was to measure levels of CSF biomarkers in the brain. Eight CSF biomarkers of disease in Alzheimer's patients were significantly reduced with simufilam treatment. Key results of this study include:

Simufilam treatment reduces levels of CSF biomarkers in patients with Alzheimer's in a Phase 2a study



70. Consistent with over 10 years of basic research and preclinical data, the Phase 2a study showed clinical evidence of simufilam's mechanism of action and drug-target engagement, including: (a) improvements in biomarkers of Alzheimer's disease in CSF, plasma, and lymphocytes; (b) consistency across biomarker improvements in CSF, plasma, and lymphocytes; (c) significant reductions ($p<0.01$) in both nitrated and phosphorylated forms of tau protein; (d) evidence that each individual patient showed biomarker responses to simufilam; (e) evidence that simufilam reversed the shape of altered filamin A in lymphocytes; (f) evidence that simufilam reduced levels of amyloid bound to alpha 7 nicotinic receptors in lymphocytes; (g) early clinical validation of the drug target—altered filamin A—as a facilitator protein between amyloid beta and both neuroinflammation and tau pathology.

4. Phase 2b Clinical Study

71. In March 2020, Cassava announced the completion of a double-blind, randomized, placebo-controlled, multi-center clinical study of simufilam. Sixty-four patients with mild-to-moderate Alzheimer's disease, age 50–85, were randomized (1:1:1) to 100 mg or 50 mg oral simufilam or matching placebo. Treatment was administered twice daily for 28 days. Nine U.S. study sites enrolled patients. A clinical diagnosis was confirmed with the MMSE ≥16 and ≤26 and

a CSF T-tau/$A\beta_{42}$ ratio ≥0.28. Safety was assessed by ECGs, clinical labs, adverse event monitoring, and physical examinations. This study was substantially funded by a research grant award from NIH.

72. The Phase 2b clinical study was designed to evaluate safety, tolerability, and drug effects of simufilam on biomarkers of Alzheimer's disease. The primary endpoint was improvement in biomarkers of Alzheimer's disease from baseline to Day 28. CSF was drawn from patients before dosing started and again after 28 continuous days of dosing with simufilam. CSF samples were then analyzed for biomarkers of Alzheimer's pathology (T-tau, P-tau, $A\beta_{42}$); neurodegeneration (NfL, neurogranin); and neuroinflammation (YKL-40, IL-6, sTREM2, HMGB1) and BBB integrity (IgG, albumin). A consulting biostatistician conducted an independent analysis of the data set.

73. In May 2020, Cassava announced that an outside lab, with whom it had no prior work experience, conducted a bioanalysis of CSF samples from the Phase 2b study. The data set from this initial bioanalysis showed unnaturally high variability and other problems. Overall, Cassava concluded that the data from this initial bioanalysis was anomalous and highly improbable. With its validity in question, Cassava concluded that the initial bioanalysis served no useful purpose. Backup CSF samples were sent to CUNY for bioanalysis. All bioanalyses were conducted under blinded conditions to eliminate any possibility of bias.

74. In September 2020, Cassava reported final positive Phase 2b clinical study results. The drug was safe and well-tolerated in this study. Simufilam significantly ($P<0.05$) improved an entire panel of biomarkers of disease in patients with Alzheimer's disease compared to a placebo group. In addition, Alzheimer's patients treated with simufilam showed directional improvements

in validated tests of episodic memory and spatial working memory, versus patients on placebo.

75. Core markers of Alzheimer's pathology are total tau (T-tau), phosphorylated tau (P-tau181), and amyloid beta42 ($A\beta_{42}$). In Alzheimer's, tau and P-tau levels are elevated and $A\beta_{42}$ is low. The Phase 2b clinical study showed:

T-tau decreased 15% ($p<0.01$) for patients in the 50 mg drug group
T-tau decreased 18% ($p<0.01$) for patients in the 100 mg drug group
P-tau decreased 8% ($p<0.01$) for patients in the 50 mg drug group
P-tau decreased 11% ($p<0.01$) for patients in the 100 mg drug group
$A\beta_{42}$ increased 17% ($p<0.01$) for patients in the 50 mg drug group.
$A\beta_{42}$ increased 14% ($p<0.01$) for patients in the 100 mg drug group

76. Elevated CSF levels of two proteins, Neurogranin (Ng) and Neurofilament Light Chain (NfL), indicate neurodegeneration. The Phase 2b clinical study showed:

Ng decreased 36% ($p<0.01$) for patients in the 50 mg drug group
Ng decreased 43% ($p<0.01$) for patients in the 100 mg drug group
NfL decreased 28% ($p<0.05$) for patients in the 50 mg drug group
NfL decreased 34% ($p<0.01$) for patients in the 100 mg drug group

77. Proinflammatory IL-6 (Interleukin 6) is produced in response to tissue stress and injury. The Phase 2b study showed:

IL-6 decreased 10% ($p<0.01$) for patients in the 50 mg drug group
IL-6 decreased 11% ($p<0.01$) for patients in the 100 mg drug group

78. Elevated levels of neuroinflammatory marker YKL-40 indicate microglial activation. The Phase 2b study showed:

YKL-40 decreased 10% ($p<0.01$) for patients in the 50 mg drug group
YKL-40 decreased 12% ($p<0.01$) for patients in the 100 mg drug group

79. sTREM2 is a neuroinflammation biomarker that has commanded substantial recent attention from researchers for its role in Alzheimer's disease and frontotemporal dementia. The

Phase 2(b) study showed:

sTREM2 decreased 43% ($p<0.01$) for patients in the 50 mg drug group
sTREM2 decreased 46% ($P<0.01$) for patients in the 100 mg drug group

80. The Phase 2b study also showed that simufilam significantly reduced levels of HMGB1 in CSF and significantly improved the integrity of the Blood-brain Barrier (BBB). The Phase 2b study showed:

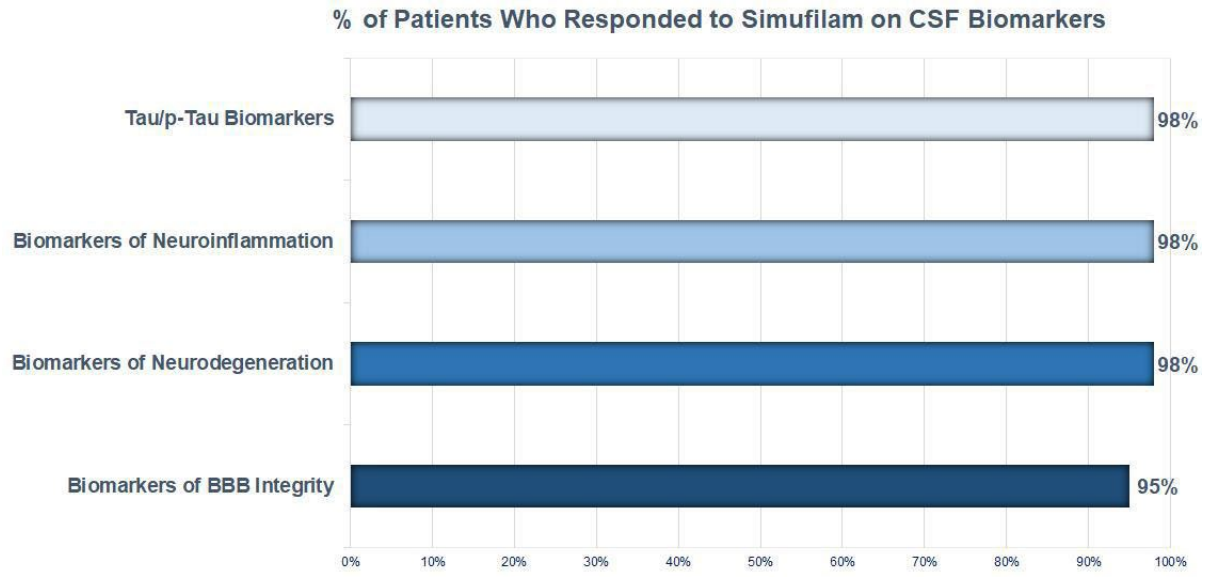
HMGB1 decreased 33% ($p<0.01$) in patients treated with 50 mg simufilam
HMGB1 decreased 32% ($p<0.01$) in patients treated with 100 mg simufilam
CSF IgG decreased 30% ($p<0.05$) in patients treated with 50 mg simufilam
CSF IgG decreased 30% ($p<0.05$) in patients treated with 100 mg simufilam
CSF albumin decreased 15% ($p<0.05$) in patients treated with 50 mg simufilam
CSF albumin decreased 28% ($p<0.05$) in patients treated with 100 mg simufilam

81. BBB permeability can be clinically evaluated by comparing levels of albumin in CSF and plasma. The albumin ratio is a test for BBB permeability because albumin protein is not synthesized in CSF. Hence, albumin in CSF necessarily comes from plasma through the BBB. The albumin ratio is frequently elevated in patients with dementia and various other disorders. In the Phase 2b study, the albumin ratio was unchanged for Alzheimer's patients on placebo. The albumin ratio improved by approximately 5 and 7 points for patients treated with simufilam, 50 mg and 100 mg, respectively, over 28 days.

Changes in the Albumin Ratio by Treatment Group

Treatment	Day 0	Day 28	Change-Day 0 to 28
Placebo	24	24	No change
50 mg simufilam	25	20	- 20%
100 mg simufilam	25	18	- 28%

82. Overall, the study achieved a 98% response rate, defined as the proportion of study participants taking simufilam who showed improvements in biomarkers.

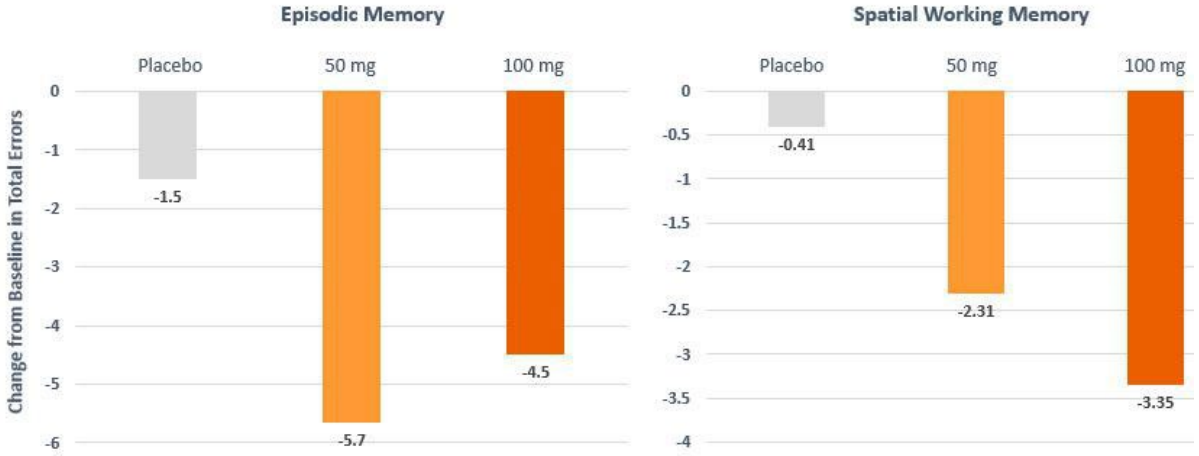


83. A further objective of the Phase 2b study was to measure drug effects on cognition. Patients were tested at baseline and again on Day 28. Changes in episodic memory and spatial working memory were assessed on CANTAB, a validated, computer-based battery of tests. CANTAB is designed to measure cognitive skills regardless of the subject's language skills, speed,

gender, or education.

84. Only directional trends are observed in memory improvements, due to limitations around study size (N=64). The final data analysis shown below excludes three patients who, the Company subsequently learned, showed no detectable level of simufilam in plasma and two patients who missed 25% or more of their doses by pill counts. In addition, outlier subjects with the most and fewest errors (by baseline score cutoffs) were removed from the final analysis of episodic memory.

Episodic Memory and Spatial Working Memory Improvements



85. Alzheimer's patients in both drug groups showed directional improvements on tests of episodic memory and spatial memory after 28 days of treatment, versus patients on placebo. Episodic memory improved by -5.7 (lower score is better) for Alzheimer's patients in the 50 mg drug group, versus -1.5 for patients on placebo. Episodic memory improved by -4.5 (lower score is better) for Alzheimer's patients in the 100 mg drug group, versus -1.5 for patients on placebo.

86. Spatial memory improved by -2.31 (lower score is better) for Alzheimer's patients in the 50 mg drug group, versus -0.4 for patients on placebo. Spatial memory improved by -3.35 (lower score is better) for Alzheimer's patients in the 100 mg drug group, versus -0.4 for patients on placebo. Improvements in cognition correlated most strongly (statistical R=0.5) with decreases

in CSF P-tau181, a biomarker that, when elevated, leads to tangles in the brain. Simufilam decreased brain levels of Ptau-181 by 8–11%, versus placebo.

5. Phase 3 Clinical Studies

87. Phase 3 clinical testing means conducting highly structured, large scale human clinical studies to evaluate a drug candidate's safety, efficacy, and overall benefit-risk relationship for the purpose of obtaining FDA approval in a specific patient population, consistent with 21 C.F.R. Part 312.21(c). Phase 3 is generally one of the last high hurdles to overcome before a drug is made available to patients as a new treatment option. Cassava's Phase 3 program consists of two large, double-blind, randomized, placebo-controlled studies of simufilam in patients with mild-to-moderate Alzheimer's disease dementia.

a. FDA Concurrence for Phase 3 Clinical Studies

88. In January 2021, Cassava held an End-of-Phase 2 (EOP2) meeting for simufilam with the FDA. The purpose of this EOP2 meeting was to gain general agreement around key elements of a pivotal Phase 3 program to treat Alzheimer's disease dementia. FDA attendees included Robert Temple, MD, Deputy Center Director for Clinical Science and Senior Advisor in the Office of New Drugs; Billy Dunn, MD, Director, Office of Neuroscience; Eric Bastings, MD, Director, Division of Neurology, and others.

89. In February 2021, Cassava announced the successful completion of its EOP2 meeting. Official meeting minutes confirm that Cassava and FDA aligned on key elements of a Phase 3 clinical program for simufilam. FDA agreed that the completed Phase 2 program, together with an ongoing and well-defined Phase 3 clinical program, were sufficient to show evidence of clinical efficacy for simufilam in Alzheimer's disease. There was also agreement that the use of separate clinical scales to assess cognition (ADAS-cog) and function (ADCS-ADL) was appropriate co-primary endpoints of efficacy. A clinical scale that combines cognition and

function, such as iADRS, was a secondary efficacy endpoint.

90. In August 2021, Cassava announced it had reached agreement with FDA under a Special Protocol Assessment (SPA) for both Phase 3 studies. These SPA agreements document that FDA had reviewed and agreed upon the key design features of the Phase 3 study protocols of simufilam for the treatment of patients with Alzheimer's disease.

91. The SPA agreement indicated concurrence by the FDA with the adequacy and acceptability of specific critical elements of overall protocol design (*e.g.*, entry criteria, dose selection, endpoints, etc.). These elements are critical to ensure that Cassava's Phase 3 studies of simufilam in Alzheimer's disease can be considered adequate and well-controlled studies in support of a future regulatory submission and marketing application.

b. Initiation of Phase 3 Clinical Studies

92. In October 2021, Cassava announced initiation of its first Phase 3 study. The first clinical study protocol under the SPA is titled "A Phase 3, Randomized, Double-Blind, Placebo-Controlled, Parallel-Group, 52-Week Study Evaluating the Safety and Efficacy of One Dose of Simufilam in Subjects with Mild-to-Moderate Alzheimer's Disease."

93. The first Phase 3 study is designed to evaluate the safety and efficacy of oral simufilam 100 mg in enhancing cognition and slowing cognitive and functional decline over 52 weeks. Secondary objectives include the assessment of simufilam's effect on neuropsychiatric symptoms and caregiver burden. This randomized, double-blind, placebo-controlled study plans to enroll approximately 750 patients with mild-to-moderate Alzheimer's disease in the United States, Canada and overseas.

94. In November 2021, Cassava announced initiation of its second Phase 3 study. The second clinical study protocol under the SPA is titled "A Phase 3, Randomized, Double-Blind, Placebo-Controlled, Parallel-Group, 76-Week Study Evaluating the Safety and Efficacy of Two

Doses of Simufilam in Subjects with Mild-to-Moderate Alzheimer's Disease."

95. The second Phase 3 study is designed to evaluate the safety and efficacy of oral simufilam 100 mg and 50 mg over 76 weeks. This randomized, double-blind, placebo-controlled study plans to enroll approximately 1,000 patients with mild-to-moderate Alzheimer's disease in the United States, Canada and overseas.

96. Cassava's Phase 3 studies are still ongoing in the United States, Canada, Puerto Rico, South Korea and Australia.

D. Open-Label Study

97. In addition to the FDA-required testing discussed above, in March 2020, Cassava initiated a long-term, open-label study to evaluate simufilam in patients with Alzheimer's disease. This study was funded in part by a research grant award from the NIH. The study was intended to monitor the long-term safety and tolerability of simufilam 100 mg twice daily for 12 or more months. Another study objective was to measure changes in cognition and biomarkers. This study used ADAS-Cog to measure changes in cognition and the Neuropsychiatric Inventory (NPI) to assess dementia-related behavior. Both scales are standard clinical tools in trials of Alzheimer's disease.

98. In February 2021, Cassava announced top-line results of a preplanned interim analysis of its open-label study with simufilam. This interim analysis summarized clinical data in the first 50 patients who had completed at least six months of drug treatment. Patients' cognition and behavior scores improved following six months of simufilam treatment, with no safety issues.

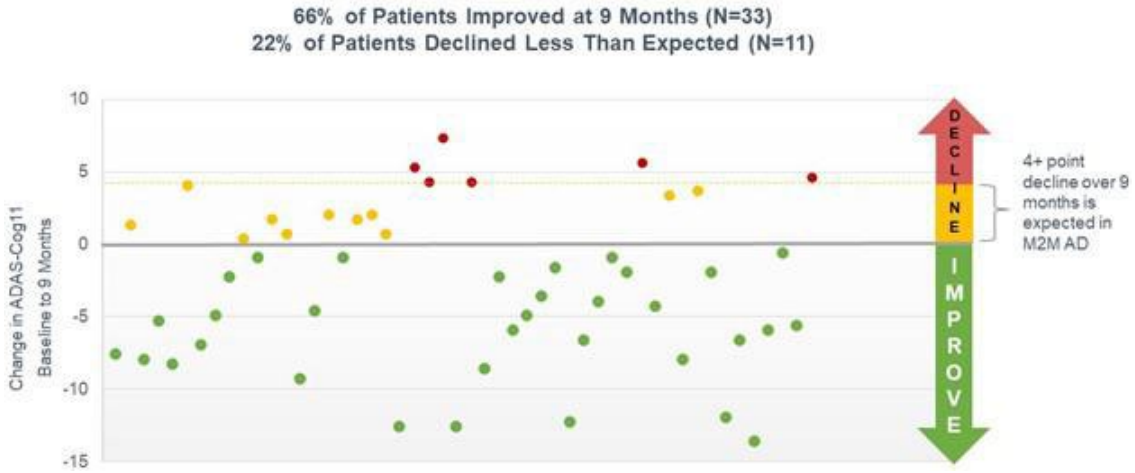
99. Six months of simufilam treatment improved cognition scores by 1.6 points on ADAS-Cog11, a 10% mean improvement from baseline to month 6. In these same patients, simufilam also improved dementia-related behavior, such as anxiety, delusions and agitation, by 1.3 points on the Neuropsychiatric Inventory (NPI), a 29% mean improvement from baseline to

month 6.

100. In July 2021, Cassava announced top-line results of a second preplanned interim analysis of its open-label study with simufilam. This interim analysis summarized clinical data on the first 50 patients who had completed at least nine months of drug treatment. Patients' cognition and behavior scores improved following nine months of simufilam treatment, with no safety issues.

101. Nine months of simufilam treatment improved cognition scores by 3.0 points on ADAS-Cog11, an 18% mean improvement from baseline to month 9 ($p<0.001$). Simufilam improved ADAS-Cog scores in 66% of patients at nine months. An additional 22% of patients declined less than reported in the science literature at nine months. Cognition outcomes suggest simufilam's treatment effects were broad-based.

Individual Patient Changes in ADAS-Cog (N=50) at 9 months

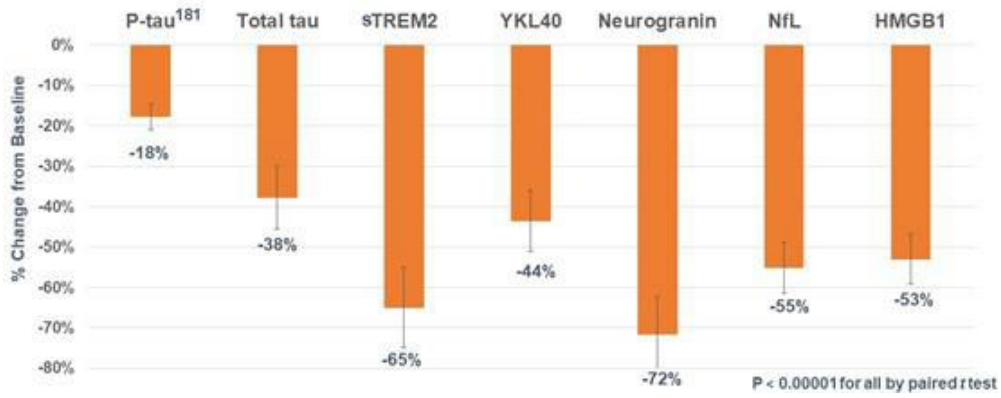


102. In July 2021, Cassava also announced positive biomarker data from its open-label study. Six months of open label treatment with simufilam robustly improved CSF biomarkers in a cohort of 25 patients with mild-to-moderate Alzheimer's disease. Biomarker data were analyzed from cerebrospinal fluid (CSF) collected from 25 study participants in the open-label study who agreed to undergo a lumbar puncture at baseline and again after six months of treatment. CSF

bioanalyses were conducted blind by City University of New York (CUNY).

103. Cerebrospinal fluid (CSF) biomarkers of disease pathology, t-tau and p-tau181, decreased 38% and 18%, respectively (both $p<0.00001$). CSF biomarkers of neurodegeneration, neurogranin and Nfl, decreased 72% and 55%, respectively (both $p<0.00001$). CSF biomarkers of neuroinflammation, sTREM2 and YKL-40, decreased 65% and 44% (both $p<0.00001$).

Significant Decreases in CSF Biomarkers at Month 6



104. In September 2021, Cassava announced top-line results of a third interim analysis of the open-label study with simufilam. This interim analysis summarized clinical data on the first 50 patients who had completed at least twelve months of drug treatment. Patients' cognition and behavior scores both improved following twelve months of simufilam treatment, with no safety issues. Twelve months of simufilam treatment improved cognition scores by 3.2 points on ADAS-Cog11 from baseline to month 12 ($p<0.001$). Sixty-eight percent (68%) of study subjects improved on ADAS-Cog at 12 months; these study subjects improved an average of 6.8 points (S.D. ± 3.8). An additional 20% of study subjects declined less than 5 points on ADAS-Cog at twelve months; these study subjects declined an average of 2.5 points (S.D. ± 1.3).

105. Interim analyses summarize clinical data on the first 50 patients who have

completed 6, 9, and 12 months of open-label treatment. Baseline values for cognition for each 50-patient cohort will not be the same at months 6, 9, and 12 because some study participants drop out of the open-label study in-between interim analyses and dropouts are replaced, such that each interim analysis collects data from the first 50 patients who complete each specified time point.

106. Alzheimer's is often accompanied by behavior disorders, such as anxiety, agitation, or delusions. Such disorders may come and go over time, but they typically emerge or become more frequent as the disease progresses. Simufilam reduced dementia-related behavior at twelve months on the Neuropsychiatric Inventory (NPI), a clinical tool used to measure changes in dementia-related behavior.

107. At baseline, 34% of study subjects had no neuropsychiatric symptoms. At month 6, 38% of study subjects had no neuropsychiatric symptoms. At month 9, over 50% of study subjects had no neuropsychiatric symptoms. At month 12, over 50% of study subjects had no neuropsychiatric symptoms.

E. Cassava's Stock Price Rises with Successful Testing

108. Cassava's successful testing of simufilam received attention from academics,

scientists, and investors. On February 1, 2021, Cassava's stock price was $22.99. Over the next six months, Cassava issued press releases announcing completion of the development milestones for simufilam.

109. With those announcements, Cassava's stock price increased. Cassava's stock price closed at $135.30 on July 28, 2021. Cassava was not only offering a promising treatment for Alzheimer's disease but was also a promising investment.

110. That was before the Defendants launched their scheme. Cassava was working on the laudable goal of finding a treatment for a disease that inflicted millions of individuals and their families. Cassava worked towards that goal every working day. Defendants launched their scheme based on the ignoble goal of making money based on disinformation. Cassava built a promising product for Alzheimer's patients and value for its investors. Defendants sought to destroy both to make a profit.

V. DEFENDANTS' SCHEME TO DEFAME CASSAVA FOR PROFIT[2]

111. Short selling is a financial bet that a stock price will decline. A speculator will short a stock if she believes it may decline in price in the future. For example, if a stock price is trading at $100 per share and she believes the price may decline sometime in the future, she could call her broker with instructions to "sell" quantity *x* of stock that she doesn't own at $100 per share. Implicitly, she also agrees to "buy back" at a future date quantity *x* of the stock she shorted.

112. Unhedged short sellers make money only if a stock price declines. If a speculator shorts a stock at $100 per share, that stock price must decline for her to make money. If a day later the price falls to $80 per share, she can buy back the stock she sold at $100 per share and pocket a quick $20 per share windfall. The converse is also true: a short seller loses money if a stock price

[2] The original emphasis in the statements published by Defendants has been omitted. All emphasis has been added.

rises. If an investor shorts a stock at $100 per share, and that stock increases to $120 per share, she has at a personal loss of $20 per share.

113. Short selling is a risky scheme. There is no limit to the amount of money a short seller can lose if a stock price continues to rise. Short selling is the opposite of a buy-and-hold investment strategy. For this and other reasons, short selling is typically considered a speculative gamble more than a "Main Street" investment strategy.

114. Defendants did not invent short selling. But they did pervert it into a new way to make money. Defendants were not willing to allow Cassava's stock price to rise and fall based on investors' interpretation of factually accurate information about the Company. Instead, Defendants gamed the system. Defendants disseminated factually inaccurate information to the public. Defendants knew such factually inaccurate information would impugn Cassava's public reputation and drive down its stock price.

115. Defendants' playbook followed four easy steps: First, short Cassava's stock price. Second, disseminate false information. Third, watch investors sell Cassava's stock *en masse* as they digest Defendants' false information. Fourth and finally, make money by covering their short position in Cassava. Defendants' scheme intentionally hit Cassava where it hurts: its reputation. Defendants' behavior was so egregious that it practically guaranteed that sooner or later Cassava's stock price would fall quickly and hard. Under the Defendants, the practice of short selling went from being a risky scheme to a sure thing, reminiscent of an old movie in which a gambler asks, "Is this a game of chance?" to which W.C. Field responds, "Not the way I play it."

116. Defendants' money-making campaign was bold, creative, and highly profitable for them. It was also unlawful. Defendants' artificially deflated Cassava's stock price through a coordinated practice of releasing factually inaccurate information about the Company. Each of the

Defendants held short positions in Cassava's stock price. Defendants needed Cassava's stock price to fall to make a profit on their short positions. Defendants used their disinformation campaign to ensure that Cassava's stock price would fall so they would profit while the Company suffered.

A. Overview of Defendants' Disinformation Campaign

117. Defendants' scheme highlights the difference between meaningful scientific debate and intentional fraud. Cassava has worked with a variety of experts to develop and test simufilam, including outside experts and federal regulators. Cassava's development of simufilam has included meaningful scientific debate to ensure its drug development program is safe and effective. Defendants did not engage in meaningful scientific debate. Defendants fabricated claims about Cassava manipulating its testing and results. Defendants portray Cassava as a fraud. These fabricated claims impute conduct by Cassava that is incompatible with professional drug development and necessarily interfered with Cassava's clinical trials. Defendants took these actions to profit from Cassava's stock price decline.

118. ***August 18.*** Defendants' campaign against Cassava began on August 18, 2021, after the Company's stock price had reached a record high. The Citizen Petition Defendants initiated the disinformation campaign.

119. Prior to August 18, Bredt and Pitt reached an agreement that they would each take short positions in Cassava's stock price and would drive down the company's stock price by publishing factually inaccurate information. Among other things, Bredt and Pitt retained Thomas to help them publish and disseminate the factually inaccurate information. At all times, Bredt and Pitt knew that Thomas was a New York-based attorney and that he would use his New York-based firm to help publish and disseminate the factually inaccurate information.

120. On August 18, after securing short positions in Cassava's stock, Bredt and Pitt took their first step in spreading disinformation. On that day, Bredt and Pitt authorized Thomas to send

a "citizen's petition" to the FDA that included factually inaccurate information about Cassava, its testing, and the science underlying simufilam. (Exhibit 3.) Among other things, the August 18 petition states:

> Information available to the petitioner . . . raises grave concerns about the quality and integrity of the laboratory-based studies surrounding [simufilam] and supporting the claims for its efficacy.
>
> ***
>
> The underlying papers of Drs. Wang and Burns involves extensive use of Western blot analysis to support their claims connecting Simufilam to Alzheimer's. Detailed analysis of the western blots in the published journal articles shows a series of anomalies that are suggestive of systematic data manipulation and misrepresentation.
>
> ***
>
> Some of the foundational studies published by Drs. Wang and Burns make claims about Simufilam's effects in experiments conducted on postmortem human brain tissue. The methodology allegedly used in these experiments defies logic, and the data presented again have hallmarks of manipulation.
>
> ***
>
> Cassava has not fully published the data from this reanalysis, but a presentation poster that it published on July 26 2021, which appears to describe aspects of that work, show signs of data anomalies or manipulation.
>
> ***
>
> Six further aspects of the research by Drs. Wang and Burns are incompatible with scientific norms, and these claims raise further suspicions.

The purpose of the August 18 letter was to convey that Cassava was a fraud because its drug simufilam was predicated on manipulated science and Cassava had manipulated the testing associated with the drug.

121. The information included in the August 18 letter was factually inaccurate. None of the scientific studies underlying simufilam had been manipulated and none of the testing results of simufilam had been manipulated. Cassava was not a fraud, had not submitted doctored

information to the FDA, and had not built itself on manipulated science.

122. The Citizen Petition Defendants did not issue the August 18 letter to inform the FDA of a genuine concern that the FDA could address. The Citizen Petition Defendants issued the August 18 letter so it would be publicly posted and made freely available on www.Regulations.gov, an official website of the U.S. government used by the FDA. Free publicity on a trusted government website was integral to the Citizen Petition Defendants' efforts to legitimize their scheme.[3]

123. The Citizen Petition Defendants did not simply send the August 18 letter to the FDA. The Citizen Petition Defendants authorized Thomas to issue a press release on August 26, 2021, containing a link to the August 18 letter on behalf of his New York-based law firm. (*See* Ex. 13 (Aug. 6, 2021 press release issued by Labaton Sucharow).) The press release was issued so that the August 18 letter would be read by Cassava's investors and potential investors. That was how the Citizen Petition Defendants could deflate Cassava's stock price.

124. ***August 30.*** The Citizen Petition Defendants were not content with a one-time attack on Cassava. The one-time attack would not (and did not) have the full deflationary impact on the Company's stock price that they wanted. The Citizen Petition Defendants needed more for their scheme to work.

125. Accordingly, the Citizen Petition Defendants continued their disinformation campaign on August 30, 2021. On that date, Bredt and Pitt authorized Thomas to send a second letter to the FDA. (Exhibit 4.) The August 30 letter continued the narrative that Cassava was a fraud because it was predicated on manipulated science and manipulated testing. Among other

[3] Upon information and belief, the Citizen Petition Defendants also authorized Jordan Thomas to publish and disseminate the August 18 letter, and all subsequent Citizens Petition letters regarding Cassava, using his New York-based firm's website. Following Thomas' departure from his firm in January 2022, the firm scrubbed or otherwise purged all references to Cassava and Thomas from the website.

things, the August 30 letter states:

> [T]he scientific research relied upon by Cassava Science . . . rises and falls completely on the controversial work of Dr. Hoau-Yan Wang and Dr. Lindsay Burns, the wife of Remi Barber, the President and CEO of the company.
>
> ***
>
> In my initial petition, I provided extensive documentation regarding my clients many concerns about the accuracy and integrity of Drs. Wang and Burns' clinical and preclinical data supporting the ongoing clinical evaluation of Simufilam as well as the Company's own clinical data analyses.
>
> ***
>
> Over the last two weeks, publicly and privately, the scientific community has validated many of my clients concerns and identified countless new errors and anomalies that strongly suggest scientific misconduct in their reports about both preclinical and clinical data.

The purpose of the August 30 letter was to convey that Cassava was a fraud because simufilam was predicated on manipulated science and Cassava had manipulated the testing associated with the drug.

126. The information included in the August 30 letter was factually inaccurate. None of the scientific studies underlying simufilam had been manipulated and none of the testing results of simufilam had been manipulated. Cassava was not a fraud, had not submitted doctored information to the FDA, and had not built itself on manipulated science.

127. The Citizen Petition Defendants did not issue the August 30 letter to inform the FDA of a genuine concern that the FDA could address. The Citizen Petition Defendants issued the August 30 letter so it would be publicly posted and made freely available on www.Regulations.gov, an official website of the U.S. government used by the FDA. Free publicity on a trusted government website was integral to the Defendants' efforts to legitimize their scheme.

128. ***September 9.*** The Citizen Petition Defendants were not done. They were just

getting started. Bredt and Pitt authorized Thomas to send a third letter to the FDA on September 9, 2021. (Exhibit 5.) The September 9 letter continued to accuse Cassava of perpetrating a fraud in connection with obtaining approval from the FDA and in its public statements. Among other things, the September 9 letter states:

> In my Citizen Petition and first supplemental submission, we noted concerns about possible data manipulation in both preclinical and clinical studies associated with Simufilam.
>
> ***
>
> Cassava's biomarker data from their Phase 2a trial was published in the 2020 The Journal of Prevention of Alzheimer's Disease. . . This clinical biomarker study relied extensively on Western blots that have been externally questioned by members of the scientific community, including the leading expert in scientific image manipulation.
>
> ***
>
> The Phase 2b redo was conducted by Dr. Wang and used both Western blotting and other immunoassays. Of the ten biomarkers analyzed, it seems the baselines for three are far outside expectations. As these baselines are mean averages from 60+ patients, their extreme variation from many other Alzheimer's Disease (AD) biomarker studies suggests the redo has major lab errors or manipulation.
>
> ***
>
> Cassava's Phase 3 Special Protocol Assessment (SPA) for Simufilam was supported by preclinical studies and phase 2a and phase 2b biomarker studies. For the many reasons enumerated in my original Citizen's Petition and the two supplemental submissions, we strongly believe that countless such false and misleading statements have been made by Cassava Sciences.

The purpose of the September 9 letter was to convey that Cassava was a fraud because simufilam was predicated on manipulated science and Cassava had manipulated the testing associated with the drug.

129. The information included in the September 9 letter was factually inaccurate. None of the scientific studies underlying simufilam had been manipulated and none of the testing results

of simufilam had been manipulated. Nor was the "scientific community" questioning Cassava's studies and testing results—a "hired gun" had joined the disinformation campaign. Cassava was not a fraud, had not submitted doctored information to the FDA, and had not built itself on manipulated science.

130. The Citizen Petition Defendants did not issue the September 9 letter to inform the FDA of a genuine concern that the FDA could address. The Citizen Petition Defendants issued the September 9 letter so it would be publicly posted and made freely available on www.Regulations.gov, an official website of the U.S. government used by the FDA. Free publicity on a trusted government website was integral to the Defendants' efforts to legitimize their scheme.

131. **November 2.** The Dot.com Defendants were the next group to join the campaign to drive down Cassava's stock price so that they could benefit from their short position. On information and belief, the domain name "cassavafraud.com" was registered by the Dot.com Defendants on October 31, 2021. The Dot.com Defendants identified themselves as the owners and operators of "cassavafraud.com" as well as "simuflimflam.com," which is substantively identical to "cassavafraud.com" and, on information and belief, was registered by the Dot.com Defendants at the same time (October 31, 2021). Cassava makes these allegations based on publicly available information regarding the registration of websites at the https://lookup.icann.org/en/lookup, an on-line registration lookup tool.

132. Prior to November 2, Heilbut, Markey, Milioris and Brodkin reached an agreement that they would each take short positions in Cassava's stock price and would drive down the Company's stock price by publishing factually inaccurate information. Among other things, the Dot.com Defendants registered "cassavafraud.com" and "simuflimflam.com" to help them publish and disseminate the factually inaccurate information. At all times, Markey, Milioris and Brodkin

knew that Heilbut was a New York resident and that he would create and publish defamatory statements about Cassava from his New York residence. Markey, Milioris and Brodkin understood that Heilbut's publication of defamatory statements about Cassava from New York was in furtherance of their scheme to drive down Cassava's stock price so that they could profit from their own short positions.

133. On November 2, 2021, the Dot.com Defendants posted a letter to "cassavafraud.com" that they represented had also been sent to the FDA. (Exhibit 6.) The November 2 letter repeats the main messages that the Citizen Petition Defendants had made in their letters; namely, the November 2 letter conveys that Cassava's science is based on manipulation, Cassava had manipulated testing results, and Cassava is a fraud. Among other things, the November 2 letter states:

> We are writing to express grave concerns regarding Cassava Sciences as a sponsor of clinical studies using Simufilam to treat Alzheimer's disease (AD). These concerns arise from an assessment of virtually every aspect of their program that has been made available for public scrutiny. We find serious deficiencies in the scientific integrity of the sponsor, Cassava Sciences, who exhibits concerning signs of misleading behavior.
>
> ***
>
> More importantly, we reveal a pattern of deliberate, coordinated misconduct involving Cassava Sciences and their academic collaborator at CUNY, Dr. Hoau-Yan Wang. As documented below, our analysis identifies numerous critical issues which include: i) fabrication of pre-clinical and clinical evidence across the entire Simufilam program[;] ii) inadequate and unreliable safety studies for Simufilam[;] iii) serious misconduct in the analysis and reporting of clinical trial data[;] iv) improper and opaque study conduct by the sponsor and its collaborators.
>
> ***
>
> What follows is a description of the methods by which, we allege, Cassava Sciences has either obfuscated or fabricated data during these clinical trials;

> from the Phase 2a (Ph2a) to the ongoing Open Label (OL) study.
>
> ***
>
> Our investigation was triggered by the striking inaccuracies, image manipulation and incomprehensible rationale of Cassava Sciences' pre-clinical research referenced in the [Citizen's Petition].
>
> ***
>
> Cassava Sciences, through persistent obfuscation and exaggeration of the effects of Simufilam have exposed study participants to incalculable risk with unknown consequences for their health and misled investigators and patients into choices that affect their wellbeing.

The purpose of the November 2 letter was to convey that Cassava was a fraud because simufilam was predicated on manipulated science and Cassava had manipulated the testing associated with the drug.

134. The information included in the November 2 letter was factually inaccurate. None of the scientific studies underlying simufilam had been manipulated and none of the testing results of simufilam had been manipulated. Cassava was not a fraud, had not submitted doctored information to the FDA, and had not built itself on manipulated science.

135. The Dot.com Defendants did not simply send the November 2 letter to the FDA. The Dot.com Defendants published and disseminated the November 2 letter on their open-access websites, "cassavafraud.com" and "simuflimflam.com." They published the letters on these open-access websites so that it would be read by Cassava's investors and potential investors. That was how the Dot.com Defendants could deflate Cassava's stock price so that they could profit from their own short positions.

136. ***November 3.*** The Dot.com Defendants were back to work the next day. On November 3, the Dot.com Defendants published a 36-page report titled "Cassava Sciences: A Shambolic Charade." (Exhibit 7.) The November 3 report repeated the claims made in the Dot.com

Defendants' earlier letter and, if anything, made the accusation of fraud even more directly. Among other things, the November 3 report states:

> Cassava Sciences is an unprecedented Scientific Charade.
>
> ***
>
> [Cassava Sciences is] An astonishing story of sleazy drug development that potentially endangers [Alzheimer's disease] patients.
>
> ***
>
> [Cassava Sciences has] all the ingredients of: (*) A web of shady characters and cronies[;] (*) Nefarious development[;] (*) Fabrication & manipulation of data[;] (*) Excessive unsubstantiated claims.
>
> ***
>
> Cassava's ongoing clinical charade makes a mockery of scientific standards, clinical trial conduct, and the regulators who are entrusted to protect the integrity of the medical research system and rights of patients.
>
> ***
>
> Beyond the misconduct documented in the Citizen's Petitions we reveal a pattern of deliberate, coordinated misconduct involving both Cassava Sciences and their academic collaborator at CUNY, Dr. Hoau-Yan Wang.
>
> ***
>
> All of these dubious claims rely on Dr. Wang's work using fabricated scientific data, and have been assembled into a just-so story to justify the Simufilam IND.
>
> ***
>
> There is now no serious question that the majority of Dr. Wang's work – including that with Cassava – contains fabrications.
>
> ***
>
> The same Dr. Wang who single-handedly reversed Cassava's fortune, fixed the failed biomarkers.

The purpose of the November 3 report was to convey that Cassava was a fraud because simufilam was predicated on manipulated science and Cassava had manipulated the testing associated with

the drug.

137. The information included in the November 3 report was factually inaccurate. None of the scientific studies underlying simufilam had been manipulated and none of the testing results of simufilam had been manipulated. Cassava was not a fraud, had not submitted doctored information to the FDA, and had not built itself on manipulated science.

138. The Dot.com Defendants published and disseminated the November 3 report on their open-access websites, "cassavafraud.com" and "simuflimflam.com." They published the report on these open-access websites so that it would be read by Cassava's investors and potential investors. That was how the Dot.com Defendants could deflate Cassava's stock price.

139. ***November 3.*** November 3 was a busy day for the Defendants. The Dot.com Defendants were not the only ones intent on publishing factually inaccurate and defamatory statements about Cassava to drive down the Company's stock price. QCM joined the disinformation campaign on November 3. Prior to that day, QCM decided to take a short position on Cassava stock, participate in the dissemination of factually inaccurate information about Cassava to drive down the stock price, and profit from its short position on Cassava stock.

140. QCM executed on the second step of that plan—dissemination of factually inaccurate information—by publishing a report titled "Cassava Sciences (SAVA): Game Over! A warning for the US healthcare system" on November 3. (Exhibit 8). The November 3 report pushed the same messages as presented by the Citizen Petition Defendants and Dot.com Defendants; namely, that Cassava is a fraud build on manipulated science and testing. Among other things, the November 3 report states:

> After reviewing the information in its entirety, we are of the opinion that Cassava Sciences could be a scheme orchestrated by management to enrich itself at the expense of shareholders, patients, and the US Federal government.

***

> Simufilam, Cassava's only prospective drug, appears based on allegedly forged scientific research. Phase II trials have been conducted with numerous and serious irregularities which appear to have allowed management to deceive investors about the effectiveness of the drug.
>
> ***
>
> In our opinion, Simufilam is a worthless compound, and any touted benefit is [] likely the result of a combination of forgery, "cherry picking" of patients and statistical manipulation of data, of which we have plenty of disturbing evidence.
>
> ***
>
> In several years of fraud-busting we have rarely come across a more blatant and costlier exercise in deception than Cassava. Besides threatening shareholders' funds, Cassava is diverting patients, resources and conspicuous government funds from legitimate studies toward a drug which we believe is useless and doomed to fail under closer scrutiny of phase III trials, if it ever gets there.

The purpose of the November 3 report was to convey that Cassava was a fraud because simufilam was predicated on manipulated science and Cassava had manipulated the testing associated with the drug.

141. The information included in the November 3 report was factually inaccurate. None of the scientific studies underlying simufilam had been manipulated and none of the testing results of simufilam had been manipulated. Cassava was not a fraud, had not submitted doctored information to the FDA, and had not built itself on manipulated science.

142. QCM claimed to have sent a copy of the November 3 report to "all relevant federal institutions" because it believed "Cassava's behavior might constitute securities fraud, FDA fraud and a violation of the False Claims Act." However, QCM was not content sending the November 3 report to federal agencies. QCM published and disseminated the November 3 report on the open-access portion of its website of its New York-based office. QCM published the report on its open-

access website so that it would be read by Cassava's investors and potential investors. That was how QCM could deflate Cassava's stock price.

143. ***November 17.*** The Citizen Petition Defendants went back to work on the disinformation campaign. On November 17, Bredt and Pitt authorized Thomas to send another letter to the FDA. (Exhibit 9.) The November 17 letter parroted the accusations that the Defendants had been making about Cassava for the last two months to drive down the Company's stock price and make their short positions profitable. Among other things, the November 17 letter states:

> Increasingly, evidence suggests that Cassava has doctored its research and clinical trial results, duped peer-reviewed journals, used the tainted science to trick the NIH and FDA into approving grants and clinical trials, misled investors by touting their grants and clinical trials without disclosing their troubling research practices, and withheld material information about the true nature of its drug from vulnerable Alzheimer's Disease patients.
>
> ***
>
> As detailed in our original Citizen's Petition and in subsequent filings, including this one, the major concerns of my clients relate to the apparent manipulation of clinical data by Cassava.
>
> ***
>
> Since the filing of the Citizen's Petition, publicly and privately, the scientific community has validated many of my clients' concerns and identified countless new errors and anomalies that are consistent with scientific misconduct in Cassava Sciences' reports about both preclinical and clinical data.
>
> ***
>
> The nature and extent of these anomalies strongly suggest systematic data manipulation and misrepresentation because they frequently favor the authors' hypotheses and are outside of the scientific norm.
>
> ***
>
> This seemingly irrefutable data manipulation is important both because it implies a pattern of reckless scientific misconduct and because it undercuts foundational science related to simufilam mechanism of action in Alzheimer's disease.

The purpose of the November 17 letter was to convey that Cassava was a fraud because simufilam was predicated on manipulated science and Cassava had manipulated the testing associated with the drug.

144. The information included in the November 17 letter was factually inaccurate. None of the scientific studies underlying simufilam had been manipulated and none of the testing results of simufilam had been manipulated. Nor was the "scientific community" questioning Cassava's studies and testing results—"hired guns" and "short sellers" had joined the disinformation campaign. Cassava was not a fraud, had not submitted doctored information to the FDA, and had not built itself on manipulated science.

145. The Citizen Petition Defendants did not issue the November 17 letter to inform the FDA of a genuine concern that the FDA could address. The Citizen Petition Defendants issued the November 17 letter so it would be publicly posted and made freely available on www.Regulations.gov, an official website of the U.S. government used by the FDA. Free publicity on a trusted government website was integral to the Defendants' efforts to legitimize their scheme.

146. November 17 marked the first time that Cassava learned the identity, motivation, and grounds for its defamation lawsuit against the Citizen Petition Defendants. On November 17, The Wall Street Journal published an article about the Citizen Petition Defendants. On information and belief, the Citizen Petition Defendants used Thomas to help set up and persuade reporters for The Wall Street Journal to publish the article. Cassava makes this allegation based on the fact that (a) Thomas is quoted and profiled in the article, (b) the Wall Street Journal had not published any stories about the Citizen Petition Defendants in two months since they sent their first letter to the FDA, and (c) the Wall Street Journal article furthered the Citizen Petition Defendants' objective of having factually inaccurate information about Cassava published to drive down the Company's

stock price.

147. The November 17 article in The Wall Street Journal disclosed, for the first time, Bredt and Pitt as the authors of the various letters to the FDA and Thomas's clients. Thomas had not previously disclosed the identify of his clients in the letters to the FDA or in the press release issued by his firm. The Wall Street Journal article also disclosed that Bredt and Pitt held short positions in Cassava and, therefore, would benefit from the company's stock price falling because of the factually inaccurate information they had published.

148. Cassava first learned of its potential claims against Bredt and Pitt on November 17 after reviewing The Wall Street Journal article. Prior to The Wall Street Journal article, Cassava knew that third parties had published factually inaccurate information about the Company in various letters to the FDA. However, Cassava did not know the identity of the individuals responsible for the publications. Their identity, including scientific backgrounds, informed Cassava that the Defendants necessarily knew their statements about Cassava were factually inaccurate. As scientists, they knew better. Their financial motivation, holding a short position, told Cassava that they were acting with improper motive and with ill-will towards Cassava.

149. **November 29**. The Dot.com Defendants returned to the disinformation campaign on November 29. The Dot.com Defendants published a 17-page report named "SavaDx_Theranos2.0.pdf" and titled "SavaDx Exposed: A revolutionary diagnostic for Alzheimer's Disease or a scam of scientifically illiterate investors?" on November 29. (Exhibit 10.) The Dot.com Defendants used the report to answer that rhetorical question with the latter option—accusing Cassava of being a scam of scientifically illiterate investors. Among other things, the November 29 report states that Cassava "tried to hide" the proteins to measure in SavaDx; that raw data "directly contradicts" representations that Cassava made in an industry

poster about simufilam; that their report "injects some REALITY into Cassava's UNREAL success story,"; and that "discovered emails suggest [Cassava's] number[s] [are] totally fabricated."

150. The overall message of the November 29 report was that Cassava was a fraud. The report name itself intended to convey a direct and defamatory reference to Cassava being "the next Theranos," which was a diagnostic company whose principals were indicted for criminal fraud in 2018. The Dot.com Defendants had previously conveyed this message by publishing factually inaccurate information about Cassava's science and testing of simufilam. In the November 29 report, the Dot.com Defendants expanded their attack on Cassava by attempting to undermine SavaDx, an investigational diagnostic tool that the Company had been developing.

151. The information and implications made in the November 29 report were factually inaccurate. None of the scientific studies underlying simufilam had been manipulated and none of the testing results of simufilam had been manipulated. Cassava was not a fraud, had not submitted doctored information to the FDA, and had not built itself on manipulated science. Cassava was not "the next Theranos" and was not indicted for fraud or any other dishonest behavior.

152. On information and belief, the Dot.com Defendants did not send the November 29 report to the FDA. Instead, the Dot.com Defendants published and disseminated the November 29 report on their open-access websites, "cassavafraud.com" and "simuflimflam.com." They published the report on these open-access websites so that it would be read by Cassava's investors and potential investors. That was how the Dot.com Defendants could deflate Cassava's stock price so that they could profit from their own short positions.

153. ***December 8.*** The Citizen Petition Defendants were back to their tricks on December 8. Bredt and Pitt authorized Thomas to send another letter to the FDA on December 8.

(Exhibit 11.) The December 8 letter continued the disinformation campaign by, once again, accusing Cassava of being a fraud that manipulated the science and testing of simufilam. Among other things, the December 8 letter states:

> As detailed in my clients' Citizen's Petition and in subsequent filings, including this one, their major concern relates to the mounting evidence that Cassava Sciences has doctored its research and clinical trial results to dupe peer-reviewed journals and to trick the FDA into approving its clinical trials.
>
> ***
>
> Our recent re-inspection of the Methods section for this crucial experiment shows seemingly irrefutable evidence of data manipulation/fabrication.
>
> ***
>
> Assuming one [C14] as is likely, Cassava's claimed specific activity for [simufilam] is ~1000 times higher than theoretically possible. Such an inexplicable error would create insurmountable problems and invalidate the study.
>
> ***
>
> These issues underscore the implausibility of claiming to measure 580 fM binding affinity with C-14 labeled simufilam. Indeed, the numerous elementary problems with Cassava's experiments raise troubling questions about whether simufilam binds to filamin A at all.
>
> ***
>
> It is important to note that no other labs have replicated this alleged potent interaction. Fatal flaws in these critical binding experiments, which form the foundation for their key investigations, raise serious questions about Cassava's hypotheses that filamin A is relevant to Alzheimer's disease and about whether simufilam affects filamin A.

The purpose of the December 8 letter was to convey that Cassava was a fraud because simufilam was predicated on manipulated science and Cassava had manipulated the testing associated with the drug.

154. The information included in the December 8 letter was factually inaccurate. None of the scientific studies underlying simufilam had been manipulated and none of the testing results

of simufilam had been manipulated. Nor was the "scientific community" questioning Cassava's studies and testing results. Cassava was not a fraud, had not submitted doctored information to the FDA, and had not built itself on manipulated science.

155. The Citizen Petition Defendants did not issue the December 8 letter to inform the FDA of a genuine concern that the FDA could address. The Citizen Petition Defendants issued the December 8 letter so it would be publicly posted and made freely available on www.Regulations.gov, an official website of the U.S. government used by the FDA. Free publicity on a trusted government website was integral to the Defendants' efforts to legitimize their scheme.

156. ***December 10.*** The Dot.com Defendants took their next shot at deflating Cassava's stock price on December 10. The Dot.com Defendants published a 9-page report titled "Cassava and the Wang Lab: Seeing Through the Blind" on December 10, plus a 21-page Appendix. (Exhibit 12.) The purpose of the December 10 report was to accuse Cassava of lying. The report asserts Cassava's testing of simufilam was not "blind," meaning the laboratory conducting the test knew if it is testing results for patients who took the placebo or simufilam. Among other things, the December 10 report states:

> Emails retrieved from a FOIL [New York's Freedom of Information Law] request to CUNY expose Cassava and the Wang lab as being unblinded during sample analysis, prior to data presentation and while study is ongoing.
>
> ***
>
> Hence, whether a patient is ON or OFF the drug is known to the person analyzing samples. This could allow Wang to decide what sample measurements "should be."
>
> ***
>
> There is risk of biomarker data manipulation.
>
> ***
>
> Wang has clear [conflicts of interest] as Cassava SAB member, stockholder,

and lead Simufilam researcher.

***

[Cassava's] Previous assurances of data integrity are suspect.

The purpose of the December 10 report was to convey that Cassava was a fraud because Cassava had manipulated the testing associated with the drug. In this report, the manipulation was done because, according to the Dot.com Defendants, the labs were not blind when testing the samples.

157. The information included in the December 10 report was factually inaccurate. None of the testing results of simufilam had been manipulated. The testing results published by Cassava were done by individuals who were "blind" to whether they were analyzing samples from a patient who took a placebo or simufilam. Cassava was not a fraud, had not submitted doctored information to the FDA, and had not built itself on manipulated science.

158. On information and belief, the Dot.com Defendants did not send the December 10 report to the FDA. Instead, the Dot.com Defendants published and disseminated the December 10 report on their open-access websites, "cassavafraud.com" and "simuflimflam.com." They published the report on these open-access websites so that it would be read by Cassava's investors and potential investors. That was how the Dot.com Defendants could deflate Cassava's stock price so they could profit from their own short positions.

159. Critically, Defendants did not publish these defamatory letters, reports, and publications on one occasion. Defendants republished each other's defamatory publications as well as republishing their own defamatory publications. Defendants maximized the number of individuals who read their defamatory publications through these acts of publication and republication.

B. Defendants' Factually Inaccurate and Defamatory Statements

160. Defendants' disinformation campaign focused on a single overall message:

Cassava is a fraud. Defendants conveyed this message directly, indirectly, and by implication. Overall, Defendants published over 240 factually inaccurate and defamatory statements that conveyed and reinforced that Cassava is a fraud.

1. Cassava is a Fraud

161. Each of the Defendants published and republished statements falsely accusing Cassava of being a fraud. The Defendants asserted that Cassava lacks integrity, relied upon fabricated studies, and manipulated testing results. The following are some of the statements made by the Defendants in this category:

a. Information available to the petitioner, however, which is summarized below and detailed in the enclosed technical report, raise **grave concerns** about the **quality and integrity** of the laboratory-based studies surrounding this drug candidate and support the claims for its efficacy. (Ex. 3, 8/18/21 Citizen Petition Letter ("CPL") at 1.)

b. Petitioner has enclosed with this Petition (and incorporates herein) a detailed technical report presenting multiple reasons to question the **quality and integrity** of the research supporting Cassava's claims about Simufilam's use for Alzheimer's Disease. (Ex. 3, 8/18/21 CPL at 2.)

c. Petition submits that the extensive evidence set forth in the enclosed report, which presents **grave concerns** about the **quality and integrity** of the scientific data supporting Cassava's claims for Simufilam's efficacy, provides compelling grounds for pausing the ongoing clinical trials until the FDA can conduct and complete a rigorous audit of Cassava's research. (Ex. 3, 8/18/21 CPL at 3.)

d. Statement of Concern Regarding the Accuracy and **Integrity** of Clinical and Preclinical Data Supporting the Ongoing Clinical Evaluation of Compound PTI-125, Also Known As Simufilam (Ex. 3, 8/18/21 Citizen Petition Report ("CPR") at Cover.)

e. This report raises **concerns** about the **quality and integrity** of the laboratory-based studies surrounding this drug candidate. (Ex. 3, 8/18/21 CPR at 1.)

f. This letter details a long-standing pattern of seemingly **intentional data manipulation and misrepresentation** in scientific papers and corporate disclosures authored primarily by Drs. Hoau-Yan Wang, Associate Medical Professor, City University of New York, and Lindsay A Burns, Sr. Vice

President of Neuroscience at Cassava Sciences. All the information detailed herein was obtained from public, non-proprietary sources. These apparent falsifications have helped garner [over] $5,000,000 in NIH grants for preclinical/clinical studies, attract [over] $250,000,000 in public fundraising by Cassava Sciences and misdirect therapeutic studies for patients suffering from Alzheimer's Disease. In the interest of the safety of patients with Alzheimer's disease enrolled in Cassava Sciences' ongoing clinical trials, as well as the NIH and other stakeholders, the biomedical and financial communities must be made aware of these apparent falsehoods. (Ex. 3, 8/18/21 CPR at 3–4.)

g. Consequently, we investigated the published journal articles and other public sources of data underlying the development of simufilam in greater detail. This initial analysis suggests a **pattern of clear errors and anomalies** that are consistent with **data manipulation and misrepresentation**. (Ex. 3, 8/18/21 CPR at 4.)

h. Cassava Science apparently didn't get the **Theranos memo**. Their desire to do groundbreaking scientific research doesn't give the company and its executives a get out of jail free card from regulators, patients or investors. All stakeholders are entitled to nothing less than the complete truth about what its drug could do today, not what the company hoped it might do someday. (Ex. 3, 8/18/21 Dunn Letter at 1.)

i. No other lab has confirmed Cassava's research connecting Filamin A to AD, nor has any other lab confirmed that Simufilam binds or modifies Filamin A or has effects in AD models. This presents a real problem because the company's own research is **riddled with red flags**. In the accompanying report, we provide extensive details regarding our many **concerns** about the **accuracy and integrity** of clinical and preclinical data supporting the ongoing clinical evaluation of Simufilam. The errors and anomalies occur in a pattern that is frequently favorable to Cassava's hypotheses and is of a sufficient frequency and magnitude to **strongly suggest scientific misconduct**. (Ex. 3, 8/18/21 Dunn Letter at 1.)

j. In my initial petition, I provided extensive documentation regarding my clients many **concerns** about the **accuracy and integrity** of Drs. Wang and Burns' clinical and preclinical data supporting ongoing clinical evaluation of Simufilam, as well as the Company's own clinical data analyses. Due to the **numerous serious red flags** associated with their foundational research, I formally requested that you halt two ongoing trials of the drug (NCT04388254 and NCT04994483), pending a thorough audit by the FDA of the matters described therein. (Ex. 4, 8/30/21 CPL at 1.)

k. Over the last two weeks, publicly and privately, the scientific community has validated many of my clients concerns and identified **countless new errors and anomalies that strongly suggest scientific misconduct** in their

reports about both preclinical and clinical data. (Ex. 4, 8/30/21 CPL at 1)

l. Supplemental Statement of **Concern** Regarding the **Accuracy and Integrity** of Clinical and Preclinical Data Supporting the Ongoing Clinical Evaluation of Compound PTI-125, Also Known as Simufilam. (Ex. 4, 8/30/21 CPR at Cover Page.)

m. In my Citizen Petition, specifically our technical summary exhibit (Technical Summary), we noted our **concerns about possible data manipulation** in both preclinical and clinical studies from Cassava. We believe the pre-clinical data concerns we raised completely undercut the foundational data for a role for filamin A in Alzheimer's disease (AD) and for any efficacy of Simufilam for treating AD. (Ex. 4, 8/30/21 CPR at 1.)

n. As you know, on 8/18/21, I filed an FDA whistleblower submission with you and a related Citizen's Petition with the Division of Dockets Management. In these filings, I provided extensive documentation regarding my clients many **concerns about the accuracy and integrity** of clinical and preclinical data supporting the ongoing clinical evaluation of Simufilam. (Ex. 4, 8/30/21 CPR Attachment.)

o. Accordingly, my whistleblower clients would like to report to you their numerous **concerns about the accuracy and integrity** of clinical and preclinical data supporting the FDA's ongoing evaluation of Simufilam. The attached report demonstrates an **unmistakable pattern of errors and anomalies** that consistently favor Cassava's hypotheses and is of a sufficient frequency and magnitude to **strongly suggest serious scientific misconduct**. (Ex. 4, 8/30/21 CPR Attachment.)

p. In my Citizen Petition and first supplemental submission, we noted **concerns about possible data manipulation** in both preclinical and clinical studies associated with Simufilam. (Ex. 5, 9/9/21CPR at 1.)

q. We are writing to express grave concerns regarding Cassava Sciences as a sponsor of clinical studies using Simufilam to treat Alzheimer's disease (AD). These concerns arise from an assessment of virtually every aspect of their program that has been made available for public scrutiny. We find **serious deficiencies in the scientific integrity** of the sponsor, Cassava Sciences, who exhibits signs of misleading behavior. (Ex. 6, 11/2/21 Dot.com Letter ("DCL") at 1.)

r. We show, using publicly available evidence, that Cassava Sciences has **not fulfilled the responsibilities** that your agency requires of sponsors in the conduct of clinical studies and the monitoring of patient's safety (21 CFR 312). (Ex. 6, 11/2/21 DCL at 1.)

s. More importantly, we reveal a **pattern of deliberate, coordinated misconduct** involving both Cassava Sciences and their academic

collaborator at CUNY, Dr. Hoau-Yan Wang. (Ex. 6, 11/2/21 DCL at 1.)

t. As documented below, our analysis identifies numerous critical issues which include: i) **fabrication of pre-clinical and clinical evidence** across the entire Simufilam program[;] ii) **inadequate and unreliable safety studies** for Simufilam[;] iii) **serious misconduct** in the analysis and reporting of clinical trial data[;] iv) improper and opaque study conduct by the sponsor and its collaborators. (Ex. 6, 11/2/21 DCL at 1.)

u. What follows is a description of the method by which, we allege, Cassava Sciences has either **obfuscated or fabricated data** during these clinical trials; from Phase 2a (Ph2a) to the ongoing Open Label (OL) study. (Ex. 6, 11/2/21 DCL at 1.)

v. Where direct access to raw data was not available to the sponsor—mainly data from the cognitive assessment of patients—elaborate post-hoc exclusion criteria and suspiciously large alterations in patient population characteristics were **devised to alter outcomes**. (Ex. 6, 11/2/21 DCL at 1.)

w. On the other hand, we demonstrate that the CSF biomarker data generated by Cassava scientific advisory board (SAB) member Dr. Wang through an opaque process, yielded improbable values. This leads to the **strong suspicion that the data have been entirely fabricated**. (Ex. 6, 11/2/21 DCL at 1.)

x. Given these issues, there is a **material concern regarding the sponsor's credibility** and very real risk of exposing thousands of patients to a compound with unknown risk, for which there is no evidence of clinical benefit to justify this risk. (Ex. 6, 11/2/21 DCL at 1.)

y. Our investigation was triggered by the **striking inaccuracies, image manipulation and incomprehensible rationale of Cassava Sciences'** pre-clinical research referenced in the CPs. Putting aside that literally no other lab has replicated Cassava's putative findings regarding Simufilam or a connection between Filamin A-function in AD, we call into question the logic and biophysical plausibility of the proposed mechanism and the conduct of the laboratory studies supporting this drug candidate. (Ex. 6, 11/2/21 DCL at 2.)

z. In sum, we have presented a series of evidence that **directly challenge the integrity** of research findings reported by Cassava Sciences during its entire clinical program. Thee involve: i) Questions on the validity of the data presented and published . . . ii) Evidence of methodical post-hoc data **manipulation** . . . iii) Systematic attempts either to obscure or over-state research findings and **behavior entirely incompatible with the conduct of scientific research and clinical trials**. . . (Ex. 6, 11/2/21 DCL at 22.)

aa. Cassava Sciences: ***A Shambolic Charade*** (Ex. 7, 11/3/21 Dot.com

Presentation ("DCP") at Cover Page.)

bb. Cassava Sciences is an **unprecedented Scientific Charade** (Ex.7, 11/3/21 DCP at 3.)

cc. [Cassava Sciences has] all the ingredients of: (*) A web of shady characters and cronies[;] (*) Nefarious development[;] (*) **Fabrication & manipulation of data**[;] (*) Excessive unsubstantiated claims. (Ex. 7, 11/3/21 DCP at 3.)

dd. Cassava Outdoes the **Greatest Biomedical Dumpster Fires** (Ex. 7, 11/3/21 DCP at 4.)

ee. Cassava pulls together an unprecedented combination of circumstances and behavior: [(1)] Both pre-clinical and clinical data are compromised, starting from IND submission [; (2)] Cassava still denies issues [; (3)] Received ~20M in NIH funding [; (4)] **Misleading results** were hyped to investors to sell equity. (Ex. 7, 11/3/21 DCP at 4.)

ff. Our concerns arise from an assessment of virtually every aspect of Cassava's programs available for public scrutiny. Beyond the misconduct documented in the Citizen's Petition we reveal a **pattern of deliberate, coordinated misconduct** involving both Cassava Sciences and their academic collaborator at CUNY, Dr. Hoau-Yan Wang. (Ex. 7, 11/3/21 DCP at 4.)

gg. Shady Players and Shady History[:] A Tormented Corporate History[;] Impotent, Conflicted Scientific Advisory Board[;] **Claims Too Good to be True**[;] Dr. Wang's Fantasy. (Ex. 7, 11/3/21 DCP at 6.)

hh. The Cassava Gang: back together for **one last heis**t . . . (Ex. 7, 11/3/21 DCP at 8.)

ii. [Scientific Advisory Board] MIA: Old Friends and **Conflicted Cronies** (Ex. 7, 11/3/21 DCP at 9.)

jj. Dr. Wang is also an inventor on Cassava's key Simufilam patents; "inequitable conduct" such as **faking data** will render those patents invalid. (Ex. 7, 11/3/21 DCP at 14.)

kk. Yet another phenomenal, unprecedented breakthrough by Cassava . . . with **zero external validation**. (Ex. 7, 11/3/21 DCP at 32.)

ll. Cassava Sciences has **failed in its responsibilities**, and their **egregious behavior** meets multiple specific criteria that justify imposing a Clinical Hold under 21 CFR 312. (Ex. 7, 11/3/21 DCP at 35.)

mm. Cassava Science (SAVA): Game over! **A warning** for the US healthcare

system (Ex. 8, 11/3/21 QCM Report ("QCM") at Cover Page.)

nn. After reviewing the information in its entirety, we are of the opinion that Cassava could be a **scheme orchestrated by management to enrich itself** at the expense of shareholders, patients, and the US Federal Government. The approval of an outrageous compensation policy, blatantly rewarding short term stock price appreciation ("pump & dump") may have provided a clear incentive for management to engage in this **reckless behavior**. (Ex. 8, 11/3/21 QCM at 2.)

oo. Simufilam, Cassava's only prospective drug, appears based on allegedly **forged scientific research**. Phase II trials have been conducted with numerous and serious irregularities which appear to have allowed management to **deceive investors** about the effectiveness of the drug. (Ex. 8, 11/3/21 QCM at 2.)

pp. In our opinion, Simufilam is a **worthless compound**, and any touted benefit is likely the result of a combination of forgery, "cherry picking" of patients and **statistical manipulation** of data, of which we have plenty of disturbing evidence. (Ex. 8, 11/3/21 QCM at 2.)

qq. In several years of fraud-busting we have rarely come across a more **blatant and costlier exercise in deception than Cassava**. Besides threatening shareholders' funds, Cassava is diverting patients, resources and conspicuous government funds from legitimate studies towards a drug which we believe is useless and doomed to fail under the closer scrutiny of phase III trials, if it ever gets there. (Ex. 8, 11/3/21 QCM at 3.)

rr. If our allegations are substantiated, we believe Cassava's behavior might constitute **securities fraud, FDA fraud and a violation of the False Claims Act**. As such, we have alerted all relevant federal institutions which have received a copy of this report. (Ex. 8, 11/3/21 QCM at 3.)

ss. We have had multiple experts review the "Citizen Petition" and found it highly credible. However, upon reviewing Cassava's claims, we became convinced that the alleged deception could not have been limited to the laboratory analysis mentioned in the complaint. Instead, we suspect that the entire clinical research process might have been **tainted by deception and misconduct**, especially the Simufilam clinical trials. (Ex. 8, 11/3/21 QCM at 6.)

tt. Based on the extensive evidence we reviewed, we fear that Cassava has been **corrupting the entire drug development** process to temporarily inflate Cassava's stock to the market capitalization required for management to maximize its bonuses. (Ex. 8, 11/3/21 QCM at 19.)

uu. The [Citizen Petition], which we strongly recommend reading, contains dozens of allegedly doctored photographs, observations of statistical

anomalies and other hard evidence strongly suggesting that Simufilam's research and laboratory analysis have been forged, in all likelihood with the **intent of falsifying the drug's mechanism of action and falsely claiming success** in reducing certain biomarkers associated with Alzheimer's Disease. (Ex. 8, 11/3/21 QCM at 20.)

vv. Besides the alleged forgery of Cassava's background clinical research, we strongly suspect that Cassava may have similarly **distorted the outcome** of the trials as well. The mechanism for the alleged **falsification of the study** may verge on a few critical points: (*) Using Phase II trials, normally geared toward establishing safety and dosage, to make unsubstantiated claims on the efficacy of the drug[;] (*) Allowing patients who may not suffer from Alzheimer's Disease into the study, thereby biasing the sample[;] (*) Strategically excluding patients from the studies who have undesirable clinical outcomes, artificially flattering the efficacy of the drug[;] (*) Comparing the result of the study with other studies having a population with a higher incidence of Alzheimer's patients[;] (*) Using questionable, and possibly conflicted, clinical research centers to overlook these anomalies[;] (*) Monitoring the trials "in house" only, without the customary third-party scrutiny, which might detect irregular practices. (Ex. 8, 11/3/21 QCM at 23.)

ww. If these allegations are confirmed, Cassava's management may be committing **securities fraud (again), FDA fraud and is in violation of the False Claims Act**. Cassava would also be exposed to crippling litigation from patients who joined the study unnecessarily. We have accordingly informed all relevant agencies who received a copy of this report and all the related documents. (Ex. 8, 11/3/21 QCM at 39.)

xx. Things aren't always as they appear. Things that aren't right can be made to look right. And, tragically, my clients' **worst fears about Cassava Sciences appear to have been true**. (Ex. 9, 11/17/21 CPL at 1.)

yy. Increasingly, evidence suggests that Cassava has **doctored its research and clinical trial results, duped peer-reviewed journals, used the tainted science to trick the NIH and FDA** into approving grants and clinical trials, misled investors by touting their grants and clinical trials without disclosing their troubling research practices, and withheld material information about the true nature of its drug from vulnerable Alzheimer's Disease patients. (Ex. 9, 11/17/21 CPL at 1.)

zz. As detailed in our original Citizen's Petition and in subsequent filings, including this one, the major concerns of my clients relate to the apparent **manipulation of clinical data** by Cassava. (Ex. 9, 11/17/21 CPL at 1.)

aaa. On November 3, 2021, Quintessential Capital released a public report that raises new and serious questions about Cassava Sciences and its drug

candidate simufilam. . . Following an in-depth investigation, among other things, the firm found that Cassava's clinical trials were administered by several controversial and questionable characters, that there were irregularities in the manner that the simufilam trials were conducted, and that the reported results of Cassava's **clinical trials appear to have been manipulated**—in various ways. (Ex. 9, 11/17/21 CPL at 3.)

bbb. On the same date, a coalition of four scientists released a public presentation . . . and report . . . that both mirrored and expanded upon the numerous serious concerns about the accuracy and integrity of clinical and preclinical data outlined in our Citizen's Petition. Specifically, among other significant things, the authors . . . reported that Cassava Sciences and Dr. Hoau-Yan Wang appear to have **fabricated pre-clinical and clinical evidence** across the entire simufilam program, provided inadequate and unreliable safety studies for simufilam, and engaged in serious misconduct in the analysis of and reporting of clinical trial data—particularly the drug's much touted cognitive outcomes. (Ex. 9, 11/17/21 CPL at 3–4.)

ccc. Since the filing of the Citizen's Petition, publicly and privately, the scientific community has validated many of my clients' concerns and identified countless **new errors and anomalies that are consistent with scientific misconduct** in Cassava Sciences' reports about both preclinical and clinical data. (Ex. 9, 11/17/21 CPL at 8.)

ddd. The nature and extent of these anomalies strongly suggest **systematic data manipulation and misrepresentation** because they frequently favor the authors' hypotheses and are outside of the scientific norm. (Ex. 9, 11/17/21 CPL at 8.)

eee. We find the implied MOA and scientific rationale **(*) Laughably unsubstantiated**[;] (*) Inconsistent with Cassava claims so far[;] (*) Contrary to FlnA functions in literature. (Ex. 10, 11/29/21 DCP at 16.)

fff. As detailed in my Citizen's Petition and in subsequent filings, including this one, their major concern relates to the mounting evidence that Cassava Sciences has **doctored its research and clinical trial results** to dupe peer-reviewed journals and to trick the FDA into approving its clinical trials. (Ex. 11, 12/8/21 CPL at 1.)

ggg. We believe that Cassava Sciences is a **terrible scheme** to enrich management at the expense of other shareholders. For those who are interested in learning more I would suggest reading our report on the company which is entertaining as well as informative. (Ex. 14, 3/20/22 Interview with Grego ("QCM (Grego)") at 3.)

hhh. Along with other skeptics, we have **discovered convincing evidence that this [simufilam reversing the course of Alzheimer's Disease] is not so**.

> The compound has been discovered by a Chinese scientist from CUNY named Dr. Wang. Many forensics experts have found evidence of forgery in several papers published by this individual, including critical research supporting Cassava's only drug, Simufilam. (Ex. 14, 3/20/22 QCM (Grego) at 3.)

162. Each of these statements is factually inaccurate and defamatory. One, Cassava did not rely upon any fabricated, manipulated, or doctored research in connection with developing simufilam. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated, manipulated, or doctored. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated, manipulated, or doctored.

163. Two, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

164. Three, the research relied upon by Cassava for the development of simufilam and studies conducted on simufilam do not contain material errors or undisclosed anomalies. The information included in the research and studies are consistent with the testing protocols, testing results, peer-reviewed publications and studies. The underlying research and studies, as well as peer-reviewed publications and studies, demonstrate that Cassava's research and studies do not contain material errors or undisclosed anomalies.

165. Four, Cassava has not knowingly made any false or misleading statements regarding simufilam in public statements, SEC filings, submissions to laboratories, summaries to patients, or submissions to the federal agencies, including the FDA and NIH. Nor has Cassava knowingly made any false or misleading statements regarding the research supporting and studies

conducted of simufilam.

166. Five, Cassava's management has not received cash payments tied to the Company's stock price, and may or may never receive any such cash payments, depending on final test results for simufilam and other variables. Review of Cassava's financial statements, distribution reports, and SEC filings demonstrate that Cassava's management has not received cash payments tied to the Company's stock price, and may or may never receive any such awards, depending on final test results for simufilam and other variables.

167. Six, Cassava is not a fraud. Fraud means "wrongful or criminal deception intended to result in financial or personal gain." Cassava has not engaged in any wrongful or criminal deception. Review of the information identified above, as well as Cassava's SEC filings, Cassava's press releases, journal articles relating to simufilam, and Cassava's submissions to federal agencies demonstrate that Cassava is not a fraud.

2. Cassava Has Not Tested for Safety

168. One of the ways that Defendants furthered the messages that Cassava is a fraud was by stating and implying that Cassava has not tested whether simufilam is safe for patients. Defendants did so by stating and implying that simufilam is not safe and has not been tested by Cassava for safety. The following are some of the statements made by Defendants in this category:

a. Given the many obvious problems with the underlying research, **to protect vulnerable Alzheimer's patients**, the current clinical trial should be paused while a rigorous audit of Cassava's research is conducted. (Ex. 3, 8/18/21 Dunn Letter at 2.)

b. If this true, the FDA as a continuing duty to **carefully assess the safety** and effective [sic] of Simufilam, based on the scientific research relied upon by Cassava Sciences. And this research rises and falls completely on the controversial work of Dr. Hoau-Yan Wang and Dr. Lindsay Burns, the wife of Remi Barbier, the President and CEO of the company. (Ex. 4, 8/30/21 CPL at 1.)

c. Cassava Sciences frequently asserts that Simufilam is well-tolerated and

safe. However, an evaluation of available data reveals **little rational basis for initial dose selection and no consideration of potential on-target toxicity**. Moreover, the clinical studies that form the basis for the presumption of Simufilam safety were conducted by investigators whose deficiencies in trial conduct have already been well documented by FDA investigations. (Ex. 6, 11/2/21 DCL at 5.)

d. Remarkably, for a drug intended for chronic use, the Phase 1 safety study tested only a single administration of the drug, with subjects monitored for only one week. The doses studied were chosen based on an estimate of a safe dose from a NOAEL in preclinical toxicology studies (PTI-125-01 Protocol) but apparently **without regard to the purported mechanism of action or pharmacology**. (Ex. 6, 11/2/21 DCL at 5.)

e. Of even greater concern, **safety data from the Ph2a and Ph2b studies cannot be relied upon** due to concerns raised about the conduct of a key investigator only very recently and while Cassava Sciences' studies were ongoing at the same clinic. (Ex. 6, 11/2/21 DCL at 5.)

f. These behaviors, beyond directly violating the SAP, reflect a **clear attempt to obscure evaluation of the effect** of Simufilam. Contrary to the Sponsor's public assertions, **Simufilam treatment is not free of risk** and in fact possible side-effects include convulsions and changes to liver size and function []. (Ex. 6, 11/2/21 DCL at 22.)

g. Given the incongruous and apparently manipulated clinical and preclinical data, the Simufilam **IND does not contain sufficient information to properly asset the risks to subjects**. (Ex. 6, 11/2/21 DCL at 22.)

h. Cassava Sciences, through persistent obfuscation and exaggeration of the effects of Simufilam, **have exposed study participants to incalculable risk with unknown consequences for their health** and misled investigators and patients into choices that affect their wellbeing. This presents a clear and ongoing harm to the public . . . (Ex. 6, 11/2/21 DCL at 23.)

i. [Cassava Sciences is an] astonishing story of sleazy drug development that potentially **endangers AD patients**. (Ex. 7, 11/3/21 DCP at 3.)

j. Cassava's ongoing clinical charade makes a mockery of scientific standards, clinical trial conduct, and the regulators who are entrusted to protect the integrity of the medical research system and **rights of patients**. (Ex. 7, 11/3/21 DCP at 4.)

k. We offer a brief background and summary of the key issues and questions that we have identified, including, (*) fabrication of pre-clinical and clinical evidence across the entire Simufilam program[;] (*) inadequate and **unreliable safety studies**[;] (*) improper and opaque study conduct by

Cassava and their collaborators[;] (*) serious misconduct in the analysis and reporting of clinical trial data. (Ex. 7, 11/3/21 DCP at 5.)

l. Cassava claims Simufilam is safe, but **data suggests a cavalier attitude towards safety**, a calculated avoidance of critical studies, and dependence on unreliable investigators. (Ex. 7, 11/3/21 DCP at 18.)

m. Given the incongruous and apparently manipulated clinical and preclinical data, the **Simufilam IND does not contain sufficient information to properly asset the risks to subjects**. (Ex. 7, 11/3/21 DCP at 35.)

n. Cassava's initial research has received extensive funding from the federal government through the NIH: those funds could have been directed toward other ventures with a real chance to provide relief for this terrible disease. Similarly, **hundreds of patients** are being unnecessarily led into the Simufilam study, **being exposed to potentially dangerous chemicals**, when they could have participated in studies with a real chance of success. (Ex. 8, 11/3/21 QCM at 38.)

o. With these significant concerns, my clients remain **skeptical** about the entirety of Cassava's clinical data, **including the safety data**, which may also have been manipulated. (Ex. 9, 11/17/21 CPL at 1.)

169. Each of these statements is factually inaccurate and defamatory. One, Cassava did not rely upon any fabricated, manipulated, or doctored research in connection with developing simufilam, including research relating to simufilam's safety. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated, manipulated, or doctored. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated, manipulated, or doctored.

170. Two, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam, including studies relating to simufilam's safety. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted

on simufilam were not fabricated, manipulated, or doctored.

171. Three, the research relied upon by Cassava for the development of simufilam and studies conducted on simufilam do not contain material errors or undisclosed anomalies relating to safety. The information included in the research and studies are consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The underlying research and studies, as well as other peer-reviewed publications and studies, demonstrate that Cassava's research and studies do not contain material errors or undisclosed anomalies relating to safety.

172. Four, Cassava has at all times complied with federal research and testing requirements to evaluate an investigational drug for patient safety. Nor has Cassava avoided or undermined the federal research and testing requirements to evaluate a drug for patient safety. A comparison of Cassava's testing protocols and procedures demonstrate that Cassava has complied with federal research and testing requirements to evaluate a drug for patient safety.

173. Fifth, Cassava's research and testing concluded that, to date, simufilam appears to be safe. Patients involved in Phase 2 testing of simufilam did not reveal any drug-related serious adverse health effects. Reports and summaries prepared during and immediately after Cassava's testing demonstrate that Cassava's testing concluded that simufilam is safe in Phase 2 testing as compared to placebo. This is evidenced by patients who took placebo reporting more adverse health effects than patients who took simufilam in Phase 2b testing.

3. Cassava Relies Upon Fabricated and Manipulated Foundational Research

174. Another way the Defendants furthered the message that Cassava is a fraud was by stating and implying that Cassava relied upon fabricated and manipulated research as the foundation for simufilam. Among other things, Defendants stated and implied that the research

linking Filamin A protein to Alzheimer's disease was fabricated or manipulated by Cassava, Dr. Burns, and/or Dr. Wang. The following are some of the Defendants false statements in this category:

a. It is worth repeating, the preclinical and clinical foundations linking Filamin A to Alzheimer's disease derive only from publications of Drs. Wang and Burns. As show above, **ALL of these papers have evidence of apparent intentional scientific misrepresentation**. (Ex. 3, 8/18/21 CPR at 18.)

b. NIH and CUNY should audit the publications and lab of Dr. Wang to determine the existence and extent of **data manipulation and fraud** in all papers and grant applications from Drs. Wang and Burns. (Ex. 3, 8/18/21 CPR at 19.)

c. These simple observations evoke **profound and troubling questions** about whether Simufilam actually binds its supposed target, and whether the molecule was discovered in the manner claimed by Cassava Sciences. (Ex. 6, 11/2/21 DCL at 2.)

d. Each of these publications has been flatted on [PubPeer] for possible **image manipulation** by, among others, intentional expert in scientific fraud detection Dr. Elisabeth Bik. The central author common to these papers is none other than Dr. Wang. (Ex. 6, 11/2/21 DCL at 3.)

e. The **biological implausibility** of the Simufilam story extends to Cassava's clinical claims. (Ex. 6, 11/2/21 DCL at 3.)

f. We confidently assert that the proposed mechanism of action for Simufilam is **irrational and not supported by accepted evidence**. Prospective investigators and patients in the currently recruiting studies must be clearly alerted to the highly controversial nature of the trial immediately, and the preclinical rationale in the Investigator's Brochure provided to the IRB and to investigators must be updated, pending the findings of multiple investigations into Dr. Wang's reported misconduct currently underway. (Ex. 6, 11/2/21 DCL at 4.)

g. We first review Cassava's suspicious history and the **obvious scientific misconduct** pervading all of Cassava's preclinical science underlying the "discovery" of Simufilam. (Ex. 7, 11/3/21 DCP at 5.)

h. The foundation of Simufilam's action is **biologically implausible**. (Ex. 7, 11/3/21 DCP at 13.)

i. All of [Cassava's] dubious claims rely on Dr. Wang's work using **fabricated scientific data**, and have been assembled into a just-so story to

justify the Simufilam IND. (Ex. 7, 11/3/21 DCP at 14.)

j. According to our thesis, Cassava may have initially relied on **fraudulent background research** generated by its main author Dr. Wang [who authored reports] concerning Simufilam's mechanism of action and apparent effects. Cassava then proceeded with Phase I and Phase II trial extending the deception and manipulating the trials' design, execution, and outcomes to claim a non-existing clinical efficacy. (Ex. 8, 11/3/21 QCM at 19.)

k. Since our last supplemental submission, new analysis by my clients and other independent scientists raises **serious concerns about Cassava's foundational claims** for the binding of PTI-125 to filamin A and, separately, the methodology and reporting about their diagnostic test for Alzheimer's Disease, SavaDX, which is a key end point [for] two [of] Cassava's Phase 3 trials (NCT04994483 and NCT05026177). (Ex. 11, 12/8/21 CPL at 1.)

l. In our Citizen's Petition, we stated that this figure [figure 1B] is **suspicious/implausible** because of (1) the improbably high 570 femtomolar affinity and (2) the gradual increase in binding that span 6 log changes (10^{-13} to 10^{-7} M) of PTI-125. . . Our recent re-inspection of the Methods section for this crucial experiment shows seemingly irrefutable evidence of data manipulation/fabrication. (Ex. 11, 12/8/21 CPL at 2.)

m. Assuming one [C14] as is likely, Cassava's claimed specific activity for PTI-125 is ~1000 times higher than theoretically possible. Such an **inexplicable error** would create insurmountable problems and invalidate the study. (Ex. 11, 12/8/21 CPL at 3.)

n. These issues underscore the **implausibility** of claiming to measure 580 fM binding affinity with C-14 labeled simufilam. Indeed, the numerous elementary problems with Cassava's experiments raise **troubling questions** about whether simufilam binds to filamin A at all. (Ex. 11, 12/8/21 CPL at 6.)

o. It is important to note that no other labs have replicated this alleged potent interaction. **Fatal flaws** in these critical binding experiments, which form the foundation for their key investigations, raise **serious questions about Cassava's hypotheses** [sic] that filamin A is relevant to Alzheimer's disease and about whether simufilam affects filamin A. (Ex. 11, 12/8/21 CPL at 6.)

175. Each of these statements is factually inaccurate and defamatory. One, Cassava did not rely upon any fabricated, manipulated, or doctored research in connection with developing

simufilam. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated, manipulated, or doctored. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated, manipulated, or doctored.

176. Two, the research relied upon by Cassava for the development of simufilam does not contain material errors or undisclosed anomalies. The information included in the research is consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The underlying research, as well as other peer-reviewed publications and studies, demonstrate that Cassava's research does not contain material errors or undisclosed anomalies.

177. Three, the research conducted by Cassava demonstrates filamin A links to Alzheimer's disease and simufilam binds to altered filamin A. Some of these research papers are identified in Paragraph 308, *infra*. The research relied upon by Cassava for simufilam has been peer-reviewed and validated before publication and prior to Defendants' disinformation campaign.

178. Four, research conducted by individuals and organizations unrelated to Cassava, Dr. Burns, and Dr. Wang demonstrates a link between filamin A links and neurodegeneration, such as Alzheimer's disease. Some of these research papers are identified in Paragraph 311, *infra*. Much of this research has been peer-reviewed and validated before publication and has not been withdrawn after Defendants' disinformation campaign.

a. Western Blots

179. As part of their false and defamatory attack on Cassava, Defendants stated and implied that Cassava relied on research by Dr. Wang that Cassava knew had been fabricated and manipulated. Among other things, Defendants stated and implied that Cassava knowingly relied on research that used fabricated and manipulated Western blot analysis. The following are some

of the statements made by Defendants in this category:

a. The underlying papers of Drs. Wang and Burns involve extensive use of Western blot analyses to support their claims connecting Simufilam to Alzheimer's. Detailed analysis of the western blots in the published journal articles shows a series of anomalies that are suggestive of **systematic data manipulation**. (Ex. 3, 8/18/21 CPL at 2.)

b. The integrity of western blot analysis: Western blotting was extensively used by Drs. Wang and Burns over the past 15 years to support their foundational scientific claims and underscores their SavaDx clinical plasma biomarker. Detailed analysis of the western blots in the published journal articles from Drs. Wang and Burns shows a **series of anomalies**. The extent of these anomalies forms a 15-year pattern that **strongly suggests systematic data manipulation and misrepresentation**. (Ex. 3, 8/18/21 CPR at 2.)

c. The western blot data presented by Wang and Burns are almost always overexposed and highly processed, which has been repeatedly seen in previously reported examples of image manipulation. In the following sections, we present a series of examples with **strong evidence of image manipulation**. In the appendix, we include additional examples which raise red flags." (Ex. 3, 8/18/21 CPR at 7.)

d. This degree of congruence could not have occurred by chance or error; it suggests a complex cross-publication dimension to Cassava Science's band duplication behavior and, in this case, it is **hard to imagine that the duplication was not intentional**. (Ex. 3, 8/18/21 CPR at 9.)

e. In their 2008 paper *PLos ONE 3:e1554*, Drs. Wang and Burns again present a series of overexposed and selectively cropped gels that appear to show spliced experiments (i.e., two separate experiments combined as if they were done simultaneously). . . The similarity in these images **could not have occurred by chance**. (Ex. 3, 8/18/21 CPR at 10.)

f. The foundational paper from Drs. Wang and Burns that links Filamin A and PTI 125 to Alzheimer's disease is *The Journal of Neuroscience*, 2012 32:9773–9784. This paper appears to contain a collection of **questionable western blots**. Most of the paper comprises western blots that are of low quality, over exposed and selectively cropped. In this paper, the authors appear to have duplicated and transposed bands. There are dozens of questionable image features in this paper, only a small sampling is presented here. Numerous additional examples of this pattern of behavior in other manuscripts are included in the appendix. (Ex. 3, 8/18/21 CPR at 11.)

g. In Figure 1a the four Filamin A bands in the top set are more similar to each than can be expected by chance and appear to be duplicates. . . this degree

of **misalignment is suspicious**. (Ex. 3, 8/18/21 CPR at 11.)

h. Figure 6b: The four rightmost bands appear to be identical to each other. This degree of similarity is **unlikely to occur by chance**. (Ex. 3, 8/18/21 CPR at 12.)

i. Figure 11a: The five leftmost tau bans appear to be identical to each other, AND the 3 rightmost tau bands appear to be identical to each other. These degrees of similarity are **unlikely to occur by chance**. (Ex. 3, 8/18/21 CPR at 12.)

j. There are many other examples that strongly suggest **data manipulation** in this *Journal of Neuroscience* paper. Individually, each of these examples is concerning, but together they form a pattern that strongly calls into question the integrity of this publication (and the other publications from these authors with similar patterns of band insertion). (Ex. 3, 8/18/21 CPR at 13.)

k. In summary, it appears that Drs. Wang and Burns in published PubMed indexed manuscripts and through disclosures with Cassava Sciences have misrepresented preclinical and clinical research results for more than 15 years. This initial examination of their published western blots identified many dozens of examples of protein bands that appear to have been **duplicated and/or misrepresented**, a Western blot that was used twice to represent different experimental conditions, and a normalization blot that appears to have been manually constructed. (Ex. 3, 8/18/21 CPR at 18.)

l. The volume of problematic material uncovered in publicly available sources indicates a thorough audit would likely unveil **significant additional scientific misconduct and data manipulation**. (Ex. 3, 8/18/21 CPR at 18.)

m. The congruence of these oddly shaped bands are [sic] unlikely to have occurred by chance and raises the possibility of **band duplication and data manipulation**. (Ex. 3, 8/18/21 CPR at 30.)

n. The uncanny resemblance of these "battleship" shaped bands and the precise alignment of the dot artifacts suggests that one or both were **intentionally inserted, perhaps with the intention of misrepresenting the results**. (Ex. 3, 8/18/21 CPR at 31.)

o. Once can see that four Filamin A bands in the bottom set of Figure 1A appear to be identical to each other. This degree of **similarity is unlikely to occur by chance**, and the thin white borders surrounding each band could be due to merging multiple images in a photo editing software. (Ex. 3, 8/18/21 CPR at 32.)

p. Figure 12A (below) of the Journal of Neuroscience paper, used human Alzheimer's disease tissue to establish the SavaDx biomarker and effects of PTI-125/simufilam. The ten filamin A (FLNA) bands appear identical in

size and shape. As protein bands on Western blots typically have unique features, ten consecutive indistinguishable bands are exceedingly unlikely to occur by chance and were probably **manually duplicated**. (Ex. 3, 8/18/21 CPR at 33.)

q. A subsequent paper alleging to connect PTI-125 with Alzheimer's disease is 2017 Neurobiol Aging 55:99–114. Again, this paper largely comprises a series of overexposed, and apparently manipulated and cropped Western blots. Band duplication appears to occur throughout this paper. . . The similarity in size and share of the bands in the purple boxes seemingly **could not have occurred by chance**. This and many other blots in this paper appear to have been **manipulated**. (Ex. 3, 8/18/21 CPR at 34.)

r. The following example of a **manipulated western blot** occurred earlier than the examples referenced in the primary document. Dr. Wang was the first author of this 2022 paper in *Journal of Biological Chemistry* 278:P31547–32553 and it is one of the few examples presented in this document without Dr. Burns as a co-author. The **apparent manipulation** applied to this blot is similar to that shown in C2.2.1. (Ex. 3, 8/18/21 CPR at 35.)

s. Because of the contemporaneous examples of **western blot manipulation**, we undertook an evaluation of the author's highest profile publication, a 2006 publication in *Nature Medicine* 12:824–828. . . There are numerous suspicious appearing blots in this publication, as well. (Ex. 3, 8/18/21 CPR at 36.)

t. Importantly, there is clearly a smooth background between the two dark bands and a textured background only behind the dark bands. This was not likely done for cosmetic reasons, it strongly suggests a **manufactured/fraudulent result**. There is no legitimate explanation for this pattern of findings. (Ex. 3, 8/18/21 CPR at 39.)

u. As we noted in the Technical Summary, analysis of published journal manuscripts shows a series of anomalies that suggest a 15-year pattern of **systematic data manipulation and misrepresentation** in virtually every publication underlying Cassava's Simufilam claims. Many of our specific claims have now been independently validated by others, including Dr. Bik, and posted on PubPeer. Specifically, these include a total of 8 papers by Dr. Wang, including 4 papers co-authored with Dr. Burns, noted to have apparent image manipulation. (Ex. 4, 8/30/21 CPR at 8.)

v. In addition to confirming the Western blot **data manipulations** we detailed in the Technical Summary, Dr. Bik noted multiple other Western blot data examples that appeared to show data manipulation. (Ex. 4, 8/30/21 CPR at

10.)

w. Dr. David Vaux, deputy director of science integrity and ethics at the Australian Walter and Eliza Hall of Medical Research stated: "It is not conceivable that features in the images (such as apparent duplications) arose due to coincidence (chance) or accident, leaving the only plausible explanation being that the **images were deliberately falsified or fabricated**." (Ex. 4, 8/30/21 CPR at 10.)

x. Wang's fabrication spans his entire career, including collaborations independent of Cassava[;] **Wang's fabrications are egregious and undeniable**, and now under investigation by City University of New York. (Ex. 7, 11/3/21 DCP at 15.)

y. The pattern of **systematic data manipulation and fabrication** is consistent with the findings of our report. (Ex. 7, 11/3/21 DCP at 16.)

z. There is now **no serious question that the majority of Dr. Wang's work—including that with Cassava—contains fabrications**. (Ex. 7, 11/3/21 DCP at 16.)

aa. A number of forensic experts, including Dr. Elizabeth Bik and consultants hired by QCM, have systematically reviewed the documents and confirmed the allegations, pointing out that Cassava and Dr. Wang could have easily disputed the claims [by] simply releasing the originals of the images in question (for the record: they haven't). (Ex. 8, 11/3/21 QCM at 20.)

bb. A major problem with this is that international leaders in the nAChR field agree that there are no antibodies suitable for Western blotting of alpha7 nAChR in the brain. . . Therefore, the alpha7 nACHR data that form a mechanistic foundation for simufilam seem scientifically undoable. This fundamental limitation for alpha7 nACHR Western blotting raises serious questions regarding the validity of Fig. 1A, Fig. 2A, Fig. 9A, Fig. 10A, and Fig. 12A in Cassava's 2012 Journal of Neuroscience paper--the very same paper that Cassava heavily touted in a recent process release as having only one "human error." (Ex. 9, 11/17/21 CPL at 4.)

cc. In the end, all their purported alpha7 nAChR Western blotting research in the brain is **seemingly undoable**. (Ex. 9, 11/17/21 CPL at 5.)

dd. This seemingly irrefutable data manipulation is important both because it implies a pattern of **reckless scientific misconduct** and because it undercuts foundational science related to simufilam mechanism of action in Alzheimer's disease. (Ex. 9, 11/17/21 CPL at 14.)

180. Each of these statements is factually inaccurate and defamatory. One, Cassava did not rely upon any fabricated, manipulated, or doctored research in connection with developing

simufilam, including Western blot analysis. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated, manipulated, or doctored. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated, manipulated, or doctored.

181. Two, the research relied upon by Cassava for the development of simufilam, including Western blot analysis, does not contain material errors or undisclosed anomalies. The information included in the research is consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The underlying research, as well as other peer-reviewed publications and studies, demonstrate that Cassava's research does not contain material errors or undisclosed anomalies.

182. Three, the research relied upon by Cassava for development of simufilam, including the Western blot analysis, was independently reviewed prior to publication. The independent review did not identify any fabrication, manipulation, or doctoring of information, including relating to the Western blot analysis.

183. Four, much of the research relied upon by Cassava for development of simufilam, including Western blot analysis, was independently reviewed by the publishing journals after the disinformation campaign. None of the publishing journals have identified evidence of fabrication, manipulation or doctoring of information, including relating to Western blot analysis.

184. Five, Defendants failed to disclose that they lacked a reliable basis for the statements they made about the research relied upon by Cassava for development of simufilam, including Western blot analysis. Among other things, Defendants lacked access to the testing results and information that would have allowed them to assess material errors or undisclosed

anomalies with the Western blot analysis.

185. Six, Defendants failed to disclose that the "consultants" and "experts" they referenced in their publications lacked a reliable basis for the statements they made about the research relied upon by Cassava for development of simufilam, including Western blot analysis. Among other things, these named and unnamed sources lacked access to original testing results and information that would have allowed them to assess material errors or undisclosed anomalies with Western blot analysis.

186. Seven, Defendants failed to disclose that the images of the Western blot analysis included in their publications were not reliable as they were, at least, reprints of reprints as opposed to original images. Defendants' failure to disclose the compromised and poor quality of their images prevented an accurate evaluation of the images by readers of their publications, thereby forcing readers to rely upon Defendants' conclusions about the Western blot analysis.

187. Eight, Defendants failed to disclose that "issues" or "inconsistencies" with Western blot analysis are not necessarily indicators of fabricated, manipulated, or doctored analysis. Each "issue" and "inconsistency" identified by Defendants in their publications can be caused by adjusting and/or compressing the digital image for publication or an unintentional error.

188. Nine, Defendants failed to disclose that the "issues" and "inconsistencies" identified by Defendants in their publications relating to Western blot analysis did not and would not change the data conclusions ultimately reached in the research and studies. Western blots are demonstrative. They are not quantitative evidence. The qualitative value of Western blot analysis must always be weighed against the dangers of unfair prejudice and issue confusion. Defendants' failure to disclose these facts improperly led readers to conclude that "issues" or "inconsistencies"

with Western blots undermine the credibility and conclusion of the study. They do not.

b. Testing Using Human Brain Tissue

189. As part of their false and defamatory attack on Cassava, Defendants stated and implied that Cassava knowingly relied on research by Dr. Wang and Dr. Burns that was scientifically invalid. Among other things, Defendants stated that the testing performed by Dr. Wang and Dr. Burns was scientifically invalid because they used frozen human brain tissue for some of the testing. The following are some of the statements made by the Defendants in this category:

a. Some of the foundational studies published by Drs. Wang and Burns make claims about Simufilam's effects in experiments conducted on postmortem human brain tissue. The methodology allegedly used in these experiments **defies logic**, and the data presented again have hallmarks of manipulation. (Ex. 3, 8/18/21 CPL at 2.)

b. The integrity of analyses involving human brain tissue: Simufilam is reported to bind to its target and modify a range of downstream molecules in experiments conducted on post-mortem human brain tissue from subjects with Alzheimer's disease and neurological controls. . . The complex, multi-step cellular processes the authors claim to observe in tissue that has been dead for a decade are **contrary to a basic understanding of neurobiology**. As with the western blot data, there are anomalies in the presentation of the data which again **strongly suggest manipulation**. (Ex. 3, 8/18/21 CPR at 2.)

c. It is **unlikely that the enzyme responsible for phosphorylation would survive** the initial -80˚C freezing step. Moreover, the phosphorylation experiments are reported to have been performed at 4˚C, but it is unlikely that the enzyme responsible for phosphorylation would be active at 4˚C (enzymes generally work best a body temperature--37˚C). (Ex. 3, 8/18/21 CPR at 14.)

d. The age and post-mortem interval for the groups of subjects are the same (down to the decimal points) in each of the three papers. It is therefore reasonable to assume the same human brain specimens were used across the studies from 2008-2017, so the results are premised on the enzymes in the human brain extracts remaining active up to 13 hours post-mortem before freezing, remaining active after nearly 10 years in frozen archival without any advanced cryopreservative techniques, and being active at 4˚ C. (Ex. 3,

8/18/21 CPR at 15.)

e. The complex, multi-step cellular process the authors claim to observe in tissue that has been dead for a decade are **contrary to a basic understanding of neurobiology**. . . As with the western blot data, there are anomalies in the presentation of the data from this human tissue, which again strongly suggest manipulation. (Ex. 3, 8/18/21 CPR at 15–16.)

f. Finally, the methodology alleged used to evaluate the function of simufilam in postmortem brain tissue **defies logic** and the data presented again have clear **hallmarks of manipulation**. (Ex. 3, 8/18/21 CPR at 19.)

190. Each of these statements is factually inaccurate and defamatory. One, Cassava did not rely upon any fabricated, manipulated, or doctored research in connection with developing simufilam, including research that included use of human brain tissue. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated, manipulated, or doctored. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated, manipulated, or doctored.

191. Two, the research relied upon by Cassava for the development of simufilam does not contain material errors or undisclosed anomalies, including research that included use of human brain tissue. The information included in the research is consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The underlying research, as well as other peer-reviewed publications and studies, demonstrate that Cassava's research does not contain material errors or undisclosed anomalies.

192. Three, researchers and organizations unrelated to Cassava, Dr. Burns, or Dr. Wang rely on human brain tissue for testing in a manner materially similar to the testing done by Dr. Wang. Some of these research papers are identified in Paragraph 314, *infra*. Much of this research has been peer-reviewed and validated before publication and has not been withdrawn after

Defendants' disinformation campaign.

193. Four, Defendants failed to disclose that conducting tests on post-mortem brain tissue that has been frozen and thawed is used to study many different brain diseases by the research community at large. Translational medicine can, and often must, rely on post-mortem tissue because of the (obvious) inaccessibility of human brain tissue from live subjects. Defendants' failure to disclose these facts prevented the readers of their publications from making an independent assessment of the methodology used by Dr. Burns and Dr. Wang. The readers were left to rely upon Defendants' conclusion.

194. Five, Defendants failed to disclose that the methodology used by Dr. Burns and Dr. Wang to test using post-mortem brain tissue followed standard procedures. The human brain tissue was collected within six hours of death, flash-frozen, and stored at -80˚ C. This is an acceptable procedure for pathologists and is also used for tissue processing for cancer and other testing. Defendants' failure to disclose these facts prevented the readers of their publications from making an independent assessment of the methodology used by Dr. Burns and Dr. Wang. The readers were left to rely upon Defendants' conclusion.

195. Six, Defendants failed to disclose that the research community does not have a widely accepted "expiration date" on human post-mortem brain tissue when it is properly collected, processed, and stored. Defendants' failure to disclose this fact prevented the readers of their publications from making an independent assessment of the methodology used by Dr. Burns and Dr. Wang. The readers were left to rely upon Defendants' conclusions.

196. Seven, Defendants failed to disclose that it is an accepted scientific practice for matched pairs of post-mortem brain tissue to be segmented for use in multiple experiments. This is because of the difficulty in matching pairs of control (*i.e.,* non-diseased) and variable (*i.e.,*

Alzheimer's) brain tissue. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the methodology used by Dr. Burns and Dr. Wang. The readers were left to rely upon Defendants' conclusions.

c. Additional So-Called "Suspicions"

197. Finally, as part of their false and defamatory attack on Cassava, the Citizen Petition Defendants stated and implied that Cassava knowingly relied on research by Dr. Burns and Dr. Wangs that was "suspicious." The following are some of the statements made by the Citizen Petition Defendants (and republished by the other Defendants) in this category:

a. Six further aspects of the research by Drs. Wang and Burns are **incompatible with scientific norms**, and these claims raise further **suspicions**. (Ex. 3, 8/18/21 CPL at 3.)

b. In the appendix, six additional **areas of concern** are raised. These frequent errors and anomalies occur in a pattern which is frequently favorable to the authors' hypotheses and is of sufficient magnitude to **strongly suggest scientific misconduct**. This scientific work is foundational to the link between simufilam and its supposed target Filamin A in AD. (Ex. 3, 8/18/21 CPR at 2–3.)

c. Six further aspects of the research by Drs. Wang and Burns are **incompatible with scientific norms**, and these claims **raise further suspicions**. These issues are enumerated below. In addition to many examples of apparent Western blot manipulation and clinical data misreporting noted above, a number of additional western blots are included at the end of this appendix which raise additional red flags. (Ex. 3, 8/18/21 CPR at 21.)

d. In the Technical Summary, we noted six further aspects of the research by Drs. Wang and Burns that are **incompatible with scientific norms** and that **raise further suspicions**. As follow up to our Citizen Petition to the FDA, the scientific community provided strong support for many of our suspicions . . . (Ex. 4, 8/30/21 CPR at 11.)

e. **Suspicious Claim #1**: Remarkably High Affinity Bonding Between PTI-125 and Filamin A (Ex. 3, 8/18/21 CPR at 21.)

f. Figure 1b in this paper [*Neurobiology of Aging 2017; 55:99-114]* also shows that PTI-125 displacement occurs over 7 orders of magnitude. This "shallow" displacement is **highly unusual/unprecedented**. An

experienced pharmacologist could advise that this is **suspicious/implausible**. (Ex. 3, 8/18/21 CPR at 21.)

g. In the Technical Summary, we noted that the *femtomolar* affinity claimed by Cassava for PTI-125 binding to Filamin A is **suspiciously high** and seemingly implausible. We also noted that no other group has confirmed this **remarkable claim**. (Ex. 4, 8/30/21 CPR at 11.)

h. **Suspicious Claim #2**: Remarkably High Affinity Bonding Between Naloxone and Filamin A (Ex. 3, 8/18/21 CPR at 22.)

i. Also unusual is the "shallow" displacement curve in figure 3 [in *PLOS One 2008; 3:e1554* paper] that spans 4-5 orders of magnitude. An experienced opiate receptor pharmacologist could advise that this figure is **suspicious/implausible**. (Ex. 3, 8/18/21 CPR at 22.)

j. **Suspicious Claim #3**: Isoelectric Focusing Experiments in Multiple Papers Indicate 100% of Filamin in Altered Conformation in Alzheimer's Disease and largely Restored to Correct Conformation by PTI-125 (Ex. 3, 8/18/21 CPR at 23.)

k. Second, isoelectric focusing gels do not typically "look" like the image below. Especially for a 290 kD protein like Filamin A, one would not expect such a crisp bands in isoelectric focusing. An experienced biochemist could advise that this figure is suspicious/implausible. This is **especially suspect** considering the apparent pattern of band manipulation by Drs. Wang and Burns on Western blots. (Ex. 3, 8/18/21 CPR at 23.)

l. Since our presentation, Dr. Bik has flagged an isoelectric focusing gel in Neurobiology of Aging 2017 55:99-114 as having a band that "appears to be surrounded by a rectangle of a different background than the rest of the blot," which suggests it was manipulated **confirming our suspicions** around the authenticity of Cassava's isoelectric focusing gels []. (Ex. 4, 8/30/21 CPR at 11–12.)

m. **Suspicious Claim #5**: PTI-125/Simufilam Improves Memory in a Mouse Model of Alzheimer's Disease (Ex. 3, 8/18/21 CPR at 25.)

n. In *Neurobiol Aging 2017; 55L99-114*, figure 9 show a pre-clinical study of simufilam in a mouse model of AD and misrepresents the data as showing "improvements in memory." It is **dubious** that any legitimate experiment approximating the methodology described could yield the reported results. . . A mouse neurobehavioral specialist would likely advise that there are **significant problems** with all of the behavioral and memory data presented in the paper. Importantly, this is the only pre-clinical cognitive/memory data that has been published supporting simufilam's efficacy as a cognitive

enhancer. (Ex. 3, 8/18/21 CPR at 25–26.)

o. **Suspicious Claim #6**: PTI-125/Simufilam Blocks the Interaction Between β-amyloid and a7-Nicotinic Acetylcholine Receptors (Ex. 3, 8/18/21 CPR at 27.)

p. Since the petition was made public, Dr. Bik noted that a histologic micrograph (microscopic brain tissue picture) in that Wang et al. Journal of Neuroscience paper that was alleged stained with anti-A β42 looks suspiciously similar to a different brain tissue picture that was allegedly staine3d with an antibody to Neurofilament. She implied that the same brain section was differentially cut and pasted to reflect different experimental treatments and would **confirm our suspicions regarding the invalidity** of their β-amyloid antibody-based experiments." (Ex. 4, 8/30/21 CPR at 12.)

198. Each of these statements are false and defamatory. One, Cassava did not rely upon any fabricated, manipulated, or doctored research in connection with developing simufilam. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated, manipulated, or doctored. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated, manipulated, or doctored.

199. Two, the research relied upon by Cassava for the development of simufilam does not contain material errors or undisclosed anomalies. The information included in the research is consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The underlying research, as well as other peer-reviewed publications and studies, demonstrate that Cassava's research does not contain material errors or undisclosed anomalies.

200. Three, the research relied upon by Cassava for development of simufilam was independently reviewed prior to publication. The independent review did not identify any fabrication, manipulation, or doctoring of information.

201. Four, some of the research relied upon by Cassava for development of simufilam was independently reviewed by the publishing journals after the disinformation campaign. None

of the publishing journals identified evidence of fabrication, manipulation or doctoring of information.

202. Five, Defendants failed to disclose that none of the results that they characterize as "unusual" or "suspicious" or "dubious" are actually "unusual," "suspicious," or "dubious." The results discussed above are consistent with research and studies published by individuals and organizations unaffiliated with Cassava, Dr. Burns, or Dr. Wang. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

203. Six, Defendants failed to disclose that the scientific methodology used by Dr. Burns and Dr. Wang in their research was within scientific norms. The methodology used by Dr. Burns and Dr. Wang were consistent with scientific norms. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

4. Cassava Fabricated and Manipulated its Phase 2b Study

204. Another way the Defendants furthered the message that Cassava is a fraud was by stating and implying that Cassava conducted and reported fabricated and manipulated studies of simufilam. Among other things, Defendants stated and implied that Cassava fabricated and manipulated the testing and results for its Phase 2b study.

a. Patient Inclusion

205. The QCM Defendant stated and implied that Cassava fabricated and manipulated the testing and results for its Phase 2b clinical study by including or excluding patients based on whether Cassava believed the patients would generate favorable results. The following are some of the statements made by the QCM Defendant (and republished by some of the other Defendants)

in this category:

a. We detected multiple red flags in this study, starting from its inclusion criteria: in other studies we reviewed, only patients with Alzheimer's per rigorous diagnostic standards are included. On the other hand, in the recent Cassava 64-person study inclusion criteria specify "diagnosis of dementia due to possible or probable Alzheimer's Disease" and allow MMSE cognitive scores as high as 26, which is defined as "normal cognition." With such inadequate enrollment criteria, it is almost certain that there will be patients in the study who do not have Alzheimer's disease (some may have non-Alzheimer's dementia or simple, age-related memory loss). This present presents a major problem in the study as any sample of these patients is likely to show better symptoms progression if compared with studies which included exclusively people with certain Alzheimer's: Cassava may be using exactly this discrepancy in pages 20-21 of its presentation to investors to dubiously clam the efficacy of its strong. (Ex. 8, 11/3/21 QCM at 23.)

b. The published biomarker results, however, were for only 14, 13, and 10 subjects, respectively: turns out that Cassava has excluded as many as 27 patients out of 64 (42% of total) from the final study results for such implausible reasons as too getting too many or too few correct answers in the cognitive tests, and for other highly dubious explanations. . . Other Alzheimer's studies reviewed by our consultants do not exclude patients for this [sic] sort of reasons. (Ex. 8, 11/3/21 QCM at 23.)

c. We believe that Cassava excluded patients to create artificially promising report on the efficacy of the drug because 1) the groups taking the drug had the largest number of patients excluded, 2) the placebo group had the worst initial cognitive scores and the worst tau/Ab42 (associated with worse prognosis), 3) the fact that Cassava appears to have total discretion on which patients to exclude, without independent oversight, 4) the huge fraction of patients excluded vs initial cohorts (42%)[,] 5) the patients' exclusion seems in conflict with the existing statistical analysis plan. We deduce that patients may have been excluded "strategically" to fabricate a false efficacy of the drug. In short: excluding the worst-performing patients from the drug cohort vs placebo would necessarily increase the average cognitive scores of patients in the sample even in total absence of drug efficacy. (Ex. 8, 11/3/21 QCM at 24.)

206. Each of these statements is factually inaccurate and defamatory. One, Cassava did not fabricate, manipulate, or doctor the Phase 2b study conducted with simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that

the Phase 2b study results were not fabricated, manipulated, or doctored.

207. Two, the Phase 2b study conducted does not contain material errors or undisclosed anomalies. The information included in this study is consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The Phase 2b study, as well as other peer-reviewed publications and studies, demonstrate that Cassava's studies do not contain material errors or undisclosed anomalies.

208. Three, Cassava did not include or exclude any patients for the selective purpose of achieving favorable results. Cassava's Phase 2b study complied at all times with federal regulations and the study's written clinical protocol. Cassava's Phase 2b study results demonstrate that Cassava did not include or exclude any patients for the selective purpose of achieving favorable results.

209. Four, Defendants failed to disclose that it is common and widely accepted to exclude patients from testing results for the reasons they were excluded in the Phase 2b study. Legitimate reasons for exclusion may include withdrawal of the patient from a study; no detectible levels of drug in the patient's blood; non-compliance or deviation with study protocols; and logistical reasons. These are all common and widely accepted reasons for excluding patients from testing results. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

b. Reanalysis Manipulation

210. Defendants stated and implied that Cassava fabricated and manipulated the testing and results for its Phase 2b study by having the testing analyzed by Dr. Wang at CUNY. Among other things, Defendants stated and implied that Cassava had the Phase 2b results analyzed by Dr. Wang at CUNY for the purpose of fabricating and manipulating the results. The following are

some of the statements made by the Defendants in this category:

a. Cassava's presentation of clinical biomarker data from the Phase 2b trials **raises questions about the validity of the data**. The CSF samples in this study were first analyzed by an outside lab, which found that Simufilam was ineffective in improving the primary biomarkers. But Cassava had these sample analyzed again and this time reported that Simufilam rapidly and robustly improved a wide array of biomarkers. Cassava has not fully published the data from this reanalysis, but a presentation poster that it published on July 26, 2021, which appears to describe aspects of that work, shows **signs of data anomalies or manipulation**. (Ex. 3, 8/18/21 CPL at 3.)

b. The validity of clinical biomarker data: Biomarker analysis from patients treated with simufilam in Cassava's double-blind study forms a primary basis for Cassava's claim that simufilam engages its target in the central nervous system, but there are **concerns about the integrity of this data**. (Ex. 3, 8/18/21 CPR at 1.)

c. This re-analysis showed that simufilam rapidly and robustly improved a wide array of CSF biomarkers. Whereas Cassava has not fully published this reanalysis, Cassava's 26 July 2021 poster presumably describing aspects of that work shows **signs of data manipulation**. (Ex. 3, 8/18/21 CPR at 2.)

d. Second, plasma biomarker data from these same patients, which were just presented by Cassava Sciences, contains evidence of manipulation. If there's no biomarker signal, and there is **apparent misrepresentation of clinical data**[,] the continuation of the ongoing Cassava trials may put patients at risk without the claimed evidence of biomarker benefit. (Ex. 3, 8/18/21 CPR at 6.)

e. The underlying data for these results have been deposited by the Company on ClinicalTrials.gov [] and **do not support the data provided** in the CTAD presentation. This initial analysis was provided by Jesse Brodkin on Twitter []. (Ex. 4, 8/30/21 CPR at 5.)

f. Many of the results from Dr. Wang's Phase 2b redo have what appear to be **data manipulation or GROSS LAB ERRORS**—values incompatible with standards for these types of analyses—which raises additional questions about the validity of the biomarker results associated with the redo. (Ex. 5, 9/9/21 CPR at 2.)

g. Biomarker values reported across the entire Simufilam clinical program are **biologically and statistically implausible**. While the CPs allege errors or manipulation in the Ph2b Study (Supplement 2, Paragraph 4), we demonstrate a continuous, consistent pattern of data fabrication that

involves key clinical biomarkers; including inflammatory cytokines that could provide insights into the safety of Simufilam administration. Beyond the improbable values, we discovered some **questionable research practices** with the most notable instance being, of course, the re-analysis of Ph2b samples. (Ex. 6, 11/2/21 DCL at 6.)

h. This **unusual "re-do"** of the bio-marker analysis has already been documented in two CPs filed to [the] FDA, however we note several **additional concerns** around this decision. (Ex. 6, 11/2/21 DCL at 6.)

i. This **belated dissatisfaction** raises **strong suspicions** that Cassava Sciences only deemed the lab's analysis to be inadequate after receiving undesired results. As a consequence of this "re-do" decision, the majority of the bio-marker data found in the Clinicaltrials.gov records originate from a second analysis of the samples performed under Dr. Wang's supervision. (Ex. 6, 11/2/21 DCL at 6.)

j. We emphasize this **aberration from the norm** as it speaks to the motives behind the company's insistence on Dr. Wang's analysis. (Ex. 6, 11/2/21 DCL at 6.)

k. Next, we present highlights from our full letter of the **egregious data anomalies and manipulation** of both the biomarker and cognitive measurements from Cassava's Phase 2 trials. (Ex. 7, 11/3/21 DCP at 5.)

l. Unreliable and Nonsensical Clinical Data[:] Dr. Wang and **the Miraculous 'Re-Do'**[;] Phase 2: Impossible Biomarker Data[;] Phase 2: Shifting Cognitive Goalposts[;] Uncertain Safety (Ex. 7, 11/3/21 DCP at 19.)

m. In our view, the failure of the original analysis was choregraphed to justify the analysis of samples by Dr. Wang's lab who could produce desirable outcomes[.] In signature fashion, the **fabrication of results** becomes evidence upon basic scrutiny[.] The attempted simulation of ELISA results based on data from Luminex assays is, like Dr. Wang's photoshopped westerns, comical and grave at the same time[.] The choice of WB method to measure albumin ratio is likely an attempt to publish "film evidence" in support of the unprecedented findings of BBB integrity improvement[.] (Ex. 7, 11/3/21 DCP at 24.)

n. **Cassava fabricated the failure of sample analysis** by external, accredited lap and avoid the reporting of clinical endpoints (IL-1β) to main . . . Closer inspection of the biomarker data generated by Dr. Wang show [sic] **clear evidence of fabrication** in an effort to produce favorable readings. (Ex. 7, 11/3/21 DCP at 34.)

211. Each of these statements is factually inaccurate and defamatory. One, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies

fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

212. Two, the studies conducted on simufilam do not contain material errors or undisclosed anomalies. The information included in the studies are consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The studies, as well as other peer-reviewed publications and studies, demonstrate that Cassava's studies do not contain material errors or undisclosed anomalies.

213. Three, Defendants failed to disclose that Dr. Wang conducted his analysis blind as to which samples were Day 0, Day 30, placebo, or drug samples. Under this circumstance, Dr. Wang could not and did not fabricate, manipulate, or doctor the results from the Phase 2b study.

214. Four, Defendants failed to disclose that it is a common and accepted practice to analyze testing results a second time when initial testing results show inconsistent and inexplicably high values or variations. Cassava retested the Phase 2b results specifically because the initial biomarker data showed high levels of inconsistent values without explanation for the high level or variation. This presented a logical inconsistency even with the placebo group, which necessitated retesting. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

c. Biomarker Data

215. Defendants stated and implied that Cassava fabricated and manipulated the testing and results for its Phase 2b study by fabricating and manipulating the reported results. Among other things, Defendants stated and implied that Cassava reported biomarker data that had been fabricated and manipulated to show simufilam was effective. The following are some of the

statements made by the Defendants in this category:

a. Note that the change from Day 1 in total errors (ClinicalTrials.gov) does not match the data in the CTAD presentation. Further, the 50 mg treatment group demonstrated a greater difference than the 100 mg treatment group. An additional concern is that any analysis of change between treatment and placebo **appears to be compromised by inequivalent baseline measurements**. (Ex. 4, 8/30/21 CPR at 6.)

b. If the missing value for the 100 mg treatment group [] is inserted, the p-value changes from the Company's reported value of ~0.01 to a non-significant p-value of 0.08. They hypothesize that the missing +150% value from the 100 mg group was moved to the placebo group. . . Because the study evaluated multiple biomarkers, **neither of these group would be considered statistically different from placebo when accounting for multiple comparison**. (Ex. 4, 8/30/21 CPR at 7.)

c. Of the ten biomarkers analyzed, it seems the baselines for three are far outside expectations. As these baselines are mean averages from 60+ patients, their extreme variation from many other Alzheimer's Disease (AD) biomarker studies suggests the **redo has major lab errors or manipulation**. (Ex. 5, 9/9/21 CPR at 5.)

d. Beyond the CSF readings, more issues arise with the CSF/plasma albumin ratios reported by the company. . . This **raises serios questions as the to the specificity and accuracy of the unorthodox quantification approach** used, and to whether these numbers were even the result of any sample analysis. (Ex. 6, 11/2/21 DCL at 7.)

e. We believe the intent of his **unusual albumin analysis** was to support this "unprecedented discovery" with a publication utilizing Dr. Wang's questionable method in Western blot image "preparation." (Ex. 6, 11/2/21 DCL at 7.)

f. **Another distinctly worrying pattern** emerges when surveying the data reported by Cassava for their Ph2B and Open Label (OL) study of biomarkers analyzed by ELISA in Dr. Wang's lab . . . (Ex. 6, 11/2/21 DCL at 8.)

g. We are left to conclude that the value reported may have been fa**bricated** to simulate those in relevant literature albeit from a reference using Luminex rather than the claimed ELISA. This conclusion is further backed by finding discussed below and would be consistent with the allegations of Dr. Wang's **systematic manipulation** of Western Blots. (Ex. 6, 11/2/21 DCL at 9.)

h. After reviewing the literature for the remaining biomarkers we uncovered

more values consistent with the pattern of **clumsy data fabrication** described so far. (Ex. 6, 11/2/21 DCL at 9.)

i. The above adds to an extended series of **implausible and entirely unrealistic** values reported for nearly every CSF biomarker analyzed by Cassava Sciences. (Ex. 6, 11/2/21 DCL at 9.)

j. Finally, it is readily apparent that the SD values of mean change reported for the Ph2A study [] are extremely narrow and unrealistic. Particularly, a 1% SD in the mean change for the inflammatory cytokines II-6, II-1β and TNF-a over a 28-day interval is **not consistent with human biology**. (Ex. 6, 11/2/21 DCL at 10.)

k. Turning our attention to the plasma-based pTau and SavaDx biomarkers (outcomes 11 and 12 of Ph2b), we see the same degree of post-hoc data manipulation in violation of the Study Protocol as in the other outcome measures discussed earlier. Plasma pTau is the only biomarker that has been analyzed by an external lap, not by Dr. Wang. Therefore, they are data-points which Cassava Sciences cannot interfere with directly. **Manipulation would likely occur indirectly through post-hoc sample data manipulation**. This appears to be the case as outlined below. (Ex. 6, 11/2/21 DCL at 17.)

l. The Analysis Population Description for these analyses is **complex and arbitrary in terms of data exclusion and has no clinical or statistical rationale**. (Ex. 6, 11/2/21 DCL at 17.)

m. That these two exclusions schemes differ from the schemes (also post-hoc and in violation of the Statistical Analysis Plan) used in the other biomarker data treatments further supports the conclusion that **the aim here was not a better understanding of the effects of Simufilam, but rather the obfuscation**. (Ex. 6, 11/2/21 DCL at 17.)

n. The same Dr. Wang who single-handedly reversed Cassava's fortune, **fixed the failed biomarkers**. (Ex. 7, 11/3/21 DCP at 20.)

o. On review of the reported Phase 2b data; 7 of 9 CSF biomarker readings are either: (*) **entirely inconsistent with scientific literature**[;] (*) in ranges **incompatible with human biology**[;] (*) compatible only with alternative analytical methods then those reportedly employed. (Ex. 7, 11/3/21 DCP at 21.)

p. Dr. Wang's lab alone analysed [sic] the biomarker data. . . using his **questionable methods to produce incomprehensible readings** (Ex. 7, 11/3/21 DCP at 21-22.)

q. Cassava's **Unrealistic Claims** . . . Significant improvement in neurodegeneration . . . **Values inconsistent with published research** . . .

Inexplicable Tau and AB Values. (Ex. 7, 11/3/21 DCP at 23.)

r. Cassava's **Unrealistic** Claims . . . Significant improvement in inflammation biomarkers . . . **Values inconsistent with published research** . . . Questionable Biomarker Readings. (Ex. 7, 11/3/21 DCP at 23.)

s. Cassava's **Unrealistic Claims** . . . Significant improvement in BBB integrity . . . Data acquired through **unorthodox, DIY method**. . . Non-sensical Albumin Levels. (Ex. 7, 11/3/21 DCP at 23.)

t. In our September 9th supplement, we noted that three of the ten biomarkers analyzed by Dr. Wang and presented by Cassava in the phase 2b study of simufilam in Alzheimer's disease had **baseline values so far outside expectations that they suggest lab errors or manipulation**. (Ex. 9, 11/17/21 CPL at 5.)

216. Each of these statements is factually inaccurate and defamatory. One, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

217. Two, the studies conducted on simufilam do not contain material errors or undisclosed anomalies. The information included in the studies are consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The studies, as well as other peer-reviewed publications and studies, demonstrate that Cassava's studies do not contain material errors or undisclosed anomalies.

218. Three, Defendants failed to disclose that baseline values for cognition for each 50-patient cohort will not be the same at months 6, 9, and 12 because some study participants drop out of the open-label study in-between interim analyses and dropouts are replaced, such that each interim analysis collects data from the first 50 patients who complete each specified time point. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants'

conclusions.

219. Four, Defendants failed to disclose that the baseline "recalculations" that they published and/or republished were inaccurate. Defendants did not make adjustments based on when participants entered the study. Nor did Defendants disclose that they failed to make these necessary adjustments. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

220. Five, Defendants failed to disclose that it is a common and accepted practice to reanalyze testing results when initial testing results show inconsistent and inexplicably high values or variations. Cassava retested the Phase 2b results specifically because the initial biomarker data showed high levels of inconsistent values without explanation for the high level or variation. This presented a logical inconsistency even with the placebo group, which necessitated retesting. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

221. Six, Defendants failed to disclose that errors in displaying figures in any published reports on the Phase 2b study were typographical only. None of the typographical errors impacted the analysis giving rise to the data conclusions for simufilam. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

d. Cognition Data

222. Defendants stated and implied that Cassava fabricated and manipulated the testing and results for its Phase 2b study by fabricating and manipulating the reported results. Among other things, Defendants stated and implied that Cassava reported cognition data that had been

fabricated and manipulated to show simufilam was effective. The following are some of the statements made by the Dot.com Defendants (and republished/endorsed by some of the other Defendants) in this category:

a. While individual cases records are not available, it can be reasonably assumed that subjects who were too ill to comply (scores too high) were in fact non-responsive due to floor effect and those "too healthy" (scores too low) could also show no improvement due to a ceiling effect. It is not unreasonable to assume that through arbitrary and post-hoc selection of which scores defines these boundaries (11 and 54) the **sponsor was able to arrive at the desired trend**. (Ex. 6, 11/2/21 DCL at 13.)

b. These **obvious violations of the data treatment plan** are clearly designed to skew the data in a favorable direction and obscure the lack of benefit of Simufilam on cognition. (Ex. 6, 11/2/21 DCL at 13.)

c. Ph2b was **NOT statistically significant** despite data being heavily massaged (Ex. 7, 11/3/21 DCP at 26.)

d. Cassava **created exclusion criteria AFTER the data** was analyzed . . . Each assay had a customized mix of exclusion criteria applied . . . As much as 40% of data was creatively removed. (Ex. 7, 11/3/21 DCP at 28.)

e. In an effort to manipulate those Phase 2 study outcomes which were out of Dr. Wang's reach (cognition and plasma tests), **Cassava Sciences intentionally used Questionable Research practices** such as patient cherry picking and arbitrary outlier definition in order to obtain favorable results in patients' cognition data. (Ex. 7, 11/3/21 DCP at 34.)

f. The **pattern of errors and misconduct** in measuring and reporting biomarker and cognitive outcomes, as well as the reliance on clinical investigators whose conduct has been flagged by FDA inspections and Warning Letters, calls into question whether the investigators leading the Simufilam program are qualified to conduct the trial. (Ex. 7, 11/3/21 DCP at 35.)

223. Each of these statements is factually inaccurate and defamatory. One, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies

conducted on simufilam were not fabricated, manipulated, or doctored.

224. Two, the studies conducted on simufilam do not contain material errors or undisclosed anomalies. The information included in the studies are consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The studies, as well as other peer-reviewed publications and studies, demonstrate that Cassava's studies do not contain material errors or undisclosed anomalies.

225. Three, Cassava did not include or exclude any patients for the selective purpose of achieving favorable results. Cassava's testing protocol complied at all times with federal regulations and the written clinical protocol. Cassava's testing protocol and intake papers demonstrate that Cassava did not include or exclude any patients for the selective purpose of achieving favorable results.

226. Four, Defendants failed to disclose that it is a common and accepted practice to exclude patients from testing results for the reasons they were excluded in the Phase 2b study. Legitimate reasons for exclusion include withdrawal of the patient from a study; no detectible levels of drug in the patient's blood; non-compliance or deviation with study protocols; and logistical reasons. These are all common and accepted reasons for excluding patients from testing results. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

e. Outside Lab

227. Defendants stated and implied that Cassava fabricated and manipulated the testing and results for its Phase 2b study by not using an "outside lab" to conduct the reanalysis. The following are some of the statements made by the Citizen Petition Defendants (and

republished/endorsed by some of the other Defendants) in this category:

a. In the Technical Summary, we listed our concerns about Company's statements regarding the initial and subsequent analysis of the original Phase 2b data. Specifically, we noted that the Company was not transparent regarding the "re-do" analysis of the Phase 2b data. (Ex. 4, 8/30/21 CPR at 2.)

b. This is a MAJOR problem for two reasons. First, Wang is a long-time member of Cassava's Scientific Advisory Board one of its principal paid scientific consultants and its lead scientist reasonable for the Company's Simufilam research, so his secretly conducting the redo contradicts Cassava's key public statements, including the September 2020 press release and 2020 form 10-K, which stated that the samples were sent to outside labs for bioanalysis. Second, the scientific community has identified countless red flags that call into question the accuracy and integrity of Wang's research. In fact, some scientific integrity experts (see below) have suggested that most of his published research has data that appears to be "deliberately falsified or fabricated." (Ex. 4, 8/30/21 CPR at 3.)

c. In its September 14, 2020 press release and 2020 Form 10-K at page 12, Cassava stated that the redo was conducted by an "outside lab." Contrary to these public statements and filings, the Research Square preprint [] documenting Cassava's redo analysis states that the experiments were done by Dr. Wang and associates at CUNY. (Ex. 5, 9/9/21 CPR at 3.)

228. Each of these statements is factual inaccurate and defamatory. One, CUNY is an "outside lab" that is independent of Cassava. Cassava does not own or control CUNY. Cassava does not have any financial stake in CUNY. CUNY does not own or control Cassava. CUNY does not have any financial stake in Cassava. CUNY and Cassava have no overlapping management or leadership.

229. Two, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

230. Three, Defendants failed to disclose that it is a common and accepted practice to

analyze testing results a second time when initial testing results show inconsistent and inexplicably high values or variations. Cassava retested the Phase 2b results specifically because the initial biomarker data showed high levels of inconsistent values without explanation for the high level or variation. This presented a logical inconsistency even with the placebo group, which necessitated retesting. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

5. Cassava Fabricated and Manipulated its Phase 2a Study

231. Another way the Defendants furthered the message that Cassava is a fraud was by stating and implying that Cassava conducted and reported fabricated and manipulated studies of simufilam. Among other things, Defendants stated and implied that Cassava fabricated and manipulated the testing and results for its Phase 2a study. The following are some of the statements made by the Citizen Petition Defendants and Dot.com Defendants (and republished by QCM) in this category:

a. Our Technical Summary highlighted potential **image manipulation** in the analysis of the Company's Phase 2a clinical data, which we originally identified in the above referenced 8-K filing of 5 December 2019. (Ex. 4, 8/30/21 CPR at 3.)

b. Additionally, since dissemination of the Citizen Petition, other scientists have investigated this publication and others. Specifically, Dr. Elisabeth Bik, a former Stanford University scientist and the world's best-known detective of image manipulation in scientific publications, confirmed our analysis of this image in a common on PubPeer. She **expressed major concerns with the integrity of these phase 2a data** and advised the inspection of the original images is needed to assess the authenticity of the clinical study results. (Ex. 4, 8/30/21 CPR at 4.)

c. On September 3, 2021, Remi Barbier, Cassava's CEO, claimed in a public statement "we don't have the original films or images for the Western blots in question. Those were generated by our science collaborator at CUNY, who is Prof. Wang." However, this representation is highly doubtful." (Ex.

5, 9/9/21 CPR at 2.)

d. Cassava's **Unrealistic Claims** . . . Improvement in CSF & plasma biomarkers. . . **Reported values are unrealistic** . . .Questionable Biomarker Readings. (Ex. 7, 11/3/21 DCP at 23.)

e. Cassava's Unrealistic Claims . . . Concomitant reduction in CSF & plasma neurogranin . . . Neurogranin in plasma is not a biomarker of AD . . . Questionable Biomarker Readings. (Ex. 7, 11/3/21 DCP at 23.)

f. These **apparent biomarker discrepancies are so extreme that they suggest lab errors or manipulation**. It is worth noting that Cassava's publication of these suspicious Phase 2a biomarker data occurred in a paper (JPAD 2020 4:256) that was accepted just 6 days after submission, which calls into question the credibility and rigor of that journal's peer review process. (Ex. 9, 11/17/21 CPL at 6.)

232. Each of these statements is factually inaccurate and defamatory. One, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

233. Two, the studies conducted on simufilam do not contain material errors or undisclosed anomalies. The information included in the studies are consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The studies, as well as other peer-reviewed publications and studies, demonstrate that Cassava's studies do not contain material errors or undisclosed anomalies.

234. Three, Defendants failed to disclose that they lacked a reliable basis for the statements they made about the research relied upon by Cassava for development of simufilam, including the Western blot analysis. Among other things, Defendants lacked access to the testing results and information that would have allowed them to assess material errors or undisclosed

anomalies with the Western blot analysis.

235. Four, Defendants failed to disclose that the "consultants" and "experts" they referenced in their publications lacked a reliable basis for the statements they made about the research relied upon by Cassava for development of simufilam, including the Western blot analysis. Among other things, these named and unnamed sources lacked access to the testing results and information that would have allowed them to assess material errors or undisclosed anomalies, including with the Western blot analysis.

236. Five, Defendants failed to disclose that the images of the Western blot analysis included in their publications were not reliable as they were, at least, reprints of reprints as opposed to original images. Defendants' failure to disclose that the compromised and poor quality of their images prevented any independent evaluation of the images by readers of their publications, thereby forcing readers to rely upon Defendants' conclusions about the Western blot analysis.

237. Six, Defendants failed to disclose that "issues" or "inconsistencies" with Western blot analysis are not necessarily indicators of fabricated, manipulated, or doctored analysis. Each "issue" and "inconsistency" identified by Defendants in their publications can be caused by adjusting and/or compression the digital image for publication or an unintentional error.

238. Seven, Defendants failed to disclose that the "issues" and "inconsistencies" identified by Defendants in their publications relating to Western blot analysis did not and would not change the ultimate data conclusions reached in the research and studies. Western blots are demonstrative. They are not quantitative evidence. The qualitative value of Western blot analysis must always be weighed against the dangers of unfair prejudice and issue confusion. Defendants' failure to disclose these facts improperly led readers to conclude that "issues" or "inconsistencies"

with Western blots undermine the credibility and conclusion of the study. They do not.

6. Cassava Fabricated and Manipulated its Open Label Study

239. Another way the Defendants furthered the message that Cassava is a fraud was by stating and implying that Cassava conducted and reported fabricated and manipulated studies of simufilam. Among other things, Defendants stated and implied that Cassava fabricated and manipulated the testing and results for its Open Label study. The following are some of the statements made by Defendants in this category:

a. A **hallmark of fraudulent data** is inconsistency. Comparing the baseline values reported for patients recruited in the Ph2B with those in OL study we find an inconsistent shift in the mean values of biomarkers most egregiously in the values for Neurogranin, sTrem2 and hmgb 1. (Ex. 6, 11/2/21 DCL at 11.)

b. This dramatic change in baseline values is **puzzling and cannot be attributed to a different patient population** or even a plausible effect from prior Simufilam dosing, as the values are higher for the OL study patients. (Ex. 6, 11/2/21 DCL at 11.)

c. Such discrepancies between studies using the same lab and assays again **raise suspicion** that the reported values are not genuine. (Ex. 6, 11/2/21 DCL at 11.)

d. This **pattern of misleading the public, prospective patients and investigators through questionable reporting and data manipulation** has continued past the initial Phase 2 and into the current Open Label extension. (Ex. 6, 11/2/21 DCL at 14.)

e. When compared to the reported baseline standard deviation of 7.7 points and the observed improvement of 3 points, a difference of 13.75 points between dropped-out and newly included patients is **suspiciously large**. Whereas in Ph2b Cassava was able to obscure the effect of Simufilam **through imaginative use of outlier exclusion criteria**, in the Open Label Study they appear to have swapped subjects from 6 to 9 months in order to include those with extremely high ADAS-Cog scores. (Ex. 6, 11/2/21 DCL at 15.)

f. The skewing of clinical data has further implications. Because the sponsor has claimed there is "benefit," they extend and exacerbate this claim by suggesting there are biomarkers indicative of improvement. This is **misleading since no clinical improvement was demonstrated according**

to protocol. Thus, clinical investigators along with patients being recruited into the two Phase 3 studies are being misled into believing there are biomarkers indicating benefit based on a study where no benefit was shown. (Ex. 6, 11/2/21 DCL at 15.)

g. Cassava's **Unrealistic Claims** . . . Significant improvement in neurodegeneration & neuroinflammation biomarkers . . . Baseline values inconsistent with previous Ph2b reporting . . . Inconsistent Baseline Readings. (Ex. 7, 11/3/21 DCP at 23.)

h. Ongoing Open Label study results appear to have been **gamed with Questionable Research Practices** (Ex. 7, 11/3/21 DCP at 26.)

i. We believe there is **convincing statistical evidence** suggesting that in this study Cassava again **deliberately excluded patients** of Simufilam's effectiveness. (Ex. 8, 11/3/21 QCM at 25.)

j. What is less obvious but can be deduced form Cassava's own statements, is that the starting cognitive score (baseline) drops over time so that the deteriorating cognitive scores can be **misrepresented as "improvements**." (Ex. 8, 11/3/21 QCM at 25.)

k. This can only mean one thing: Cassava didn't choose replacement patients at random (or from the same pool): it is reasonable to assume that they were **deliberately selected to alter the sample's composition of the study to flatter the performance of the drug**. (Ex. 8, 11/3/21 QCM at 26.)

l. In their phase 2b open label study of simufilam in Alzheimer's disease, Cassava claims improvement in patient's cognition. Careful evaluation of patient baseline cognition scores shows **peculiarities that raise significant concerns** about their interpretation of the data. Critical analyses of these results are posted on Twitter . . . and we incorporate aspects of those analyses below. (Ex. 9, 11/17/21 CPL at 6.)

m. There are two red flags with these reported data. First, the observed mean ADAS-Cog 11 scores after 6 and 9 months are virtually the same (13.9 vs. 13.6, respectively), so the data do not appear to demonstrate a continued improvement. Second, the baseline data between the 6-month and 9-month analyses changes substantially, and to a degree that seems inconsistent with other information provided by the company, **suggesting possible manipulation**. (Ex. 9, 11/17/21 CPL at 7.)

n. Emails show both Cassava & Wang were **NOT BLINDED** during the open-label study . . . Emails retrieved from a FOIL request to CUNY expose Cassava and the Wang Lab as being unblinded during sample analysis, prior to data presentation and while study is ongoing. (Ex. 12, 12/10/21 DCP at

3.)

o. Hence, whether a patient is ON or OFF the drug is known to the person analyzing samples. This could **allow Wang* to decide what sample measurements "should be."** *Wang is currently under investigation for scientific misconduct. (Ex. 12, 12/10/21 DCP at 4.)

p. If unblinding is deliberate and/or not revealed, that greatly increases its seriousness, placing it in the **research misconduct arena**. FDA has a zero tolerance policy in this area. (Ex. 12, 12/10/21 DCP at 5.)

q. There is a risk of **biomarker data manipulation**. (*) Lab personnel know subject ID and site PLUS dosing status (Day 1 vs. 6 Month)[;] (*) Wang has clear [conflict of interest] as Cassava SAB member, stockholder and lead Simufilam researcher[;] (*) Wang is under investigation for data manipulation. (Ex. 12, 12/10/21 DCP at 7.)

r. Also, we showed how the much-touted cognitive improvement in Cassava's drug, may simply be the result of **biased patent enrollment and cherry picking of data**. (Ex. 14, 3/20/22 QCM (Grego) at 3.)

240. Each of these statements is factually inaccurate and defamatory. One, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

241. Two, the studies conducted on simufilam do not contain material errors or undisclosed anomalies. The information included in the studies are consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The studies, as well as other peer-reviewed publications and studies, demonstrate that Cassava's studies do not contain material errors or undisclosed anomalies.

242. Three, Cassava did not include or exclude any patients for the selective purpose of achieving favorable results. Cassava's testing protocol complied with federal regulations and the written clinical protocol during the Open Label test. Cassava's testing protocol and intake papers

demonstrate that Cassava did not include or exclude any patients for the selective purpose of achieving favorable results.

243. Four, Defendants failed to disclose that it is a common and accepted to exclude patients from testing results for the reasons they were excluded in the Open Label study. Legitimate reasons for exclusion include withdrawal of the patient from a study; no detectible levels of drug in the patient's blood; non-compliance or deviation with study protocols; and logistical reasons. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

244. Five, Defendants failed to disclose baseline values for cognition for each 50-patient cohort will not be the same at months 6, 9, and 12 because some study participants drop out of the open-label study in-between interim analyses and dropouts are replaced, such that each interim analysis collects data from the first 50 patients who complete each specified time point. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

245. Six, Defendants failed to disclose that the baseline "recalculations" that Defendants published and/or republished were false and inaccurate. Defendants did not make adjustments based on when participants entered the study. Nor did Defendants disclose that they failed to make these necessary adjustments. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

7. Cassava Lied to FDA for Phase 3 Studies

246. Another way the Citizen Petition Defendants and Dot.com Defendants furthered

the message that Cassava is a fraud was by stating and implying that Cassava used fabricated and manipulated studies to obtain Special Protocol Assessments from the FDA for its Phase 3 studies. The following are some of the statements made by Citizen Petition Defendants and Dot.com Defendants (and republished by the QCM Defendant) in this category:

a. Cassava's Phase 3 Special Protocol Assessment (SPA) for Simufilam was supported by preclinical studies and phase 2a and 2b biomarker studies. For the many reasons enumerated in my original Citizen's Petition and the two supplemental submissions, we strongly believe countless such false and misleading statements have been made by Cassava Sciences. (Ex. 5. 9/9/21 CPR at 8.)

b. In light of the misleading and erroneous clinical and preclinical results communicated to date, the Investigator Brochures for the Phase 3 trials are necessarily misleading and erroneous and require amendment. (Ex. 6, 11/2/21 DCL at 22.)

c. In light of the misleading and erroneous clinical and preclinical results communicated to date, the Investigator Brochures for the Phase 3 trials are necessarily misleading and erroneous and require amendment. (Ex. 7, 11/3/21 DCP at 35.)

247. Each of these statements is factually inaccurate and defamatory. One, Cassava did not rely upon any fabricated, manipulated, or doctored research in connection with developing simufilam. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated, manipulated, or doctored. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated, manipulated, or doctored.

248. Two, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or

doctored.

249. Three, the research relied upon by Cassava for the development of simufilam and studies conducted on simufilam do not contain material errors or undisclosed anomalies. The information included in the research and studies are consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The underlying research and studies, as well as other peer-reviewed publications and studies, demonstrate that Cassava's research and studies do not contain material errors or undisclosed anomalies material errors or undisclosed anomalies.

250. Four, Cassava has not knowingly made any false or misleading statements regarding simufilam in public statements, SEC filings, submissions to laboratories, summaries to patients, or submissions to the federal agencies, including the FDA and NIH. Nor has Cassava knowingly made any false or misleading statements regarding the research supporting and studies conducted of simufilam. Cassava's statements compared with the underlying research and studies demonstrate that Cassava has not made any false or misleading statements on these topics.

251. Fifth, FDA did not err in granting Special Protocol Assessments for Cassava's Phase 3 studies, nor did FDA exceed its authority. FDA acted within its legal authority to grant Special Protocol Assessments for Cassava's Phase 3 studies. Defendants' failure to disclose this fact prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

8. Cassava Lied About SavaDX

252. Another way the Citizen Petition Defendants and Dot.com Defendants furthered the message that Cassava is a fraud was by stating and implying that Cassava fabricated and manipulated studies involving its in-development diagnostic tool, SavaDX. The following are some of the statements made by Citizen Petition Defendants and Dot.com Defendants (and

republished by the QCM Defendant) in this category:

a. **Suspicious Claim** #4: Novel Blood Diagnostic SavaDx Represents Plasma Filamin A Level (Ex. 3, 8/18/21 CPR at 24.)

b. Owing to how large (290kD) proteins run on gels, an experienced biochemist would advise that the blots in figure 2 [from Cassava Sciences' July 26, 2021 poster] likely do not represent the 290kD protein Filamin A. . . Considering all of the apparently manipulated western blots in papers from Drs. Wang and Burns, this is **particularly suspect**. (Ex. 3, 8/18/21 CPR at 24.)

c. SavaDX Exposed: A revolutionary diagnostic for Alzheimer's Disease or a **scam of scientifically illiterate investors**? (Ex. 10, 11/29/21 DCP at Cover.)

d. Discovered emails suggest numbers **totally fabricated** = Fraud? (Ex. 10, 11/29/21 DCP at 14.)

e. As there is not a single gold standard for diagnosing AD, it seems **highly improbable that any test could have 98-100% accuracy**. (Ex. 11, 12/8/21 CPL at 7.)

f. For these and other reasons, Cassava's assertions about SavaDX seem **implausible** and have been largely ignored for years by the neuroscience community. (Ex. 11, 12/8/21 CPL at 7–8.)

g. Suddenly pausing SavaDx is another **major red flag**, as Cassava has described it has fast and inexpensive. (Ex. 11, 12/8/21 CPL at 10.)

h. For these and other reasons, we believe Cassava paused SavaDx and has begun to lower expectations because the **problems with SavaDX have been exposed or feared would soon be exposed**. (Ex. 11, 12/8/21 CPL at 10.)

i. Furthermore, potentially powerful, and direct evidence of **data manipulation related to SavaDx** was documented on 29 November 2021 by a group of scientists independently investigating Cassava. They posted their concerns, of which we were previously unaware, on Twitter. . . They also made a PDF of the presentation available online at SAVA Dx: Theranos 2.0 (cassavafraud.com). (Ex. 11, 12/8/21 CPL at 10.)

j. Several **apparent red flags** arise when comparing the raw data in the FOIAed email with the figures in Cassava's AAIC poster. (Ex. 11, 12/8/21 CPL at 11.)

253. Each of these statements is factually inaccurate and defamatory. One, Cassava did

not fabricate, manipulate, or doctor the studies relating to SavaDx. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

254. Two, Cassava's studies relating to SavaDx do not contain material errors or undisclosed anomalies. The information included in the research and studies are consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The underlying research and studies, as well as other peer-reviewed publications and studies, demonstrate that Cassava's research and studies do not contain material errors or undisclosed anomalies.

255. Three, Defendants failed to disclose that they lacked a reliable basis for the statements they made about the studies relating to SavaDx. Among other things, Defendants lacked access to the testing results and information that would have allowed them to assess material errors or undisclosed anomalies.

256. Four, Defendants failed to disclose that the "consultants" and "experts" they referenced in their publications lacked a reliable basis for the statements they made about SavaDx. Among other things, these named and unnamed sources lacked access to the testing results and information that would have allowed them to assess material errors or undisclosed anomalies.

257. Five, Defendants failed to disclose that the "issues" and "inconsistencies" identified by Defendants did not and would not change the ultimate conclusions reached in the studies. Defendants' failure to disclose this fact improperly led readers to conclude that "issues" or "inconsistencies" with the SavaDx results undermine the credibility and conclusion of the study.

They do not.

9. Cassava is Untrustworthy Because of IMIC

258. Another way the QCM Defendant and Dot.com Defendants furthered the message that Cassava is a fraud was by stating and implying that Cassava knowingly used individuals with criminal records and criminal affiliations to conduct studies. Among other things, the QCM Defendant and Dot.com Defendants implied that Cassava's testing results should not be trusted because the studies were conducted by individuals with criminal records and criminal affiliations. The following are some of the statements made by QCM Defendant and Dot.com Defendants (and republished/endorsed by the Citizen Petition Defendants) in this category:

a. It is alarming to observe that one of only two investigators common to both studies, Dr. Evelyn Lopez-Brignoni, received a Warning Letter from the CDER Office of Scientific Investigations in March 2021, describing conduct that "raises concerns about the validity and integrity of the data collected at [the] site." While this inspection and enforcement action appear to have been associated with a different, but contemporaneous trial, it implies that the **conduct at this site was woefully deficient**. (Ex. 6, 11/2/21 DCL at 5.)

b. If **similar deficiencies in dosing and trial conduct occurred in the Cassava trials** at this site under the supervision of Lopez-Brignoni, neither efficacy nor safety data reported by the Sponsor for the Ph2A or Ph2b Simufilam trials can be relied upon. (Ex. 6, 11/2/21 DCL at 5.)

c. The pattern of errors and misconduct in measuring and reporting biomarker and cognitive outcomes, as well as reliance on clinical investigators whose conduct has been flagged by FDA inspections and Warning Letters, **calls into question whether the investigators leading the Simufilam programs are qualified to conduct the trial**. (Ex. 6, 11/2/21 DCL at 22.)

d. Key Cassava Phase 2 Clinical Site under FDA Scrutiny (Ex. 7, 11/3/21 DCP at 17.)

e. Dr. Evelyn Lopez-Brignoni, a clinical investigator for the Simufilam Ph2a & Ph2b studies, received a Warning Letter (related to a different study) documenting unaddressed FDA inspection concerns about the validity and integrity of data collected at the site . . . **Neither safety nor efficacy data from studies supervised [by] Lopez-Brignoni can be trusted**!" (Ex. 7,

11/3/21 DCP at 17.)

f. A key clinical site for the Ph2a study, upon which the presumption of Simufilam safety is based, was the subject of FDA **concerns about integrity and reliability**, documented in a rare Warning Letter to the clinical investigator, Dr. Lopez. (Ex. 7, 11/3/21 DCP at 18.)

g. This alleged **exercise in deception has taken place with the involvement of an astounding number of questionable characters**: Cassava's former Senior Clinical Research Associate is a convicted felon with a record in fraud and theft. Cassava's prominent clinical research site (whose CEO is coauthor of critical research on Simufilam), IMIC Inc., is co-owned by a former escort, stripper and crack addict with a criminal record for consumption and possession of cocaine. IMIC's Principal Investigator has been hit with a rare and ominous FDA warning letter during recent trials. Cassava's CEO and CMO have been caught making allegedly fraudulent statements about Simufilam's predecessor Remoxy, which duly failed, devastating shareholders. Casava's recent board addition, Richard Barry, has been involved with multiple frauds. (Ex. 8, 11/3/21 QCM at 3–4.)

h. [Aimee Cabo, co-owner of IMIC] claims to be a nurse, yet a record check at the Florida Department of Health has failed to show any license. She does have **another type of record, of the criminal type**, with what looks like a felony arrest for possession and consumption of crack cocaine(!). (Ex. 8, 11/3/21 QCM at 13.)

i. Regardless of who was ultimately right in this sad story, Aimee [Cabo] has been caught laying [sic] in a very important situation and this **casts serious doubt on her credibility**. (Ex. 8, 11/3/21 QCM at 13.)

j. The Principal Investigator for the ongoing Simufilam trial, Dr. Brignoni, presumably joined IMIC befriending Aimee Cabo as a court-appointed psychiatrist during a custody trial. She is a Child and Adolescent Psychiatric Specialist, hardly a qualification to treat or diagnose a neurological disease like Alzheimer's. In fact, she was recently hit with a rare and most serious FDA warning letter for "failing to ensure that the investigation was conducted according to the investigational plan" and for multiple serious infractions related to a clinical trial she was overseeing at IMIC. . . [T]he timeframe [of the warning letter and Cassava trial] would be consistent, and, in any case, the **letter casts doubt on the suitability of Dr. Brignoni as a Principal Investigator and of IMIC as a trustworthy institution**. (Ex. 8, 11/3/21 QCM at 14–15.)

k. Aimee Cabo describes Juana Pelegri [] as a "trained clinical psychologist" with expertise in diagnosing Alzheimer's Disease. . . We fear that, as it seems, Mrs. Pelegri is in fact **not a licensed clinical psychologist** and may be in charge of diagnosing Alzheimer's patients in the Simufilam trial,

something for which she would lack qualifications. . . . This is particularly important as one of our main criticism [sic] in the Simufilam trials is that many patients may not have been suffering from Alzheimer's. (Ex. 8, 11/3/21 QCM at 15.)

l. IMIC is co-led by a Boris Nikolov, a 51-year-old-immigrant from Bulgaria. Mr. Nikolov has a medical license in Bulgaria, but not in the US (though "MD" occasionally appears next to his name). Our background checks on Mr. Nikolov in Bulgaria revealed a **close business association with a Kirstin Valentinova Zaharieva, a real estate investor with 2 criminal records for fraud**. (Ex. 8, 11/3/21 QCM at 17.)

m. Interestingly, only a few years later, about when IMIC starts collaborating with Cassava, the financial situation for the couple improves dramatically . . . We find the sudden change in **fortune remarkable and wonder whether it might be related to IMIC's relationship with Cassava and the noted anomalies in the study**. (Ex. 8, 11/3/21 QCM at 17–18.)

n. In addition to this, our proprietary due diligence discovered that many key actors **involved in the testing of this drug have a highly questionable past** (e.g. former felons, fraudsters, drug addicts) and may have been in conflict of interest. (Ex. 14, 3/20/22 QCM (Grego) at 3.)

259. Each of these statements is factually inaccurate and defamatory. One, Cassava did not fabricate, manipulate, or doctor the studies relating to simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

260. Two, Cassava did not know about any of the alleged criminal activities, criminal affiliations, or certification discrepancies described in the Defendants' publications. Defendants failed to disclose that Cassava did not have this knowledge before or during the use of IMIC for some of the IMIC testing. Defendants' failure to disclose this fact would reasonably lead readers to conclude that Cassava used IMIC with knowledge of the alleged criminal activities, criminal affiliations, and certification discrepancies described in the Defendants' publications.

261. Three, FDA rules and regulations do not require Cassava to know about any of the

alleged criminal activities, criminal affiliations, or certification discrepancies described in the Defendants' publications. Defendants' failure to disclose this fact would reasonably lead readers to conclude that FDA rules and regulations required Cassava to have knowledge of the alleged criminal activities, criminal affiliations, and certification discrepancies described in the Defendants' publications.

262. Four, Defendants failed to disclose that IMIC filled out and signed FDA Form 1572, Statement of Investigator, as a condition of participating in Cassava's clinical study. IMIC's FDA Form 1572 is an agreement signed by IMIC showing that IMIC has the education, training, and experience that qualifies IMIC as an expert in the clinical evaluation, and that assures IMIC will at all times comply with FDA rules and regulations. Defendants failed to disclose that IMIC is an expert in clinical evaluation and that IMIC was committed to complying with FDA rules and regulations during the testing of simufilam. Defendants' failure to disclose these facts would reasonably lead readers to conclude that IMIC, as described in Defendants' publications, engaged in criminal or illegal activities in connection with the testing of simufilam.

263. Five, Defendants failed to disclose that FDA regulations allow IMIC to delegate certain study tasks to non-physician individuals qualified to perform them with adequate supervision. IMIC followed the letter and the spirit of FDA regulations by delegating certain study tasks to non-physician individuals qualified to perform them. Defendants' failure to disclose these facts would reasonably lead readers to conclude that IMIC, as described in Defendants' publications, engaged in criminal or illegal activities in connection with the testing of simufilam.

264. Six, IMIC did not engage in any criminal or illegal activities in connection with the testing conducted at an IMIC facility of simufilam. Defendants failed to disclose that they had no evidence indicating that criminal or illegal activities occurred in connection with the testing

conducted at an IMC facility of simufilam. Defendants' failure to disclose this fact would reasonably lead readers to conclude that the individuals described in Defendants' publications engaged in criminal or illegal activities in connection with the testing of simufilam.

265. Seven, none of the alleged criminal activities, criminal affiliations, or certification discrepancies affected or impacted the testing of simufilam at an IMIC facilities. Defendants failed to disclose that they had no evidence that the alleged criminal activities, criminal affiliations, or certification discrepancies affected or impacted the testing of simufilam at an IMIC facility. Defendants' failure to disclose this fact would reasonably lead readers to conclude that the alleged criminal activities, criminal affiliations, or certification discrepancies affected or impacted the testing of simufilam.

10. Cassava is Untrustworthy Because of its Executives and Board

266. Another way the QCM Defendant furthered the message that Cassava is a fraud was by stating and implying that certain of Cassava's executives and board members have a history of fraudulent behavior. The QCM Defendant made these statements to create the impression that Cassava was engaged in fraudulent behavior because its executives and board members engaged in fraudulent behavior in the past. The following are some of the statements made by QCM Defendant (and republished/endorsed by the Citizen Petition Defendants and Dot.com Defendants) in this category:

a. This alleged exercise in deception has taken place with the involvement of an astounding number of questionable characters: **Cassava's former Senior Clinical Research Associate is a convicted felon with a record in fraud and theft**. Cassava's prominent clinical research site (whose CEO is coauthor of critical research on Simufilam), IMIC Inc., is co-owned by a former escort, stripper and crack addict with a criminal record for consumption and possession of cocaine. IMIC's Principal Investigator has been hit with a rare and ominous FDA warning letter during recent trials. **Cassava's CEO and CMO have been caught making allegedly fraudulent statements about Simufilam's predecessor Remoxy**, which duly failed, devastating shareholders. **Casava's recent board addition,**

Richard Barry, has been involved with multiple frauds. (Ex. 8, 11/3/21 QCM at 3–4.)

b. The alleged, generalized misconduct at Simufilam trials could not have been possible without the presence of people of questionable character involved at every level of the process. **Indeed, we have never detected a higher concentration of felons, fraudsters, and generally incompetent people around any public company, let alone a healthcare one**. (Ex. 8, 11/3/21 QCM at 9.)

c. It is astounding that, for the trials at Cassava, such a role [Clinical Research Assistant] has been assigned to the following individual: **Convicted fraudster and felon** Hilda *** a.k.a. Hilda ***, CRA of Cassava Sciences. (Ex. 8, 11/3/21 QCM at 10.)

d. More worryingly, we found a criminal and arrest record for Hilda, including a felony for theft (for which she appears to have served two years in prison) and a Class A misdemeanor for **"fraudulent activities",** apparently for defrauding unemployment insurance. Based on her record, she might even have been on probation while working for Cassava as senior CRA! (Ex. 8, 11/3/21 QCM at 11.)

e. According to our sources, Hilda may have been substituted as monitor by **Mr. Nadav Friedman, Cassava's CMO, who has been caught making allegedly fraudulent statements along with Remi Barbier regarding Cassava's previous, failed drug**. More on this later. It is superfluous to point out that assigning the role of primary watchdog first to a serial liar and convicted felon, then to **a company insider with a record of securities fraud** and in conflict of interest, does not bode well for the legitimacy of the Simufilam trials and may explain the irregularities that we have identified earlier. (Ex. 8, 11/3/21 QCM at 11.)

f. In Cassava, there are a number of red flags: in some cases role of monitor has been assigned to Nadav Friedman, the Company's Chief Medical Officer and Chief Operating Officer. That a company's executive be placed in such a position is both unusual (it's a very tedious job for a senior figure) and worrying (it creates a conflict of interest as Cassava is unlikely to blow the whistle on itself). . . **This is even more disturbing considering that Mr. Friedman has been sued for securities fraud for making allegedly fraudulent statements regarding Cassava's former drug Remoxy.** (Ex. 8, 11/3/21 QCM at 29.)

g. According to the legal proceedings we reviewed, **Remi Barbier and Nadav Friedmann were caught making repeated fraudulent statements to investors**, essentially leading them to believe that Remoxy was on its way to be approved when, in reality, they knew it was unlikely to receive FDA

clearance. (Ex. 8, 11/3/21 QCM at 35.)

h. **Mr. Barry's** presence should be viewed with concern by Cassava's shareholders, as he **seems eager to join boards of companies suspected or confirmed to have committed various degrees of fraud**. (Ex. 8, 11/3/21 QCM at 36.)

i. It is unclear why **Mr. Barry board membership seems overrepresented in controversial companies** such as these. Perhaps he hopes to be able to use his clout and connections to support their stocks during turbulent times. No matter the reason is, his presence on Cassava's board, given the issues we highlighted, should be paid attention to. (Ex. 8, 11/3/21 QCM at 37.)

267. Each of these statements is factually inaccurate and defamatory. One, none of Cassava's executives or board members have been charged with, much less convicted of, a crime by any federal agency. Defendants failed to disclose that Cassava's executive and board members have never been charged with, much less convicted of, a crime. Defendants' failure to disclose this fact would reasonably lead readers to conclude that Cassava's executive and board members were engaged in the type of alleged criminal activities discussed in Defendants' publications.

268. Two, none of Cassava's executives or board members have been found liable in a civil proceeding for fraudulent or dishonest conduct. Defendants failed to disclose that Cassava's executives and board members have never been found liable for engaging in fraudulent or dishonest conduct. Defendants' failure to disclose this fact would reasonably lead readers to conclude that Cassava's executives and board members were engaged in the type of fraudulent activities discussed in Defendants' publications.

269. Three, Cassava's executives or board members are required to sign quarterly certifications and attestations to ensure the accuracy of Cassava's information and operations. Defendants failed to disclose that Cassava's executives and board members signed quarterly certifications and attestations to ensure the accuracy of Cassava's information and operations. Defendants' failure to disclose this fact would reasonably lead readers to conclude that Cassava's

executives and board members were engaged in the type of fraudulent activities discussed in Defendants' publications.

270. Four, Cassava's executives or board members did not rely upon any fabricated, manipulated, or doctored research in connection with developing simufilam. Nor was the research relied upon by Cassava's executives or board members in connection with developing simufilam fabricated, manipulated, or doctored. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava's executives or board members in connection with developing simufilam was not fabricated, manipulated, or doctored.

271. Five, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

272. Six, Cassava's executives or board members have not knowingly made any false or misleading statements regarding simufilam in public statements, SEC filings, submissions to laboratories, summaries to patients, or submissions to the federal agencies, including the FDA and NIH. Nor have Cassava's executives or board members knowingly made any materially false or misleading statements regarding the research supporting and studies conducted of simufilam. Cassava's statements compared with the underlying research and studies demonstrate that Cassava's executives or board members have not knowingly made any materially false or misleading statements on these topics.

11. Cassava's Executives Engage in Insider Trading

273. Another way the Citizen Petition Defendants and QCM Defendant furthered the message that Cassava is a fraud was by stating and implying that Cassava's executives and board

members were publishing false information to artificially inflate Cassava's stock price and make money based on the artificially inflated stock price. The Citizen Petition Defendants and QCM Defendant accused Cassava's executives and board members of a serious crime: insider trading. The following are some of the statements made by Citizen Petition Defendants and QCM Defendant (and republished/endorsed by the Dot.com Defendants) in this category:

a. There are **powerful incentives for Cassava's management to possibly commit misconduct** in clinical trials, deceiving investors about the real prospects of Simufilam. (Ex. 8, 11/3/21 QCM at 7.)

b. Moreover, Cassava's management has somehow managed to approve what looks to us like an **outrageous compensation system**, literally rewarding short-term stock price fluctuations regardless of more traditional metrics [] such as profitability or drug approval milestones. (Ex. 8, 11/3/21 QCM at 8.)

c. Clearly **management would get rich temporarily inflating Cassava's stock price** by creating unlikely expectations for the prospect of its only drug, Simufilam. Should the drug then fail to deliver, and we think it will, shareholders will be wiped out, but management will get to keep their large bonuses. (Ex. 8, 11/3/21 QCM at 8.)

d. Cassava skillfully managed to translate these unsubstantiated claims into stock price appreciation through a **well-coordinated campaign to promote its stock** and intimidate its critics via social media and various other means. (Ex. 8, 11/3/21 QCM at 20.)

e. Finally, Cassava would be serving as a horrible example for other reckless actors willing to follow the same playbook: falsify the initial research, distort the outcome of preliminary trials, **get rich through short-term bonuses**, then devastate shareholders and patients when the drug inevitably fails phase III trials. (Ex. 8, 11/3/21 QCM at 37.)

f. Like Tesla and Elon Musk's use of Twitter, Cassava Sciences and Remi Barbier regularly get into trouble with their press releases. As illustrated by their 9/14/20 press release that falsely claimed that a different academic lab conducted the redo (and increased the company's share price by 133.4%), or the misleading 8/26/21 press release in which the company tried to use Quanterix as an alibi for its alleged misconduct, **they tend to make misleading statements in an effort to exonerate themselves or boost the company's flagging share price**. (Ex. 9, 11/17/21 CPL at 16–17.)

g. Based on a closer review of **Cassava's press release [on 11/4/21], we**

> **suggest that it contains material misrepresentation or omissions**. As a preliminary matter, if contacted by law enforcement or regulatory authorities, we are confident that the editors of the Journal of Neuroscience will state that the authorized statement did not constitute an endorsement or exoneration of any kind. (Ex. 9, 11/17/21 CPL at 17.)

h. The bottom line is Cassava Science does not appear to have provided the Journal of Neuroscience "original, uncropped Western blots" as represented in its 11/4/2021 press release, so the journal could not have exonerated them, as they so dramatically suggested. Making matters far worse, the company appears to have knowingly taken the published image (the one on the left above), blurred it a bit, and then photoshopped it onto a slightly different canvas to "create" the image on the right. Undoubtedly, these apparently deceptive acts were not disclosed to the Journal of Neuroscience, and **countless investors were misled**, as is evidenced by the market capitalization of Cassava Sciences almost doubling on this press release." (Ex. 9, 11/17/21 CPL at 22.)

274. Each of these statements is factually inaccurate and defamatory. One, Cassava did not rely upon any fabricated, manipulated, or doctored research in connection with developing simufilam. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated, manipulated, or doctored. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated, manipulated, or doctored.

275. Two, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

276. Three, the research relied upon by Cassava for the development of simufilam and studies conducted on simufilam do not contain material errors or undisclosed anomalies. The information included in the research and studies are consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The underlying research and studies, as

well as other peer-reviewed publications and studies, demonstrate that Cassava's research and studies do not contain material errors or undisclosed anomalies.

277. Four, Cassava has not knowingly made any false or misleading statements regarding simufilam in public statements, SEC filings, submissions to laboratories, summaries to patients, or submissions to the federal agencies, including the FDA and NIH. Nor has Cassava knowingly made any false or misleading statements regarding the research supporting and studies conducted of simufilam. Cassava's statements compared with the underlying research and studies demonstrate that Cassava has not knowingly made any materially false or misleading statements on these topics.

278. Five, Cassava's management has not received cash payments tied to the Company's stock price, and may or may never receive any such cash payments, depending on final test results for simufilam and other variables. Review of Cassava's financial statements, distribution reports, and SEC filings demonstrate that Cassava's management has not received cash payments tied to the Company's stock price, and may or may never receive any such awards, depending on final test results for simufilam and other variables.

279. Six, Cassava's officers and directors have not sold any of their personal holdings in Cassava in over a decade. Review of Cassava's financial statements, distribution reports, and SEC filings demonstrate that Cassava's officers and directors have not sold shares in Cassava in over a decade.

280. Seven, Cassava is not a fraud. Fraud means "wrongful or criminal deception intended to result in financial or personal gain." Cassava has not engaged in any wrongful or criminal deception. Review of the information identified above, as well as Cassava's SEC filings, Cassava's press releases, journal articles relating to simufilam, and Cassava's submissions to

federal agencies demonstrate that Cassava is not a fraud.

12. Republication of Defamation and Use of Social Media

281. Cassava's public reputation is as important as its patents, people, and products. Knowing this, Defendants published over 240 false and defamatory statements in the letters, reports, and presentations discussed above. All of the false and defamatory statements conveyed one essential message: Cassava is a fraud. Defendants promoted that false narrative by making false and misleading statements about the foundational science relied upon by Cassava for simufilam, the studies of simufilam conducted by Cassava, Cassava's public statements about simufilam, the individuals involved in testing simufilam, and Cassava's executive officers and management.

282. Defendants did not simply make false and misleading statements about simufilam. Defendants made false and misleading statements about Cassava. Defendants characterized Cassava as a company that knowingly relied on fraudulent and manipulated research, a company that knowingly manipulated and doctored studies and results, and a company that jeopardized patient health and safety for the financial gain of its executives and board members. It was all lies. But those lies reinforced the message that Defendants needed to execute their scheme—convince investors that Cassava is a fraud, drive down the stock price, and make a profit from their short positions.

283. As part of their scheme, Defendants republished their own defamatory statements. Defendants published their defamatory statements to one audience using one medium for the publication. Defendants then republished their defamatory statements to another audience using another medium for the publication. And Defendants incorporated their prior defamatory publications into new publications, thereby adding to and expanding upon the original defamatory publication. Each new defamatory publication, which incorporated a prior defamatory publication,

served to reinforce each of the Defendants' main message—Cassava is a fraud—by ostensibly providing new evidence.

284. As part of their scheme, Defendants did not act in isolation. Defendants worked together. In their defamatory publications discussed above, as well as in other publications, each Defendant republished the defamatory publications of the other Defendants. Each of the Defendants knew and intended for their original defamatory publication to be republished. It was a necessary part of their scheme to drive down Cassava's stock price. They needed their defamatory message to be republished by as many individuals and groups as possible.

285. Moreover, each of the Defendants, when republishing the defamatory publications of the other Defendants, knew he/she/it was republishing factually inaccurate and defamatory statements. Each of the Defendants republished the defamatory publications of the other Defendants to further their scheme to drive down Cassava's stock price based on false and defamatory statements and the message that Cassava is a fraud.

286. Likewise, each of the Defendants supported the defamatory statements published by the other Defendants. Defendants indicated that the false and defamatory statements made by the other Defendants supported their own conclusions, were based on evidence, were based on independent experts, and/or were reliable. In the defamatory publications discussed above, as well as in social media postings, Defendants lent credibility to the false and defamatory statements made by the other Defendants by endorsing and repeating those false and defamatory statements. This too was done to further their scheme to drive down Cassava's stock price based on false and defamatory statements.

287. Finally, Defendants furthered their essential message—Cassava is a fraud—through prolific use of social media. Some of Defendants false and defamatory statements about

Cassava that Defendants published on social media are compiled in Appendix A, and there are over 840 false and defamatory statements about Cassava in this collection. The essential message of Defendants' social media postings is that Cassava is a fraud. This message is factually inaccurate and defamatory for the reasons discussed above. Defendants' social media postings reinforced that essential message with the categories of false and defamatory statements discussed above, and those statements were false and misleading for the reasons discussed above.

288. Overall, through various means, Defendants saturated the market, investors, federal agencies, testing sites, and others with their false and defamatory message about Cassava. Defendants did not have any real or valid concerns with Cassava, its foundational science, or its tests. Defendants engaged in their saturation campaign to profit based on a decline in Cassava's stock price. Defendants engaged in an unethical and illegal practice that involves shorting a stock and then spreading a false narrative for the purpose of driving down Cassava's stock price. Making money by making up stories: a scheme that persisted without accountability, until now.

C. Defendants Acted with Actual Malice[4]

289. Defendants knew their statements about Cassava were factually inaccurate when they published (republished) the statements and/or acted with reckless disregard for whether their statements were true when they published (republished) the statements.

1. Improper Motive

290. Each of the Defendants acted with an ill and improper motive when publishing his/her/its false and defamatory statements about Cassava. One, each of the Defendants held short positions in Cassava' stock. Defendants published and republished false and defamatory

[4] Cassava does not concede that it must plead or prove actual malice. Cassava includes these allegations if the Court ultimately decides that Cassava must establish actual malice.

statements about Cassava to lower the Company's stock price so they (the Defendants) could profit from their short positions. Defendants' motive was to make money on their short position by defaming Cassava.

291. Two, Defendants did not act to promote scientific debate or address a matter of public concern. Cassava was not a matter of public concern prior to Defendants' disinformation campaign. Defendants created a "controversy" over Cassava through their disinformation campaign. Defendants did not do so based on genuine concerns with Cassava but rather to profit from a stock price decline they caused.

292. The FDA's response to the Citizen Petition Defendants illustrates that Defendants' objective was profiteering, not promoting a scientific debate or genuine concern with simufilam. The FDA response stated, in part, as follows:

> FDA has carefully considered your Petitions and acknowledges the importance of the issues they raise. But as a threshold matter, by their own terms, your Petitions do not purport to set forth all relevant factual information. Rather, you call on FDA to initiate an investigation and factfinding process. We are denying your Petitions to the extent that they request, through the citizen petition process, that FDA initiate an investigation. Under § 10.30 (21 CFR 10.30), citizen petitions can request that FDA issue, amend, or revoke a regulation or an order, or take or refrain from taking an administrative action, and are to be resolved based on information in the administrative record. An investigation is not an administrative action, and, as your Petitions implicitly acknowledge, investigations necessarily require fact finding beyond what is presented in the current administrative record
>
> * * *
>
> With respect to your supplemental request that FDA report findings "to interested law enforcement and regulatory authorities," such a request is similarly not amenable to the citizen petition process. Decisions regarding enforcement actions are made on a case-by-case basis and are within the discretion of FDA. Requests for the Agency to initiate enforcement action and related regulatory activity are expressly excluded from the scope of FDA's citizen petition procedures.

(Ex. 15 (internal citations omitted).)

293. The FDA's response states the obvious—the Citizen Petition did not request any relief that the FDA could even theoretically provide. The Citizen Petition was a sham. The Citizen Petition was not written to persuade the FDA to take any action. Instead, the Citizen Petition and its supplements were filed so that they could be published and disseminated outside the FDA. It was a (successful) ruse to use a governmental process, as opposed to the outcome of that process, to make money.

294. Three, Defendants acted with the specific intent to harm Cassava. Defendants accused Cassava of relying on fraudulent research, manufacturing fraudulent testing results, and lying to the public, investors, and federal agencies. Defendants knew these accusations would cause irreparable harm to Cassava's reputation and intended to cause that harm.

2. Lack of Evidence

295. Each of the Defendants knew they lacked support for the false and defamatory statements they published (and republished) about Cassava. The main message conveyed by Defendants was that Cassava was a fraud because it knowingly fabricated research and testing results for over a decade, and relied on these to continue its work. Defendants knew they had no actual evidence in support of this main message because no such evidence exists.

296. One, Defendants knew they had no evidence that Cassava was a fraud. Defendants knew that Cassava executives and board members had invested time and money into the Company. Defendants knew Cassava and its work was reviewed and scrutinized by federal regulators. Defendants knew research relating to simufilam had been reviewed and scrutinized by scientific journals and independent scientists. Defendants knew research relating to simufilam had been generated, then published, by an outside scientist. All these activities are inconsistent with Cassava being a fraud.

297. Two, Defendants knew they had no evidence that Cassava relied on fabricated

science as the foundation for simufilam. Defendants knew they had no source with firsthand knowledge indicating that the underlying science was fraudulent. Defendants knew they had no access to (or sources with access to) the backup and support for the underlying science. Defendants knew that the underlying science had been published for years in science journals prior to their disinformation campaign without being proven as fraudulent. All of these facts are inconsistent with the underlying science being fabricated.

298. Three, Defendants knew they had no evidence that Cassava fabricated testing results. Defendants knew they had no source with firsthand knowledge indicating that the testing results had been fabricated. Defendants knew they had no access to (or source with access to) the back and support for the simufilam testing. Defendants knew that many of the testing results had been published prior to their disinformation campaign without being proven as fraudulent. All of these facts are inconsistent with the underlying science being fabricated.

299. Four, Defendants knew they were making an unfounded accusation when stating that the underlying research and simufilam tests were fabricated, manipulated, and doctored. The Citizen Petition Defendants and Dot.com Defendants are scientists. The QCM Defendant consulted with scientists. Scientists know there are non-fraudulent explanations for the type of "anomalies" and "errors" discussed in the Defendants' publications. Defendants knew they were making an unfounded leap from the alleged "anomalies" and "errors" to fraudulent behavior by Cassava.

300. The evaluations conducted by science journals after Defendants' disinformation campaign further demonstrate that Defendants lacked evidence to support their claims that Cassava is a fraud that relied upon fraudulent research and fraudulent testing results. Several journals reviewed their simufilam-related articles after Defendants started their disinformation campaign.

Each of the journals found no evidence that Cassava fabricated, manipulated, or doctored results. For example:

a. In November 2021, Cassava Sciences announced that *The Journal of Neuroscience* had investigated and found no evidence of data manipulation in a paper on simufilam published in that journal in July 2012. The Editor-in-Chief previously authorized Cassava Sciences to share a statement on this matter, including: "No evidence of data manipulation was found for Western blot data." (Ex. 16.)

b. In December 2021, Cassava Sciences announced that *Neuroscience* investigated and found no evidence of data manipulation in a paper published in that journal in 2005. The Editor-in-Chief stated: "After careful examination of these original material, Neuroscience found no evidence of manipulation of the western blot data or other figures of this publication." (Ex. 17.)

c. In May 2022, *Neurobiology of Aging* investigated and found no evidence of data manipulation in a paper on simufilam published in that journal in 2017. The journal's Editor-in-Chief stated: "Overall, the editors did not find compelling evidence of data manipulation intended to misrepresent the results." (Ex. 18.)

d. In July 2022, *Molecular Neurodegeneration* re-published a 2021 paper that had previously been retracted due to allegations of data manipulation after one of the co-authors of the paper re-ran the allegedly falsified Western blots and came to the same conclusion as Dr. Wang did in 2021. (Ex. 19.)

e. In August 2022, Cassava Sciences announced that *The Journal of Prevention of Alzheimer's Disease* investigated and found no evidence of data manipulation in a paper published in that journal in 2020 . The journal stated: "We do not find convincing evidence of manipulation of data or intent to mislead, and therefore take no action regarding the published paper." (Ex. 18.)

301. The conclusions reached by these journals further establish that Defendants lacked foundation for stating and implying that Cassava is a fraud that relied upon fraudulent research and studies. These journals had access to the same, or more, information as Defendants and knew there was no evidence (or no compelling evidence) of data manipulation. Defendants accused

Cassava of data manipulation with "no evidence" and "no compelling evidence."

3. Knowledge of Contradictory Information

302. Defendants knew and/or reviewed information that contradicted the statements they made about Cassava, the research underlying simufilam, and testing of simufilam. One, on information and belief, Defendants reviewed Cassava's filings with the SEC prior to making their false and defamatory statements. Cassava makes this allegation based on the following: (a) Defendants referenced SEC filings in some of their publications and/or republications, (b) Defendants referenced securities fraud and government agencies associated with securities fraud in some of their publications and/or republications, (c) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing their false and defamatory statements, and (d) Defendants shorted Cassava's stock prior to publishing their false and defamatory statements, which would have made them interested in tracking publicly available information about Cassava that could impact its stock price.

303. Cassava's filings with the SEC include accurate information regarding the research underlying simufilam as well as the tests conducted using simufilam. The information included in Cassava's SEC filings contradict Defendants' false and defamatory statements. The following are some of the SEC filings that contain information contradicting Defendants' false and defamatory statements:

a. Cassava Sciences Form 10-K for the fiscal year ended December 31, 2021, published on February 28, 2022. (Ex. 20.)

b. Cassava Sciences Form 10-K for the fiscal year ended December 31, 2020, published on March 23, 2021. (Ex. 21.)

c. Cassava Sciences Form 10-K for the fiscal year ended December 31, 2019, published on March 26, 2020. (Ex. 22.)

304. Defendants knew Cassava filed reports with the SEC, including these reports.

Defendants knew the reports were publicly available. Defendants knew Cassava certified the information in the reports was accurate. Nonetheless, Defendants published statements and made implications about Cassava contradicted by these, and other, SEC filings.

305. Two, on information and belief, Defendants reviewed Cassava's press releases prior to making their false and defamatory statements, including press releases that directly contradicted the false and defamatory statements made by Defendants. Cassava makes this allegation based on the following: (a) Defendants referenced Cassava's press releases in some of their publications and/or republications, (b) Defendants claimed to be responding to Cassava's press releases in some of their publications and/or republications, (c) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing their false and defamatory statements, and (d) Defendants shorted Cassava's stock prior to publishing their false and defamatory statements, which would have made them interested in tracking publicly available information about Cassava that could impact its stock price.

306. Cassava's press releases include accurate information regarding the research underlying simufilam as well as the tests conducted using simufilam. The information included in Cassava's press releases contradict Defendants' false and defamatory statements. The following are some of press releases that contain information contradicting Defendants' false and defamatory statements:

a. *Pain Therapeutics Announces Name Change to Cassava Science* (3/27/2019). (Ex. 23.)

b. *Cassava Sciences Completes Patient Enrollment for a Phase 2a Study in Patients with Alzheimer's Disease* (4/15/2109). (Ex. 24.)

c. *Cassava Sciences to Present at Maxim Group's Conference on Alzheimer's Disease* (6/18/2019). (Ex. 25.)

d. *Cassava Sciences Reports Positive Phase 2a Clinical Results in Alzheimer's*

Patients (9/9/2019). (Ex. 26.)

e. *Cassava Sciences Initiates Phase 2b Clinical Study in Alzheimer's Patients* (9/16/2019). (Ex. 27.)

f. *Cassava Sciences' Clinical Results in Alzheimer's Selected as Late-Breaking News at CTAD 2019* (10/24/2019). (Ex. 28.)

g. *Cassava Sciences Announces Recent Clinical Highlights and Third Quarter 2019 Financial Results* (10/29/2019). (Ex. 29.)

h. *Cassava Sciences Announces Additional Positive Phase 2a Clinical Data in Alzheimer's Disease at CTAD 2019* (12/6/2019). (Ex. 30.)

i. *Cassava Sciences Announces Completion of Patient Enrollment of a Phase 2b Study in Alzheimer's Disease* (1/28/2020). (Ex. 31.)

j. *Cassava Sciences Announces Phase 2a Study of PTI-125 Published in the Journal of Prevention of Alzheimer's Disease* (2/11/2020). (Ex. 32.)

k. *Cassava Sciences Announces Clinical Update and Business Progress Across Neuroscience Pipeline* (3/19/2020). (Ex. 33.)

l. *Cassava Sciences Announces Initiation of an Open-Label to Evaluate PFI-125 in Patients with Alzheimer's Disease* (3/25/2020). (Ex. 34.)

m. *Cassava Sciences Announces Full-year 2019 Financial Results and Anticipated Key Milestones for 2020* (3/26/2020). (Ex. 35.)

n. *Cassava Sciences Announces New $2.5 Million Research Grant Award from National Institute of Health* (4/23/2020). (Ex. 36.)

o. *Cassava Announces Presentation at the Jefferies Virtual Healthcare Conference and Provides Updates Regarding Phase 2b Study of PTI-125* (6/3/2020). (Ex. 37.)

p. *Cassava Sciences Gives Keynote Presentation on SavaDx at Scientific Conference* (7/9/2020). (Ex. 38.)

q. *Cassava Sciences Announces Second Quarter 2020 Financial Results and Mid-year Business Review* (8/12/2020). (Ex. 39.)

r. *Cassava Sciences Announces Final Results of a Phase 2b Clinical Study of Simufilam in Patients with Alzheimer's Disease* (9/14/2020). (Ex. 40.)

s. *Cassava Sciences' Phase 2b Clinical Results in Alzheimer's Selected as Late-Breaking News at CTAD 2020* (9/30/2020). (Ex. 41.)

t. *Cassava Sciences Announces Additional Clinical Data from a Phase 2b*

Study of Simufilam in Alzheimer's Disease (11/4/2020). (Ex. 42.)

u. *Cassava Sciences Appoints Dr. James Kupiec as Chief Clinical Development Officer* (1/4/2021). (Ex. 43.)

v. *Cassava Sciences' Simufilam Improves Cognition and Behavior in Alzheimer's Disease in Interim Analysis of Open-Label Study* (2/2/21). (Ex. 44.)

w. *Cassava Sciences Announces Significant Program Progress and Expected Key Milestones in 2021 for its Clinical Program in Alzheimer's Disease* (2/8/21). (Ex. 45.)

x. *Cassava Sciences Announces Positive End-of-Phase 2 Meeting with FDA and Outlines Pivotal Phase 3 Program for Simufilam in Alzheimer's Disease* (2/22/21). (Ex. 46.)

y. *Cassava Sciences to Present at SVB Leerink Global Healthcare Conference* (2/23/21). (Ex. 47.)

z. *Cassava Sciences Announces Full-year 2020 Financial Results and Business Highlights* (3/23/21). (Ex. 48.)

aa. *Cassava Sciences Reports First Quarter 2021 Financial Results and Announces Guidance on Clinical Data Release* (4/21/2021). (Ex. 49)

bb. *Cassava Sciences Invited by the NIH to Participate in Sachs 4th Annual Neuroscience Innovation Forum* (4/26/2021). (Ex. 50.)

cc. *Cassava Sciences Invited to Participate in B. Riley Securities' Neuroscience Conference* (4/27/2021). (Ex. 51.)

dd. *Cassava Sciences Announces Initiation of Cognition Maintenance Study in Alzheimer's Disease* (5/10/2021). (Ex. 52.)

ee. *Cassava Sciences Announces New $2.7 Million Research Grant Award from National Institutes of Health* (5/12/2021). (Ex. 53.)

ff. *Cassava Sciences to Participate in Q&A Panel Discussion on Alzheimer's Disease* (5/24/2021). (Ex. 54.)

gg. *Cassava Sciences to Present at Raymond James 2021 Human Health Innovation Conference* (6/17/2021). (Ex. 55.)

hh. *Cassava Sciences Provides Mid-Year Corporate Update, Clinical Development Progress and Announces Guidance on Clinical Data Release*

(6/21/2021). (Ex. 56.)

ii. *Cassava Sciences Selects Clinical Research Organization for Phase 3 Clinical Program in Alzheimer's Disease* (6/21/2021). (Ex. 57.)

jj. *Cassava Sciences to Present New Clinical Dataset at 2021 Alzheimer's Association International Conference* (7/21/2021). (Ex. 58.)

kk. *Cassava Sciences Announces Positive Data with SavaDx from a Randomized Controlled Phase 2b Study of Simufilam* (7/26/21). (Ex. 59.)

ll. *Cassava Sciences Announces Positive Cognition Data with Simufilam in Alzheimer's Disease* (7/29/2021). (Ex. 60.)

mm. *Cassava Sciences Announces Positive Biomarker Data with Simufilam in Alzheimer's Disease* (7/29/21). (Ex. 61.)

nn. *Cassava Sciences Announces Agreement with FDA on Special Protocol Assessments (SPA) for its Phase 3 Studies of Simufilam for the Treatment of Alzheimer's Disease* (8/24/21). (Ex. 62.)

oo. *Cassava Sciences Responds to Allegations* (8/25/2021). (Ex. 63.)

pp. *Cassava Sciences Releases Statement Regarding Plasma p-tau Analysis from a Previously Disclosed Phase 2b Clinical Study in Alzheimer's Patients* (8/27/2021). (Ex. 64.)

qq. *Cassava Sciences Releases a Public Statement Regarding Recent Allegations* (9/3/2021). (Ex. 65.)

rr. *Cassava Sciences Announces Top-Line Results of 12-month Interim Analysis from Open-label Study Evaluating Simufilam in Alzheimer's Disease* (9/22/2021). (Ex. 66.)

ss. *Cassava Sciences Initiate Phase 3 Efficacy Trial of Simufilam for the Treatment of Patients with Alzheimer's Disease* (10/6/2021). (Ex. 67.)

tt. *Review by Journal of Neuroscience Shows No Evidence of Data Manipulation in Technical Paper Foundational to Cassava Sciences' Lead Drug Candidate* (11/4/2021). (Ex. 16.)

uu. *Cassava Sciences Initiates a Second Phase 3 Study of Simufilam for the Treatment of Patients with Alzheimer's Disease* (11/18/2021). (Ex. 68.)

vv. *Science Journal Finds No Evidence to Support Claims of Data Manipulation in 2005 Publication* (12/21/2021). (Ex. 17.)

ww. *Cassava Sciences Launches Clinical Website to Support Phase 3 Studies of*

Oral Simufilam in Alzheimer's Disease (12/23/2021). (Ex. 69.)

xx. *FDA Denies Citizen Petition Filed on Behalf of Short Selling Clients* (2/10/2022). (Ex. 70.)

yy. *Cassava Sciences Reports Full-year 2021 Financial Results and Operating Updates* (2/28/2022). (Ex. 71.)

zz. *Cassava Sciences Announces Fireside Chat and Presentation* (3/30/2022). (Ex. 72.)

aaa. *Cassava Sciences Invited to Participate in B. Riley Securities' Neuroscience Conference* (4/25/2022). (Ex. 73.)

bbb. *Cassava Sciences Reports First Quarter Financial Results for 2022 and Updates on Phase 3 Clinical Program* (5/5/2022). (Ex. 74.)

ccc. *Cassava Sciences Reports Second Quarter Financial Results for 2022, Mid-year Corporate Update and Interim Analysis of Open-label Study* (8/3/2022). (Ex. 75.)

ddd. *No Evidence of Data Manipulation in Science Publication on Simufilam* (8/18/2022). (Ex. 18.)

eee. *Cassava Sciences Announces Initiation of an Open-label Extension Study* (10/13/2022). (Ex. 76.)

307. Defendants knew Cassava issued press releases discussing the foundational science for simufilam and results of testing simufilam. Defendants knew the press releases were publicly available. Defendants knew Cassava certified the information in the press releases was accurate. Nonetheless, Defendants published statements and made implications about Cassava contradicted by these, and other, press releases.

308. Three, Defendants reviewed journal articles published by Dr. Burns and Dr. Wang discussing the foundational science relied on by Cassava in the development of simufilam and testing of simufilam. Defendants reviewed these journal articles prior to publishing and republishing false and defamatory statements about Cassava. Among others, Defendants reviewed the following:

a. *PTI-125 Reduces Biomarkers of Alzheimer's Disease In Patients*, published

in Journal of Prevention of Alzheimer's Disease (2020) (Ex. 77.)

b. *Altered Filamin A Enables Amyloid Beta-induced Tau Hyperphosphorylation and Neuroinflammation in Alzheimer's Disease*, published in Neuroimmunology and Neuroinflammation (2017) (Ex. 78.)

c. *PTI-125 Binds and Reverses an Altered Conformation of Filamin A to Reduce Alzheimer's Disease Pathogenesis*, Neurobiology of Aging (2017) (Ex. 79.)

d. *Reducing Amyloid-Related Alzheimer's Disease Pathogenesis by a Small Molecule Targeting Filamin A*, Journal of Neuroscience (2012) (Ex. 80.)

309. These journal articles provided accurate information regarding the foundational science relied upon by Cassava in the development of simufilam and testing of simufilam. These journal articles confirmed the potential effectiveness of simufilam and valid scientific basis for simufilam. None of these journal articles contains fabricated, manipulated, or doctored information; and, none of these journal articles has been withdrawn for containing fabricated, manipulated, or doctored information. Nonetheless, Defendants published statements and made implications about Cassava contradicted by these, and other, journal articles.

310. Four, on information and belief, prior to publishing and republishing false and defamatory statements about Cassava, Defendants reviewed journal articles published by other scientist regarding the foundational science relied upon by Cassava in the development of simufilam. Cassava makes this allegation based on the following: (a) the Citizen Petition Defendants and Dot.com Defendants are scientists so would know how to locate these articles, (b) the QCM Defendant consulted with scientists prior to publishing its statements and those scientists would know how to locate these articles, (c) each of the Defendants claimed that Cassava's science was unfounded or unprecedented, which means (i) they conducted searches for relevant journal articles and (ii) would have discovered these articles as part of that search, and (d) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing

their false and defamatory statements.

311. Journal articles published by scientists other than Dr. Burns and Dr. Wang provided accurate information regarding the foundational science for simufilam as a potential treatment for Alzheimer's disease. Among other, the following are some of the journal articles containing accurate information regarding the foundational science for the role of filamin protein in disease:

a. A February 1998 paper titled "Interaction of Presenilins with the Filamin Family of Actin-Binding Proteins," published in the *Journal of Neuroscience*. (Ex. 81.)

b. A September 2000 paper titled "Presenilin I Interaction with Cytoskeleton and Association with Actin Filaments," published in the journal *NeuroReport*. (Ex. 82.)

c. An October 2000 paper titled "Physical and Genetic Interaction of Filamin with Presenilin in Drosophila," published in the *Journal of Cell Science*. (Ex. 83.)

d. A November 2004 paper titled "The Many Faces of Filamin: a Versatile Molecular Scaffold for Cell Motility and Signaling," published in the journal *Natural Cell Biology*. (Ex. 84.)

e. A February 2009 paper titled "Hyaline Protoplasmic Astrocytopathy of Neocortex," published in the *Journal of Neuropathology & Experimental Neurology*. (Ex. 85.)

f. A September 2010 paper titled "Alzheimer's Disease-Linked Presenilin Mutation (PS1M146L) Induces Filamin Expression and γ-Secretase Independent Redistribution," published in the *Journal of Alzheimer's Disease*. (Ex. 86.)

g. A 2014 paper titled "Participation of Group I p21-activated Kinases in Neuroplasticity," published in the *Journal of Physiology-Paris*. (Ex. 87.)

h. A November 2015 paper titled "Investigating the Role of Filamin C in Belgian Patients with Frontotemporal Dementia Linked to GRN Deficiency in FTLD-TDP Brains," published in the journal *Acta Neuropathologica Communications*. (Ex. 88.)

i. A June 2019 paper titled "Memantine Improves Cognitive Function and Alters Hippocampal and Cortical Proteome in Triple Transgenic Mouse Model of Alzheimer's Disease," published in the journal *Experimental*

Neurobiology. (Ex. 89.)

j. A February 2020 paper titled "Filamin A Inhibition Reduces Seizure Activity In a Mouse Model of Focal Cortical Malformations," published in the journal *Science Translational Medicine*, based on a research team from Yale University. (Ex. 90.)

k. A November 2020 paper titled "Echinacoside Suppresses Amyloidogenesis and Modulates F-actin Remodeling by Targeting the ER Stress Sensor PERK in a Mouse Model of Alzheimer's Disease," published in the journal *Frontiers in Cell and Developmental Biology*. (Ex. 91.)

l. A July 2021 paper titled "Filamin-A and Myosin VI Colocalize with Fibrillary Tau Protein in Alzheimer's Disease and FTDP-17 Brains," published in the journal *Brain Research*. (Ex. 92.)

312. Simufilam is a drug that acts on filamin protein. These journal articles by independent scientists implicate filamin protein in disease. They provide a valid scientific basis for simufilam's potential to treat disease. These journal articles contradict the false and defamatory statements made by the Defendants. None of these journal articles have been withdrawn for containing fabricated, manipulated, or doctored information. Nonetheless, Defendants published statements and made implications about Cassava contradicted by these, and other, journal articles.[5]

313. Five, on information and belief, prior to publishing and republishing false and defamatory statements about Cassava, Defendants reviewed journal articles published by other scientists regarding the process used to test simufilam, including the use of post-mortem brain tissue. Cassava makes this allegation based on the following: (a) the Citizen Petition Defendants

[5] Protego Biopharma, a company that received a $50M investment from MPM Capital, identified its mission as "building on compelling science to develop small molecule therapeutics targeting protein misfolding, which is increasingly recognized as an underlying cause in many chronic degenerative diseases, and an area with enormous unmet medical need." *See Protego Biopharma Raises $51 Million Series A Financing To Advance the Treatment of Protein Misfolding Diseases*, BIOSPACE (Nov. 17, 2021) (Ex. 93). Bredt was an executive at MPM Capital at the time he prepared and filed the Citizen Petition. Based on his position at MPM Capital and MPM investment in Protego Biopharma, Bredt was no doubt aware of the importance of Filamin A, including in Alzheimer's disease.

and Dot.com Defendants are scientists so would know how to locate these articles, (b) the QCM Defendant consulted with scientists prior to publishing its statements and those scientists would know how to locate these articles, (c) each of the Defendants claimed that Cassava's science was unfounded or unprecedented, which means (i) they conducted searches for relevant journal articles and (ii) would have discovered these articles as part of that search, and (d) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing their false and defamatory statements.

314. Journal articles published by scientists other than Dr. Burns and Dr. Wang followed a method similar to that used to test simufilam, including the use of post-mortem brain tissue. Among other, the following are some of the journal articles discussing the use of post-mortem brain tissue for scientific testing:

a. A 1994 paper titled "[^{3}H]PtdIns hydrolysis in postmortem human brain membranes is mediated by the G-proteins $G_{q/11}$ and phospholipase C-β," published in the journal *Biochemistry*. (Ex. 94.)

b. A 1997 paper titled "Cholinergic Activation of Phosphoinositide Signaling Is Impaired in Alzheimer's Disease Brain," published in the journal *Neurobiology of Aging*. (Ex. 95.)

c. A January 2002 paper titled "Cells in human postmortem brain tissue slices remain alive for several weeks in culture," published in *The FASEB Journal*. (Ex. 96.)

d. A July 2004 paper titled "Decreased Catalytic Activity and Expression of Protein Kinase C Isozymes in Teenage Suicide Victims," published in the journal *JAMA Psychiatry* (formerly the *Archives of General Psychiatry*). (Ex. 97.)

e. A September 2004 paper titled "Functional Analysis of Genetic Variation in Catechol-O-Methyltransferase (COMT): Effects on mRNA, Protein, and Enzyme Activity in Postmortem Human Brain," published in the *American Journal of Human Genetics*. (Ex. 98.)

f. A December 2007 paper titled "Lower Phosphoinositide 3-Kinase (PI 3-kinase) Activity and Differential Expression Levels of Selective Catalytic and Regulatory PI 3-Kinase Subunit Isoforms in Prefrontal Cortex and

Hippocampus of Suicide Subjects," published in the journal *Neuropsychopharmacology*. (Ex. 99.)

g. A June 2011 paper titled "Protein Kinase Activity Profiling of Postmortem Human Brain Tissue," published in the journal *Neurodegenerative Diseases*. (Ex. 100.)

h. A July 2011 paper titled "Downregulated Kynurenine 3-Monooxygenase Gene Expression and Enzyme Activity in Schizophrenia and Genetic Association with Schizophrenia Endophenotypes," published in the journal *JAMA Psychiatry* (formerly the *Archives of General Psychiatry*). (Ex. 101.)

i. A March 2014 paper titled "Altered arginine metabolism in Alzheimer's disease brains," published in the journal *Neurobiology of Aging*. (Ex. 102.)

j. A May 2015 paper titled "Glutamate-induced Hyperactivity of NMDA ion channel in Postmortem Alzheimer's Disease Brains," published in the *Journal of Nuclear Medicine*. (Ex. 103.)

315. These journal articles confirmed that the use of post-mortem brain tissue is widely accepted among researchers. These journal articles contradict the false and defamatory statements made by the Defendants. None of these journal articles have been withdrawn for containing fabricated, manipulated or doctored information. Nonetheless, Defendants published or republished statements and made implications about Cassava contradicted by these, and other, journal articles.

4. Common Knowledge in Scientific Community

316. Defendants made statements and implications about Cassava, its foundational research, and its testing process and results inconsistent with information, concepts, and practices considered common knowledge in the scientific community. On information and belief, Defendants were aware of this common knowledge prior to publishing their false and defamatory statements about Cassava. Cassava makes this allegations based on the following: (a) the Citizen Petition Defendants and Dot.com Defendants are scientists so would know this common knowledge as a result of their education, training, and experience, (b) the QCM Defendant

consulted with scientists prior to publishing its statements and those scientists would know this common knowledge as a result of their education, training, and experience, (c) the Citizen Petition Defendants and Dot.com Defendants are authors of published articles or reports on complex areas of science, so would know this common knowledge as a result of their education, training, and experience, (d) each of the Defendants claimed that Cassava's science was unfounded or unprecedented, which means (i) they conducted searches for journal articles discussing the science related to Cassava's work and (ii) would have learned this common knowledge as part of that search, and (e) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing their false and defamatory statements, which necessarily would have included learning this common knowledge.

317. One, it was (and is) common knowledge in the scientific community that Western blotting has remained a ubiquitous protein detection technique for over 20 years. Western blots have contributed to countless innovations in drug discovery. Thousands of Western blots have been published in thousands of science articles in many areas of science from immunology to neuroscience.

318. Two, it was (and is) common knowledge in the scientific community that traditional Western blots are non-quantitative, or semi-quantitative at best. Western blot provides a relative comparison of protein levels but not an absolute measure of quantity, meaning the evaluation of a Western blot image depends on the quality of the image itself.

319. Three, it was (and is) common knowledge in the scientific community that the production of Western blots images is prone to visual abnormalities. Visual problems can arise from unusual or unexpected bands, faint bands, weak protein signals, high background on the blot, patchy or uneven spots, and so on. None of these visual abnormalities are necessarily indicators of

fabricated, manipulated, or doctored analysis.

320. Four, it was (and is) common knowledge in the scientific community that the process of preparing Western blot images for publication can include image cropping, splicing or other acceptable forms of image manipulations. None of these visual edits are necessarily indicators of fabricated, manipulated, or doctored analysis.

321. Five, it was (and is) common knowledge in the scientific community that xeroxed replications of published Western blot analysis are not as visually reliable or accurate as original images. Compromised and poor-quality images of Western blot analysis prevent fair, neutral, and independent evaluation of Western blot images.

322. Six, it was (and is) common knowledge in the scientific community that "issues" or "inconsistencies" with Western blot images can be caused by unintentional human error by the author, journal editor, printer, etc. "Issues" and "inconsistencies" related to unintentional human error are not necessarily indicators of fabricated, manipulated, or doctored analysis.

323. Seven, it was (and is) common knowledge in the scientific community that "issues" and "inconsistencies" with Western blot analysis may not change the data conclusions reached in the underlying research and studies. "Issues" and "inconsistencies" that are irrelevant to data conclusions are not necessarily indicators of fabricated, manipulated, or doctored analysis.

324. Eight, it was (and is) common knowledge in the scientific community that conducting tests on post-mortem human brain tissue that has been frozen and thawed is a well-published, accepted form of scientific inquiry. Neuroscience can, and often must, rely on post-mortem human tissue because of the (obvious) inaccessibility of ante-mortem human brain tissue.

325. Nine, it was (and is) common knowledge in the scientific community that there is no standard "expiration date" on human post-mortem brain tissue when it is properly collected,

processed, and stored.

326. Ten, it was (and is) common knowledge in the scientific community that conducting tests that involved matched pairs of post-mortem brain tissue being segmented for use in multiple experiments is an accepted form of scientific inquiry. This is because of the difficulty in matching pairs of control (*i.e.,* non-diseased) and variable (*i.e.,* Alzheimer's) brain tissue.

327. Eleven, it was (and is) common knowledge in the scientific community that CSF biomarker data can vary significantly depending on the patient, the test method, and numerous other factors. Absent a proper context, the numerical value alone for biomarker data does not make the result "unusual," "suspicious," or "dubious."

328. Twelve, it was (and is) common knowledge in the scientific community that cognition data can vary significantly depending on the patient, the study, the test method and numerous other factors. Absent a proper context, the numerical value alone for cognition data does not make the result "unusual," "suspicious," or "dubious."

329. Thirteen, it was (and is) common knowledge in the scientific community that excluding patients from testing results for the reasons they were excluded in the Phase 2b study is a standard scientific methodology. Reasons for exclusion may include withdrawal of the patient from a study; no detectible levels of drug in the patient's blood; non-compliance or deviation with study protocols; and logistical reasons. These are all common and widely accepted reasons for excluding patients from testing results.

330. Fourteen, it was (and is) common knowledge in the scientific community that reanalyzing testing results is a standard scientific methodology when initial testing results show inconsistent and inexplicably high values or variations. Many new drugs would soon be abandoned, and many existing drugs might be taken off the market, if one instance of inconsistent

data was an automatic death-knell.

5. Purposeful Avoidance of the Truth

331. Defendants engaged in a variety of actions and omissions that represented an intentional and purposeful avoidance of the truth relating to the Cassava, its foundational science, and its testing of simufilam. One, Defendants did not meet with Cassava to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that, if they met with Cassava, Cassava could provide answers, clarifications, and explanations for their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with Cassava prior to publishing their false and defamatory publications because Defendants knew the information Cassava would provide would contradict Defendants' false and defamatory statements and implications.

332. Two, Defendants did not meet with Dr. Wang at CUNY to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that, if they met with Dr. Wang, he could provide answers, clarifications, and explanations for their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with Dr. Wang prior to publishing their false and defamatory publications because Defendants knew the information Dr. Wang would provide would contradict Defendants' false and defamatory statements and implications.

333. Three, Defendants did not meet with CUNY's science integrity officer to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that, if they met with CUNY's science integrity officer, she could provide answers, clarifications, and explanations for their so-called "concerns" and

"findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with CUNY's science integrity officer prior to publishing their false and defamatory publications because Defendants knew the information CUNY's science integrity officer would provide would contradict Defendants' false and defamatory statements and implications.

334. Four, Defendants did not meet with journal editors to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that, if they met with journal editors, they could provide answers, clarifications, and explanations for their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with journal editors prior to publishing their false and defamatory publications because Defendants knew the information journal editors would provide would contradict Defendants' false and defamatory statements and implications.

335. Five, Defendants did not meet with Dr. Burns to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that, if they met with Dr. Burns, she could provide answers, clarifications, and explanations for their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with Dr. Burns prior to publishing their false and defamatory publications because Defendants knew the information Dr. Burns would provide would contradict Defendants' false and defamatory statements and implications.

336. Six, Defendants did not meet with the independent researcher at Yale University who published test results showing that simufilam has biological activity. Defendants knew that,

if they met with Yale University's independent researcher, she could provide answers, clarifications, and explanations for their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with Yale University's independent researcher prior to publishing their false and defamatory publications because Defendants knew the information Yale University's independent researcher would provide would contradict Defendants' false and defamatory statements and implications.

337. Seven, Defendants did not meet with Cassava's outside science advisors to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that if they met with Cassava's outside science advisors, they could provide answers, clarifications, and explanations for Defendants' so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with Cassava's outside science advisors prior to publishing their false and defamatory publications because Defendants knew the information Cassava's outside science advisors would provide would contradict Defendants' false and defamatory statements and implications.

338. Eight, Defendants did not meet with Cassava's independent members of its Board of Directors to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that if they met with Cassava's independent members of its Board of Directors, they could provide answers, clarifications, and explanations for Defendants' so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with Cassava's independent members of its Board of Directors prior to publishing their false and defamatory publications because Defendants knew the information Cassava's independent

members of its Board of Directors would provide would contradict Defendants' false and defamatory statements and implications.

339. Nine, Defendants did not meet with Cassava's independent research analysts to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that if they met with Cassava's independent research analysts, they could provide answers, clarifications, and explanations for Defendants' so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with Cassava's independent research analysts prior to publishing their false and defamatory publications because Defendants knew the information Cassava's independent research analysts would provide would contradict Defendants' false and defamatory statements and implications.

340. Ten, Defendants did not meet with Cassava's investment bankers to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that if they met with Cassava's investment bankers, they could provide answers, clarifications, and explanations for Defendants' so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with Cassava's investment bankers prior to publishing their false and defamatory publications because Defendants knew the information Cassava's investment bankers would provide would contradict Defendants' false and defamatory statements and implications.

341. Eleven, Defendants did not meet with Cassava's significant institutional investors to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that if they met with Cassava's significant institutional investors, they could provide answers, clarifications, and explanations for

Defendants' so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with Cassava's significant institutional investors prior to publishing their false and defamatory publications because Defendants knew the information Cassava's significant institutional investors would provide would contradict Defendants' false and defamatory statements and implications.

342. Twelve, Defendants did not meet with anyone with firsthand knowledge regarding Cassava, its foundational research, and its testing of simufilam ("firsthand witness"). Defendants knew that, if they met with a firsthand witness, the firsthand witness could provide answers, clarifications, and explanations for their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with a firsthand witness prior to publishing their false and defamatory publications because Defendants knew the information the firsthand witness would provide would contradict Defendants' false and defamatory statements and implications.

343. Thirteen, Defendants did not meet with Cassava's present or former line employees regarding Cassava, its foundational research, and its testing of simufilam ("insiders"). Defendants knew that, if they met with an insider, she could provide answers, clarifications, and explanations for Defendants' so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with an insider prior to publishing their false and defamatory publications because Defendants knew the information the insider would provide would contradict Defendants' false and defamatory statements and implications.

344. Fourteen, Defendants did not meet with IMIC to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that, if they met with IMIC, IMIC could provide answers, clarifications, and

explanations for their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with IMIC prior to publishing their false and defamatory publications because Defendants knew the information IMIC would provide would contradict Defendants' false and defamatory statements and implications.

345. Fifteen, Defendants did not meet with Cassava's outside counsel to discuss any of their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants knew that, if they met with Cassava's outside counsel, she could provide answers, clarifications, and explanations for their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided meeting with Cassava's outside counsel prior to publishing their false and defamatory publications because Defendants knew the information IMIC would provide would contradict Defendants' false and defamatory statements and implications.

346. Sixteen, in the alternative, if Defendants claim they did not review the sources identified above in Section V.C.3, then Defendants purposefully avoided reviewing those sources ("relevant sources"). Defendants knew that, if they reviewed the relevant sources, the relevant sources would provide answers, clarifications, and explanations for their so-called "concerns" and "findings" about Cassava, its foundational research, and its testing of simufilam. Defendants avoided reviewing the relevant sources prior to publishing their false and defamatory publications because Defendants knew the information the relevant sources would provide would contradict Defendants' false and defamatory statements and implications.

6. Inherently Improbable

347. Defendants' statements and implications about Cassava were inherently improbable, which signaled to Defendants that publishing the statements and implications was with reckless disregard for the truth. Defendants' contention that Cassava is a fraud, that its

foundational research was fabricated, and its testing results for simufilam were fabricated were inherently improbable for the following reasons.

348. One, Cassava received multiple grants from the NIH relating to simufilam. In April 2020, the NIH awarded Cassava a $2.5 million research grant following an "in-depth, peer review of [simufilam]." (Ex. 36.) In May 2021, the NIH awarded Cassava a $2.7 million research grant following "peer review of clinical and scientific data for simufilam." (Ex. 53.) Peer review is a process where independent, outside scientists evaluate the merits of new research. NIH would not have awarded Cassava research grants if the Company was a fraud relying on fabricated research and testing results.

349. Two, the underlying science for simufilam has been published in peer-reviewed journals, including *Journal of Neuroscience*, *Neurobiology of Aging*, *Journal of Biological Chemistry*, *Neuroimmunology and Neuroinflammation*, and *Journal of Prevention of Alzheimer's Disease.* None of these peer-reviewed journals have withdrawn any of the articles on the underlying science. These journals would not have published the articles if Cassava was relying on fabricated research and testing results.

350. Three, an outside independent lab at Yale University published test results showing biological activity for simufilam. Cassava's foundational science and testing results could not have shown biological activity at an outside independent lab at Yale University if Cassava was a fraud relying on fabricated research and testing results.

351. Four, Cassava publicly discussed and publicly shared its testing results for simufilam. Cassava shared the testing results in press releases, SEC filings, journals, and conferences. Cassava opened its testing results to scrutiny and review. Cassava would not have been transparent with its testing and testing results if Cassava was a fraud relying on fabricated

research and testing results.

352. Five, Cassava publicly discussed and publicly shared its testing results for simufilam when initial biomarker data for its Phase 2b study showed inconsistent and inexplicably high values or variations. Cassava shared the testing results in press releases, SEC filings, and conferences. Cassava opened its testing results to scrutiny and review in good times and bad. Cassava would not have been transparent with its testing results in good times and bad if Cassava was a fraud relying on fabricated research and testing results.

353. Six, Cassava's foundational science and testing results for simufilam were published and made publicly available years to months prior to Defendants' disinformation campaign. Cassava's foundational science and testing results were not characterized as fabricated, manipulated, and doctored by Defendants until the Company's stock price was high enough for them to profitably conduct their disinformation campaign. Cassava's foundational science and testing results would have been called out as fabricated, manipulated, and doctored a long time ago and prior to Defendants initiating their disinformation campaign if they had been fabricated, manipulated, and doctored.

354. Seven, Cassava has raised hundreds of millions of dollars to develop and test its product candidates after passing due diligence by its bankers and other sophisticated parties. Cassava continues to invest substantial amounts of those funds for the development and testing of simufilam in people with Alzheimer's disease. There is no evidence to refute this ongoing investment of hundreds of millions of dollars, and any other alternative explanation for this investment is highly improbable.

355. Eight, Cassava's executives could have but did not sell any of their shares in Cassava for over a decade. They could have sold at multiple times during that decade, but they

chose not to do so. Cassava and its executives would not be holding on to their personal investment in Cassava for over a decade if the Company was a fraud relying on fabricated research and testing results.

356. Nine, certain of Cassava's executives bought material amounts of shares in Cassava in the past decade. Cassava and its executives would not be making personal investments in Cassava, while simultaneously participating in its own fraud, if the Company was a fraud relying on fabricated research and testing results.

357. Each of these reasons was disclosed in SEC filings, press releases, and journal articles about Cassava, its foundational science, and its testing results.

358. On information and belief, Defendants were aware of each of these reasons prior to publishing their factually inaccurate and defamatory statements. Cassava makes this allegations based on the following: (a) Defendants referenced Cassava's SEC filings and press releases in some of their publications and/or republications, (b) Defendants claimed to be responding to Cassava's press releases in some of their publications and/or republications, (c) the Citizen Petition Defendants and Dot.com Defendants are scientists so would know how to locate journal articles, (d) the QCM Defendant consulted with scientists prior to publishing its statements and those scientists would know how to locate journal articles, (e) each of the Defendants claimed that Cassava's science was unfounded or unprecedented, which means (i) they conducted searches for relevant journal articles and (ii) would have discovered journal articles as part of that search, (f) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing their false and defamatory statements, and (g) Defendants shorted Cassava's stock prior to publishing their false and defamatory statements, which would have made them interested in

tracking publicly available information about Cassava that could impact its stock price.

7. Repetition and Republication

359. Defendants learned that their statements and implications about Cassava, its foundational research, and its testing of simufilam were factually inaccurate after they originally published their false and defamatory statements and implications. Defendants repeated the false and defamatory statements in their original publication after learning they were factually inaccurate. Defendants also republished the false and defamatory statements in the original publications of the other Defendants after learning the original publications were factually inaccurate. And Defendants refused to retract their false and defamatory statements after learning they were factually inaccurate.

360. One, Cassava provided accurate information in response to Defendants' publication of factually inaccurate and defamatory statements. Among other things, Cassava published the following to correct the record and provide Defendants accurate information:

a. *Cassava Sciences Responds to Allegations* (8/25/2021). (Ex. 63.)

b. *Cassava Sciences Releases Statement Regarding Plasma p-tau Analysis from a Previously Disclosed Phase 2b Clinical Study in Alzheimer's Patients* (8/27/2021). (Ex. 64.)

c. *Cassava Sciences Releases a Public Statement Regarding Recent Allegations* (9/3/2021). (Ex. 65.)

d. *Cassava's Public Statement Regarding Recent Allegations* (9/3/21) (Ex. 104.)

e. *Review by Journal of Neuroscience Shows No Evidence of Data Manipulation in Technical Paper Foundational to Cassava Sciences' Lead Drug Candidate* (11/4/2021) (Ex. 16.)

f. *Science Journal Finds No Evidence to Support Claims of Data Manipulation in 2005 Publication* (12/21/2021) (Ex. 17.)

g. *No Evidence of Data Manipulation in Science Publication on Simufilam*

(8/18/2022) (Ex. 18.)

361. Two, various journals investigated Defendants' accusations about Cassava, its foundational research and its testing results. Every journal that investigated Defendants' accusations found no evidence (or no compelling evidence) of data manipulation. Among other, the following journals investigated Defendants' accusations, rejected those accusations, and did not withdraw the underlying article:

a. *The Journal of Neuroscience* investigated and found no evidence of data manipulation in a paper on simufilam published in that journal in July 2012. The Editor-in-Chief authorized Cassava Sciences to share a statement on this matter, including: "No evidence of data manipulation was found for Western blot data." (Ex. 16.)

b. *Neuroscience* investigated and found no evidence of data manipulation in a paper published in that journal in 2005. The Editor-in-Chief stated: "After careful examination of these original material, Neuroscience found no evidence of manipulation of the western blot data or other figures of this publication." (Ex. 17.)

c. *Neurobiology of Aging* investigated and found no evidence of data manipulation in a paper on simufilam published in that journal in 2017. The journal's Editor-in-Chief stated: "Overall, the editors did not find compelling evidence of data manipulation intended to misrepresent the results." (Ex. 18.)

d. *Molecular Neurodegeneration* re-published a 2021 paper that had previously been retracted due to allegations of data manipulation after one of the co-authors of the paper re-ran the allegedly falsified Western blots and came to the same conclusion as Dr. Wang did in 2021. (Ex. 19.)

e. *The Journal of Prevention of Alzheimer's Disease* investigated and found no evidence of data manipulation in a paper published in that journal in 2020. The journal stated: "We do not find convincing evidence of manipulation of data or intent to mislead, and therefore take no action regarding the published paper." (Ex. 18.)

362. Three, independent scientists who were following Defendants' disinformation campaign published responses to the factually inaccurate and defamatory statements published by the Defendants. For example, on October 21, 2021, a researcher with a PhD in Molecular Biology

whose lab runs approximately 1,000 Western blots per year responded to the allegations raised by the Citizen Petition Defendants. In two blog posts, titled *Notes from a Molecular Biologist* and *Of Shorts and Blots*. (Ex. 105, Ex. 106.) The researcher explained:

> My overall impression of the CP is that it does exactly what it set out to do—confuse the average investor and seed doubt so that they sell their shares. The average investor has no idea what a WB [Western Blot] is let alone how to objectively analyze them. The majority of concerns raised are easily explained and a small number of others are obvious errors that likely occurred during generating figures for publication. There is no obvious evidence of systematic data manipulation or scientific misconduct. Someone with knowledge of molecular biology likely helped put together the CP, but many of the concerns raised show a shallow understanding of WB technique and data analysis. Below, I provide responses to general concerns and then a point-by-point analysis of each concern raised in the CP.

(*Notes from a Molecular Biologist* (Ex. 105).)

363. The blog posts explain that the "problems" with the Western blot data "identified" by the Defendants are not indicative of manipulation. Rather, those "problems" are related to (a) the use of x-ray films to document blots, (b) the use of low-dpi images in research papers pre-2010, (c) compression artifacts created by the re-sizing of blot data for use in publications, (d) proteins sticking to the sides of wells or entering the space between the wells and the plates that support the gel on each side, (e) errors in marking figures, (f) effects of gels being polymerized next to an air current, such as in a fume hood, (g) crooked gel combs being used in polymerization, (h) tweaks to exposure levels before publication, (i) a cropping error that rises to the level of a typo, (j) use of pre-validated antibodies in certain immunoprecipitation experiments, and (k) proteins running through an air bubble in the gel, which is common with self-poured gels.

364. Four, individuals who read Defendants' social media posts responded to the Defendants' factually inaccurate and defamatory statements. In response, individuals on social media explained that none of the results that the Defendants characterize as "unusual" or "suspicious" or "dubious" are actually "unusual," "suspicious," or "dubious." Individuals on social

media put Defendants on further notice that they were leaping to a conclusion—fabricated, manipulated, and doctored data—without a good faith basis for that conclusion.

365. On information and belief, Defendants were aware of the various individuals and organizations who responded to Defendants' factually inaccurate and defamatory statements about Cassava. Cassava makes this allegation based on the following: (a) Defendants refer to responses to their original publications in their subsequent publications, (b) Defendants responded to some of the individuals and organizations who responded to the Defendants' factually inaccurate and defamatory statements, which indicates Defendants were tracking responses, (c) Defendants' short strategy required Defendants to continually track and minimize the impact of individuals and organizations trying to correct the record on Cassava because accurate information would negate the artificial deflation that Defendants were attempting to achieve, and (d) Defendants claimed to have been continuously investigating Cassava prior to their subsequent publication and republications, meaning that Defendants so-called due diligence did not end with the original publication.

D. Defendants' Disinformation Was Not Protected Opinion[6]

366. Defendants did not present their publications as pure opinion about Cassava. Nor did Defendants intend for readers to believe that their publications were pure opinion about Cassava. To the contrary, Defendants presented and intended for their publications to be read as providing facts about Cassava. Defendants' scheme required readers to believe their false and

[6] Defendants published factually inaccurate and defamatory statements about Cassava. However, Defendants presented their publications as providing facts and factually accurate information about Cassava. Defendants' scheme was effective, in part, because Defendants persuaded individuals who read their publications that they were providing facts, even though they were not.

defamatory statements were facts about Cassava so that Cassava's stock price would decline.

367. The Defendants took affirmative steps to make it clear to a reasonable reader that they were providing facts about Cassava as opposed to pure opinion. These included frequent filings with federal agencies (which then republished on open-access websites), compiling lengthy reports that "sounded" as if they were based on scientific facts, seeking out media coverage for their reports and accusations about Cassava, repeating their campaign across various print and online media, and creating and promoting open-access websites as forums to create discussion of their campaign against Cassava.

1. Impact on Readers

368. Individuals who read Defendants' publications understood Defendants were (ostensibly) providing facts about Cassava, its foundational science, and its testing of simufilam. Individuals who read Defendants' publication acted based on what they read about Cassava.

369. One, individuals who read Defendants' publications made trading decisions based on what they read. Individuals sold Cassava's stock, leading to the stock price declining. On the flip side, individuals were discouraged from purchasing Cassava's stock, leading to the stock price declining further. Defendants intended for individuals to trade based on their publications; and, to get individuals to trade, Defendants intended for individuals to believe that they were providing facts about Cassava.

370. Two, individuals began to criticize Cassava after reading, and based upon, Defendants' publications. For example, on social media, individuals who read Defendants' false and defamatory statements began to echo those false and defamatory statements about Cassava. This too was part of Defendants' scheme. Defendants intended for individuals who read their publications to believe they were providing facts about Cassava so that the false and defamatory statements would be republished and repackaged by others. This also contributed to decreasing

Cassava's stock price.

371. Three, third parties conducted independent investigation relating to Cassava after reading, and based upon, Defendants' publications. For example, multiple science editors conducted independent investigations into journal articles they had published about Cassava's foundational science and testing of simufilam. The editors did so because Defendants presented their publications as providing facts about Cassava; and, if the facts were true, it would raise concerns about the articles. Each journal, of course, concluded there was no evidence (or no compelling evidence) of the manipulation that Defendants claimed occurred.

372. Four, law firms filed securities fraud class actions against Cassava after reading, and based on, Defendants' publications. The law firms did not read Defendants' publications as conjecture, speculation, and/or pure opinion. The law firms read Defendants' publications as providing facts about Cassava and the law firms acted as if Defendants' publications were providing facts. Cassava has moved to dismiss the putative class action as without merit.

373. Five, CUNY initiated an internal investigation of Dr. Wang after reading and based on Defendants' publications. CUNY officials did not read Defendants' publications as conjecture, speculation, and/or pure opinion. CUNY officials read Defendants' publications as providing facts about Cassava's research and acted as if Defendants' publications were providing facts.

2. Investigations and Evidence

374. Defendants presented their publications as being based on facts as opposed to pure opinion. One, Defendants told readers that their publications were based on an "investigation" into Cassava, its foundational science, and its testing of simufilam. Individuals who read Defendants' publications understood "investigation" to mean that the Defendants had engaged in a "formal or systematic examination or research" of Cassava. Defendants did not present their publications as

being predicated on speculation, conjecture, or pure opinion.

375. Two, Defendants told readers that their statements about Cassava, its foundational science, and its testing of simufilam were based on "evidence." Individuals who read Defendants' publications understood "evidence" to mean that Defendants had a "body of facts or information" to support their statements. Defendants did not present their statements as being predicated on speculation, conjecture, or pure opinion.

376. Three, Defendants told readers that their statements about Cassava, its foundational science, and its testing of simufilam had third party support. Defendants used a variety of language to convey this point, such as: "independently validated," supported by the "scientific community," or "consensus." Individuals who read Defendants' publications understood these types of statements as lending credibility to Defendants' false and defamatory statements. Defendants referenced third party support for their statements so that readers would conclude that they (Defendants) were providing facts about Cassava.

377. Four, Defendants touted the fact that they were either scientists (Citizen Petition Defendants and Dot.com Defendants), had consulted with scientists (QCM Defendant), or both. Defendants' status as scientists and/or having consulted with scientists served to lend credibility to the Defendants' publications. Individuals who read Defendants' publications were led to believe that Defendants were providing facts because a scientist is "someone who systematically gathers and uses research and evidence, to make hypotheses and test them, to gain and share understanding and knowledge." Readers did not understand scientists to engage in conjecture, speculation, and pure opinion.

3. Response to Criticism, Support, and Repetition

378. Defendants engaged in a sustained campaign against Cassava, which involved multiple publications as well as social media. This had the effect of conveying to individuals who

read their publications that Defendants were providing facts about Cassava.

379. One, Defendants responded to Cassava and others who attempted to correct the record. As noted above, Cassava and others published information correcting some of the false and defamatory statements made by the Defendants. Defendants, in turn, responded to the accurate information provided by Cassava and others with additional false and defamatory statements. Defendants did so to undermine credibility of those who were providing accurate information and persuade readers that Defendants were the ones providing facts about Cassava.

380. Two, Defendants supported and reinforced each other. Each of the Defendants republished statements made by the other Defendants. Each of the Defendants endorsed statements made by the other Defendants. By doing so, Defendants further spread disinformation about Cassava and lent credibility to the statements made by the other Defendants. Defendants' repetition of the statements by other Defendants furthered the impression that the statements were facts about Cassava, not speculation, conjecture, or pure opinion.

381. Three, Defendants repeated their statements about Cassava on multiple occasions. Defendants repetition of the statements served to create the impression that the statements were facts about Cassava. Facts do not change. Defendants' repetition of the statements, notwithstanding corrections being provided by Cassava and others, signaled that they (Defendants) were providing facts that would not change regardless of what Cassava and others said.

4. Concealing Bias and Motive

382. Defendants failed to disclose their bias and ill motive for publishing factually inaccurate and defamatory statements about Cassava. They likewise failed to disclose bias and ill motive for their named and unnamed sources. This prevented readers from independently evaluating the credibility of the information provided in Defendants' publications.

383. One, Defendants disclosed in some, but not all, of their publications that they held

a short position in Cassava stock. In all cases, Defendants did not disclose (a) when they took a short position, (b) the short position they took, and (c) the amount of money they would make when Cassava's stock price declined. Defendants did not provide readers with sufficient information about their short positions to independently evaluate how the short positions impacted the credibility of Defendants' publications.

384. Two, Defendants failed to disclose that they were publishing their false and defamatory statements about Cassava to drive down the price of Cassava stock. Defendants portrayed themselves as having an altruistic motivation—they said they were publishing their statements about Cassava to protect Alzheimer's patients, spur FDA action, inform government agencies of wrongdoing, and educate the public. These were not Defendants' motives. Defendants made their false and defamatory statements about Cassava to drive down the price of Cassava's stock, an objective Defendants concealed from readers.

385. Three, Defendants failed to disclose the many conflicts of interest of named and unnamed sources in their publications. The following are just some examples of information that Defendants failed to disclose about their sources:

a. *Dr. David Bredt*: Dr. Bredt is the named inventor on a neurobiology patent that may compete with Cassava's supposedly "impossible science." Dr. Bredt has also been affiliated with companies, such as MPM Venture Capital/Protego Biopharma, Inc., that directly compete with Cassava.

b. *Dr. Roger Nicoll*: Dr. Nicoll has a close relationship and affiliation with Dr. Bredt. On information and belief, he is also a short seller of Cassava's stock.

c. *Dr. Thomas Südhof*: Dr. Südhof is a consultant for drug companies and serves on the board of Sanofi, one of Cassava's competitors. He is also a member of Catalio Venture Partners, which consists of 36 scientists-entrepreneurs with a financial stake in a $1 billion fund that invests in private and public neuro-companies that compete with Cassava. He is a co-founder of Boost Neuroscience and Neucyte, Inc., more potential competitors of Cassava Sciences. Finally, he is a scientific advisor to Elysium Health, Simcere Pharmaceutical Group, and Alector

Therapeutics—all companies that compete with Cassava in the development of new drug treatments for aging or neurological conditions.

d. *Dr. William Hu*: Dr. Hu is a research consultant who performs work for companies that develop spinal fluid marker assays, which aligns him with Cassava's competitors. For example, he previously consulted for Biogen, a Cassava competitor.

e. *Dr. David Vaux*: Dr. Vaux is a cancer researcher in Australia with no apparent credentials in Alzheimer's disease.

f. *Dr. Elizabeth Bik*: Dr. Bik receives significant funding from her on-line "Patreon" account. Her "patrons" donate money to her anonymously as a "reward" for her work "investigating" and "exposing" alleged data manipulation. On information and belief, one or more of Dr. Bik's so-called "patrons" is a Defendant, affiliated with a Defendant, and/or affiliated with other short sellers of Cassava stock.

386. Defendants did not disclose their motive and bias, nor the motive and bias of sources, so to bolster their credibility. Defendants' limited (or non-existent) disclosures prevented individuals who read their publications from independently evaluating the information and drawing their own conclusions.

5. Failure to Disclose Facts

387. Defendants did not provide accurate and complete information in their publications. This prevented the readers from being able to independently evaluate the information provided in the publications and reach their own conclusions. Readers were forced to rely upon the conclusions provided by Defendants.

388. Moreover, Defendants undermined the credibility of Cassava and others who provided accurate information about Cassava, its foundational science, and its testing of simufilam. Defendants did so by conveying that Cassava is a fraud that relies on fraudulent research and testing. As a result, even when available, readers would not believe the accurate information provided by Cassava and others. Defendants made sure of that with their message—Cassava is a

fraud.

389. The following are some of the facts that Defendants failed to disclose about Cassava, its foundational science, and its testing of simufilam. On information and belief, Defendants knew of these facts at the time of their publications. Cassava makes this allegation based on the following: (a) Defendants referenced Cassava's SEC filings and press releases in some of their publications and/or republications, (b) Defendants claimed to be responding to Cassava's press releases in some of their publications and/or republications, (c) the Citizen Petition Defendants and Dot.com Defendants are scientists so would know how to locate journal articles, (d) the QCM Defendant consulted with scientists prior to publishing its statements and those scientists would know how to locate journal articles, (e) each of the Defendants claimed that Cassava's science was unfounded or unprecedented, which means that they (i) conducted searches for relevant journal articles and (ii) would have discovered journal articles as part of that search, (f) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing their false and defamatory statements, and (g) Defendants shorted Cassava's stock prior to publishing their false and defamatory statements, which would have made them interested in tracking publicly available information about Cassava that could impact its stock price.

a. Western Blots Analysis

390. One, Defendants failed to disclose that they lacked a reliable basis for the statements they made about the research relied upon by Cassava for development of simufilam, including Western blot analysis. Among other things, Defendants lacked access to the testing results and information that would have allowed them to assess material errors or undisclosed anomalies with the Western blot analysis.

391. Two, Defendants failed to disclose that the "consultants" and "experts" they referenced in their publications lacked a reliable basis for the statements they made about the

research relied upon by Cassava for development of simufilam, including Western blot analysis. Among other things, these named and unnamed sources lacked access to original testing results and information that would have allowed them to assess material errors or undisclosed anomalies with Western blot analysis.

392. Three, Defendants failed to disclose that the images of the Western blot analysis included in their publications were not reliable as they were, at least, reprints of reprints as opposed to original images. Defendants' failure to disclose the compromised and poor quality of their images prevented an accurate evaluation of the images by readers of their publications, thereby forcing readers to rely upon Defendants' conclusions about the Western blot analysis.

393. Four, Defendants failed to disclose that "issues" or "inconsistencies" with Western blot analysis are not necessarily indicators of fabricated, manipulated, or doctored analysis. Each "issue" and "inconsistency" identified by Defendants in their publications can be caused by adjusting and/or compression the digital image for publication or an unintentional error.

394. Five, Defendants failed to disclose that the "issues" and "inconsistencies" identified by Defendants in their publications relating to Western blot analysis did not and would not change the data conclusions ultimately reached in the research and studies. Western blots are demonstrative. They are not quantitative evidence. The qualitative value of Western blot analysis must always be weighed against the dangers of unfair prejudice and issue confusion. Defendants' failure to disclose these facts improperly led readers to conclude that "issues" or "inconsistencies" with Western blots undermine the credibility and conclusion of the study. They do not.

b. Testing with Brain Tissue

395. One, Defendants failed to disclose that conducting tests on post-mortem brain tissue that has been frozen and thawed is used by the research community at large to study many different brain diseases. Translational medicine can, and often must, rely on post-mortem tissue because of

the (obvious) inaccessibility of human brain tissue from live subjects.

396. Two, Defendants failed to disclose that the methodology used by Dr. Burns and Dr. Wang to test using post-mortem brain tissue followed standard procedures. The human brain tissue was collected within 6 hours of death, flash-frozen, and stored at -80˚ C. This is an acceptable procedure for pathologists and is also used for tissue processing for cancer and other testing.

397. Three, Defendants failed to disclose that the research community does not have a widely accepted "expiration date" on human post-mortem brain tissue when it is properly collected, processed, and stored.

398. Four, Defendants failed to disclose that it is an accepted scientific practice for matched pairs of post-mortem brain tissue to be segmented for use in multiple experiments. This is because of the difficulty in matching pairs of control (i.e., non-diseased) and variable (i.e., Alzheimer's) brain tissue.

c. Phase 2b Study

399. One, Defendants failed to disclose that none of the results that they characterize as "unusual" or "suspicious" or "dubious" are actually "unusual," "suspicious," or "dubious." The results discussed in the Defendants' publications are consistent with research and studies published by individuals and organizations unaffiliated with Cassava, Dr. Burns, and Dr. Wang.

400. Two, Defendants failed to disclose that the scientific methodology used by Dr. Burns and Dr. Wang in their research was not outside scientific norms. The methodology used by Dr. Burns and Dr. Wang were consistent with scientific norms.

401. Three, Defendants failed to disclose that it is common and widely accepted to exclude patients from testing results for the reasons they were excluded in the Phase 2b study. Legitimate reasons for exclusion may include withdrawal of the patient from a study; no detectible levels of drug in the patient's blood; non-compliance with or deviation from study protocols; and

logistical reasons. These are all common and widely accepted reasons for excluding patients from testing results.

402. Four, Defendants failed to disclose that it is a common and accepted practice to analyze testing results a second time when initial testing results show inconsistent and inexplicably high values or variations. Cassava retested the Phase 2b results specifically because the initial biomarker data showed high levels of inconsistent values without explanation for the high level or variation. This presented a logical inconsistency even with the placebo group, which necessitated retesting.

403. Five, Defendants failed to disclose that errors in displaying figures in any published reports on the Phase 2b study were typographical only. None of the typographical errors impacted the analysis giving rise to the data conclusions for simufilam.

d. Open Label Study

404. One, Defendants failed to disclose that it is common and widely accepted to exclude patients from testing results for the reasons they were excluded in the Open Label study. Legitimate reasons for exclusion may include withdrawal of the patient from a study; no detectible levels of drug in the patient's blood; non-compliance or deviation with study protocols; and logistical reasons.

405. Two, Defendants failed to disclose baseline values for cognition for each 50-patient cohort will not be the same at months 6, 9, and 12 because some study participants drop out of the open-label study in-between interim analyses and dropouts are replaced, such that each interim analysis collects data from the first 50 patients who complete each specified time point.

406. Three, Defendants failed to disclose that the baseline "recalculations" that Defendants published and/or republished were false and inaccurate. Defendants did not make adjustments based on when participants entered the study. Nor did Defendants disclose that they

failed to make these necessary adjustments.

e. SavaDx

407. One, Defendants failed to disclose that they lacked a reliable basis for the statements they made about the studies relating to SavaDx. Among other things, Defendants lacked access to the testing results and information that would have allowed them to assess material errors or undisclosed anomalies.

408. Two, Defendants failed to disclose that the "consultants" and "experts" they referenced in their publications lacked a reliable basis for the statements they made about SavaDx. Among other things, these named and unnamed sources lacked access to the testing results and information that would have allowed them to assess material errors or undisclosed anomalies.

409. Three, Defendants failed to disclose that the "issues" and "inconsistencies" identified by Defendants did not and would not change the ultimate conclusions reached in the studies. Defendants' failure to disclose this fact improperly led readers to conclude that "issues" or "inconsistencies" with the SavaDx results undermine the credibility and conclusion of the study. They do not.

f. IMIC

410. One, Cassava did not know about any of the alleged criminal activities, criminal affiliations, or certification discrepancies described in the Defendants' publications. Defendants failed to disclose that Cassava did not have this knowledge before or during the use of IMIC for some of the IMIC testing.

411. Two, Defendants failed to disclose that FDA rules and regulations do not require Cassava to know about any of the alleged criminal activities, criminal affiliations, or certification discrepancies described in the Defendants' publications.

412. Three, Defendants failed to disclose that IMIC filled out and signed FDA Form

1572, Statement of Investigator, as a condition of participating in Cassava's clinical study. IMIC's FDA Form 1572 is an agreement signed by IMIC showing that IMIC has the education, training and experience that qualifies IMIC as an expert in the clinical evaluation, and that assure IMIC will at all times comply with FDA rules and regulations. IMIC is an expert in clinical evaluation and that IMIC was committed to comply with FDA rules and regulations during the testing of simufilam.

413. Four, Defendants failed to disclose FDA regulations allow IMIC to delegate certain study tasks to non-physician individuals qualified to perform them with adequate supervision. IMIC followed the letter and the spirit of FDA regulations by delegating certain study tasks to non-physician individuals qualified to perform them.

414. Five, IMIC did not engage in any criminal or illegal activities in connection with the testing conducted at an IMIC facility of simufilam. Defendants failed to disclose that they had no evidence indicating that criminal or illegal activities occurred in connection with the testing conducted at an IMC facility of simufilam.

415. Six, none of the alleged criminal activities, criminal affiliations, or certification discrepancies effected or impacted the testing of simufilam at an IMIC facilities. Defendants failed to disclose that they had no evidence that the alleged criminal activities, criminal affiliations, or certification discrepancies effected or impacted the testing of simufilam at an IMIC facilities.

g. Cassava's Executives and Board

416. One, none of Cassava's executives or board members have been charged with, much less convicted of, a crime by any federal agency. Defendants failed to disclose that Cassava's executive and board members have never been charged with, much less convicted of, a crime.

417. Two, none of Cassava's executives or board members have been found liable in a civil proceeding for fraudulent or dishonest conduct. Defendants failed to disclose that Cassava's

executives and board members have never been found liable for engaging in fraudulent or dishonest conduct.

6. Demonstrably False

418. Defendants' statements about Cassava were (and are) demonstrably false. Cassava can establish it is not a fraud, its underlying research is not fabricated, and its testing results for simufilam is not fabricated. Section V.B details some of the evidence, and some of the ways, that Cassava can demonstrate that Defendants' statements and implications were factually inaccurate.

419. The nature of Defendants' statements lends itself to being proven demonstrably false or not. Defendants stated that Cassava's foundational science has been manipulated, fabricated, and doctored. Defendants made a factual assertion. Cassava can prove that did not happen, thereby demonstrating factual inaccuracy.

420. Defendants stated that Cassava's testing results for simufilam have been manipulated, fabricated, and doctored. Defendants made a factual assertion. Cassava can prove that did not happen, thereby demonstrating factual inaccuracy.

421. Defendants stated that simufilam does not work and does not have the effect on biomarkers and cognition reported by Cassava. Defendants made a factual assertion. Cassava can prove that simufilam had the reported effects, thereby demonstrating factual inaccuracy.

422. Defendants stated that Cassava is a fraud. Defendants made a factual assertion. Cassava can prove it is not fraud by proving its public statements were supported by evidence and factually accurate. Cassava, therefore, can demonstrate factual inaccuracy.

E. Defendants Caused Significant and Irreparable Damage

423. Defendants saw the growth of Cassava and its increasing stock price as an opportunity to make money. They used their disinformation campaign to crater the Company's stock at a time when they were holding short positions in the stock, timing the release of their

disinformation such that they would get the biggest bang for their buck. The predictable and natural result of Defendants' campaign was to destroy the Company's reputation, undermine confidence in the Company's research and drug, disrupt the Company's ongoing clinical studies, tank the Company's share value, and force the Company to incur hundreds of thousands of dollars in out-of-pocket expenses to combat the ongoing harm to its reputation.

424. Defendants were intentional about how and where they published their factually inaccurate and defamatory statements about Cassava. They submitted false statements to the FDA in a manner they knew would ensure third parties would read them. Then they published factually inaccurate and defamatory statements online where they could be shared easily. They further engaged in an extensive social media campaign, tweeting links to open-access websites they created with inflammatory names—"cassavafraud.com" and "simuflimflam.com"—knowing these would drive engagement, be retweeted and shared extensively. They posted memes in which they accused Cassava and its CEO of fraud, knowing that these would go viral. As a result, Defendants' factually inaccurate and defamatory statements about Cassava were widely and generally disseminated through publication and republication.

425. Defendants also spread their factually inaccurate and defamatory statements by directly contacting regulators, press organizations, universities, research facilities and scientific organizations, including those located in New York (such as CUNY). Defendants did so with the aim of discrediting Cassava's research, undermining its clinical trials, and tanking its stock price. Defendants never acted in the interest of science or patient welfare. Defendants never acted out of concern for scientific integrity. Defendants acted to drive down the Company's stock price and make a profit. Defendants sucked money out of Cassava's stock price by closing their short

positions while the stock prices was low.

1. Cassava's Reputation

426. Cassava's name and brand have become synonymous with fraud for many investors, members of the scientific community, and the general public as a result of Defendants' disinformation campaign. Defendants created the impression that simufilam is unsafe and should not be evaluated in people with Alzheimer's disease because it was sponsored by a fraud and based on fabricated research and testing. Below are just some of the comments made by people who read Defendants' factually inaccurate and defamatory statements about Cassava:

a. What matters here solely is the scientific evidence, the content gathered in this petition. These are encompassing, serious allegations that demand serious actions. The evidence pointed out in this petition indicates to a case of potentially massive fraud. With the scientific integrity of the underlying research being so severely questioned, it would be irresponsible not to halt ongoing trials before recruitment and audit the research data. (September 8, 2021 Anonymous Comment to the FDA.)

b. We respectfully recommend the FDA pause clinical trials for Simufilam (formerly known as PTI-125) until allegations raised in the Citizen Petition are adequately addressed. Cassava Sciences has falsified data, doctored images, created dodgy assays, and deeply exaggerated efficacy claims. These deceitful tactics erode public trust and raise serious questions surrounding the safety of existing and future clinical trial participants. (September 28, 2021 Anonymous Comment to the FDA.)

c. Cassava Sciences CEO Remi Barbier is taking advantage of desperate AD patients to push an unsafe drug on clinical trial participants . . . How long will the FDA allow this unethical behavior to continue? (September 28, 2021 Anonymous Comment to the FDA.)

d. Cassava is a bad actor and a danger to Alzheimer's patients. (October 20, 2021 Anonymous Comment to the FDA.)

e. Almost nothing I look forward to more than a new QCM report. $SAVA has some SERIOUS explaining to do. (November 3, 2021 Tweet.)

427. Defendants intended to create this mistrust and contempt for Cassava with their factually inaccurate and defamatory statements. Defendants could not, through honest trading,

cause a material decline in Cassava's stock price. Defendants needed a groundswell of opposition to Cassava to tank the stock price. Defendants achieved their objective.

428. Cassava's name and brand also suffered with government officials, particularly those responsible for funding research. After Defendants launched their disinformation campaign, Cassava could no longer obtain funding from the NIH. Defendants' factually inaccurate and defamatory statements about Cassava were the substantial cause of Cassava no longer obtaining funding from the NIH. Cassava became toxic as a result of Defendants' publication. NIH and others may have wanted to fund research but they could not because of the toxic environment created by Defendants.

429. Other non-profit organizations have likewise walked away from a relationship with Cassava because of Defendants' disinformation campaign. The Alzheimer's Association has withdrawn the Company's sponsorship from several fundraising events. The Alzheimer's Associations and other non-profit organizations have not done so based on any actual concerns about Cassava, its foundational research, or its testing of simufilam. These organizations have done so because Defendants tarnished Cassava's reputation to such a degree that an affiliation with Cassava is perceived as bad for their organizations.

2. Cassava's Clinical Research Efforts

430. Defendants' statements were a substantial cause of multiple clinical research sites withdrawing from Cassava's clinical research programs. Nine clinical research sites have withdrawn from or avoided participation in the Company's clinical research studies because of Defendants' disinformation campaign. The clinical research sites had no reason to withdraw from or avoid participation other than Defendants' disinformation campaign. They withdrew because Defendants created a toxic environment for Cassava, tarnished Cassava's name and brand, and made it unacceptable to work with Cassava. The clinical research sites did not withdraw from or

avoid participation in the Company's clinical research studies due to actual concerns with Cassava, its foundational research, or its testing of simufilam.

431. The shuttering of clinical research sites as a result of the Defendants' defamatory statements has also caused patient enrollment in Cassava's clinical research studies to slow. At an average target rate of one new patient enrolled per site, per month, the Defendants' defamatory statements have caused Cassava's studies of simufilam to slow by up to 81 patients over nine months. Those statements, of course, were a substantial cause of the decrease in participation. No other event has taken place that would have contributed to or caused a decrease in participation.

432. This combination—clinical sites withdrawing and participation declining—has set Cassava back in its efforts to complete testing of simufilam. To date, Cassava's testing has shown that simufilam may be a potentially promising treatment for Alzheimer's disease. Cassava must complete it testing before simufilam can be approved by the FDA and made available for people suffering from Alzheimer's disease. Defendants' disinformation campaign has delayed Cassava's attempts to bring a treatment to patients, so they (Defendants) could make money playing the stock.

3. Cassava's Stock Price and Business Valuation

433. Defendants got what they wanted. Their branding of Cassava as a fraud significantly diminished its business value and prospects. Before Defendants' disinformation campaign, Cassava's stock was trading at over $100 per share. As a result of Defendants' disinformation campaign, Cassava's stock has been trading at under $50 per share. Defendants' disinformation campaign has had a lingering, negative impact on Cassava's stock price. The campaign was a substantial cause of Cassava's stock price decline and the loss of more than $2

billion in market capitalization.[7]

434. Defendants achieved this objective by rebranding Cassava as toxic for investors. Investors who held Cassava stock were encouraged to sell the stock because of Defendants' disinformation campaign. On the flip side, investors who would have purchased Cassava stock were discouraged from doing so because of Defendants' disinformation campaign. Cassava's stock price plummeted as a result of Defendants' disinformation campaign. Defendants needed Cassava's stock price to tank to make a profit on their short positions. They got it.

435. Cassava stockholders were, of course, likewise harmed by Defendants' disinformation campaign. Investors understand that they are investing in a company's reputation when purchasing their stock. Investors expect the stock price to reflect publicly available information about the company. Investors do not expect that the stock price of a company will be artificially deflated by disinformation. Defendants adopted the unorthodox and unlawful strategy of using disinformation about Cassava to artificially deflate its stock price, which hurt Cassava and the people and organizations who had invested in the Company.

4. Additional and Unexpected Expenses

436. The widespread distribution of Defendants' publications have created a crisis for Cassava. Cassava's reputation has been irreparably tarnished. Its officers and employees have been threatened and harassed. Its operation have come under attack—physically and electronically. Indeed, after the Defendants shared Cassava CEO's home address in online publications, Mr. Barbier was forced to upgrade his home security for fear of personal attack. Those are just some

[7] The long-term effects of the campaign are not only impacting Cassava in the short term, but may impact simufilam's time to market which, should simufilam be beaten to market by one of its competitor drugs, will have devastating effects on its market share.

of the personal consequences of Defendants' disinformation campaign.

437. Defendants' disinformation campaign, and the republication of their disinformation, was also a substantial factor in causing other out-of-pocket expenses. Cassava expects to spend over $1,000,000 identifying and securing additional clinical sites to conduct further testing on simufilam. Cassava had clinical sites lined up. Cassava needs to spend more time and money finding new clinical sites to conduct its tests due to Defendants' thorough tarnishing of its reputation.

438. In addition, Defendants' disinformation campaign was a substantial factor in causing shareholder lawsuits to be filed against Cassava. Less than ten days after the original Citizen Petition was filed, the lawsuit captioned *In re Cassava Sciences, Inc. Securities Litigation*, No. 1:21-cv-00751-DAE was filed in the Western District of Texas. Many of the allegations in the complaint and amended complaint parrot the allegations made by the Defendants. To date, Cassava has spent in excess of $300,000 defending against these meritless allegations.

CAUSES OF ACTION

Count 1: Defamation Against the Citizen Petition Defendants (Defendants Bredt and Pitt)

439. Cassava repeats, realleges, and incorporates by reference Paragraphs 1 to 438 as if fully stated herein.

440. The Citizen Petition Defendants published and republished false statements and implications about Cassava, including but not limited to stating and implying that Cassava is a fraud that relies on fabricated research and fabricated testing results. The false statements and implications are pleaded throughout the Complaint, Appendix, and in the attached Exhibits, which set forth the particular words and statements used in the Citizen Petition Defendants' publications. The false implications were intentionally made through the false statements, by other statements that were misleading due to material omissions, by presenting misleading juxtapositions of statements, and when considering the context of each publication. The false implications were also made through the defamation campaign as a whole.

441. The Citizen Petition Defendants' false statements and implications were and would reasonably be understood to be statements of fact about Cassava.

442. The Citizen Petition Defendants' false statements and implications were and would reasonably be understood by third parties to have a defamatory character.

443. The Citizen Petition Defendants' false statements and implications were intended and endorsed by the Citizen Petition Defendants.

444. The Citizen Petition Defendants' statements and implications were false and factually inaccurate for the reasons stated throughout the Complaint.

445. The Citizen Petition Defendants' statements and implications were broadcast and published without privilege or legal authorization, and if there was any such privilege or

authorization (and there was not) it was intentionally abused.

446. The Citizen Petition Defendants' statements and implications were published and republished to third parties. The Citizen Petition Defendants knew and intended for their false and defamatory statements and implications to be republished to and by third parties. Among others, the Citizen Petition Defendants' publications and republications with these false statements and implications were widely disseminated by the Defendants.

447. The Citizen Petition Defendants' statements and implications were defamatory because they exposed Cassava to public hate, contempt, ridicule, and disgrace, and because they induced an evil and unsavory opinion of Cassava and its business into the minds of a substantial number of the community.

448. The Citizen Petition Defendants' statements and implications were defamatory *per se* because they charged Cassava with a serious crime, including fraud, and were of a nature tending to injure Cassava in its trade, business, and profession.

449. The Citizen Petition Defendants acted with fault, at least negligence, and with actual malice. The Citizen Petition Defendants knew that their defamatory statements and implications were false, or acted with reckless disregarded for the truth or falsity of the statements and implications, when they published and republished the defamatory statements and implications. Allegations related to the Citizen Petition Defendants' actual malice are pled throughout the Complaint.

450. The Citizen Petition Defendants also acted to deliberately and malicious injure Cassava out of hatred, ill-will or spite, and/or for improper motives. Among other things, the Citizen Petition Defendants acted to make a profit by disseminating false and defamatory statements about Cassava, which would cause its stock price to decline and allow them to make a

profit on their short position.

451. The Citizen Petition Defendants' false statements and implications were a substantial factor in causing Cassava to suffer irreparable harm to its reputation and suffer economic loss. Cassava is thus entitled to compensatory damages.

452. As a direct and proximate result of the Citizen Petition Defendants' false statements and implications, Cassava has also suffered and will continue to suffer actual, consequential, and special damages in an amount that will be determined at trial.

453. Cassava is also entitled to punitive damages because the Citizen Petition Defendants acted with actual malice, ill will, and spite towards Cassava and for improper motives.

Count 2: Conspiracy to Defame Cassava By and Among the Citizen Petition Defendants (Defendants Bredt and Pitt)

454. Cassava repeats, realleges, and incorporates by reference Paragraphs 1 to 438 as if fully stated herein.

455. Defendants Bredt and Pitt knowingly and willfully conspired and agreed among themselves to defame Cassava. As alleged in the Complaint, Defendants Bredt and Pitt entered an agreement to publish false and defamatory statements about Cassava in order to drive down the price of Cassava's stock and make a profit from their short positions. Defendants Bredt and Pitt made this agreement prior to publishing their false and defamatory statements about Cassava, as discussed in the Complaint and Appendix. Defendants Bredt and Pitt continued the conspiracy through today.

456. In furtherance of their conspiracy and agreement, among other things, Defendants Bredt and Pitt engaged in the concerted and coordinated campaign to publish false and defamatory statements about Cassava as set forth in the Complaint and Appendix, including, but not limited to, a disinformation campaign to persuade people that Cassava was (and is) a fraud. The details of the conspiracy and Defendants Bredt and Pitts' actions in further of the conspiracy are set forth in the Complaint.

457. All of the Citizen Petition Defendants' actions set forth in the Complaint were in violation of Cassava's rights and committed in furtherance of their conspiracy and agreement to publish disinformation about Cassava to drive down the Company's stock price. Moreover, each of the Citizen Petition Defendants aided and encouraged the other, and knowingly ratified and adopted the acts of the other. Cassava suffered significant damage in an amount to be determined at trial as a proximate result of the wrongful acts of the Citizen Petition Defendants.

458. The Citizen Petition Defendants' acts constituted malicious conduct that was

carried on by Defendants Bredt and Pitt with willful and conscious disregard for Cassava's rights and with the intention of harming Cassava's reputation, artificially deflating its stock price, and making money from the short sale of Cassava's stock.

459. The Citizen Petition Defendants' actions constitute despicable conduct that subjected Cassava to cruel and unjust hardship so as to justify an award of exemplary damages. Accordingly, punitive damages should be awarded against the Citizen Petition Defendants to punish them and deter them and others from committing such wrongful and malicious acts in the future.

Count 3: Defamation Against the QCM Defendant

460. Cassava repeats, realleges, and incorporates by reference Paragraphs 1 to 438 as if fully stated herein.

461. The QCM Defendant published and republished false statements and implications about Cassava, including but not limited to stating and implying that Cassava is a fraud that relies on fabricated research and fabricated testing results. The false statements and implications are pleaded throughout the Complaint, Appendix, and in the attached Exhibits, which set forth the particular words and statements used in the QCM Defendant's publications. The false implications were intentionally made through the false statements, by other statements that were misleading due to material omissions, by presenting misleading juxtapositions of statements, and when considering the context of each publication. The false implications were also made through the defamation campaign as a whole.

462. The QCM Defendant's false statements and implications were and would reasonably be understood to be statements of fact about Cassava.

463. The QCM Defendant's false statements and implications were and would reasonably be understood by third parties to have a defamatory character.

464. The QCM Defendant's false statements and implications were intended and endorsed by the QCM Defendant.

465. The QCM Defendant's statements and implications were false and factually inaccurate for the reasons stated throughout the Complaint.

466. The QCM Defendant's statements and implications were broadcast and published without privilege or legal authorization, and if there was any such privilege or authorization (and there was not) it was intentionally abused.

467. The QCM Defendant's statements and implications were published and republished

to third parties. The QCM Defendant knew and intended for its false and defamatory statements and implications to be republished to and by third parties. Among others, the QCM Defendant's publications and republications with these false statements and implications were widely disseminated by the Defendants.

468. The QCM Defendant's statements and implications were defamatory because they exposed Cassava to public hate, contempt, ridicule, and disgrace, and because they induced an evil and unsavory opinion of Cassava and its business into the minds of a substantial number of the community.

469. The QCM Defendant's statements and implications were defamatory *per se* because they charged Cassava with a serious crime, including fraud, and were of a nature tending to injure Cassava in its trade, business, and profession.

470. The QCM Defendant acted with fault, at least negligence, and with actual malice. The QCM Defendant knew that its defamatory statements and implications were false, or acted with reckless disregarded for the truth or falsity of the statements and implications, when it published and republished the defamatory statements and implications. Allegations related to QCM Defendant's actual malice are pled throughout the Complaint.

471. The QCM Defendant also acted to deliberately and malicious injure Cassava out of hatred, ill-will or spite, and/or for improper motives. Among other things, the QCM Defendant acted to make a profit by disseminating false and defamatory statements about Cassava, which would cause its stock price to decline and allow it to make a profit on its short position.

472. The QCM Defendant's false statements and implications were a substantial factor in causing Cassava to suffer irreparable harm to its reputation and suffer economic loss. Cassava

is thus entitled to compensatory damages.

473. As a direct and proximate result of the QCM Defendant's false statements and implications, Cassava has also suffered and will continue to suffer actual, consequential, and special damages in an amount that will be determined at trial.

474. Cassava is also entitled to punitive damages because the QCM Defendant acted with actual malice, ill will, and spite towards Cassava and for improper motives.

Count 4: Defamation Against the Dot.com Defendants
(Defendants Heilbut, Milioris, Brodkin, and Markey)

475. Cassava repeats, realleges, and incorporates by reference Paragraphs 1 to 438 as if fully stated herein.

476. The Dot.com Defendants published and republished false statements and implications about Cassava, including but not limited to stating and implying that Cassava is a fraud that relies on fabricated research and fabricated testing results. The false statements and implications are pleaded throughout the Complaint, Appendix, and in the attached Exhibits, which set forth the particular words and statements used in the Dot.com Defendants' publications. The false implications were intentionally made through the false statements, by other statements that were misleading due to material omissions, by presenting misleading juxtapositions of statements, and when considering the context of each publication. The false implications were also made through the defamation campaign as a whole.

477. The Dot.com Defendants' false statements and implications were and would reasonably be understood to be statements of fact about Cassava.

478. The Dot.com Defendants' false statements and implications were and would reasonably be understood by third parties to have a defamatory character.

479. The Dot.com Defendants' false statements and implications were intended and endorsed by the Dot.com Defendants.

480. The Dot.com Defendants' statements and implications were false and factually inaccurate for the reasons stated throughout the Complaint.

481. The Dot.com Defendants' statements and implications were broadcast and published without privilege or legal authorization, and if there was any such privilege or

authorization (and there was not) it was intentionally abused.

482. The Dot.com Defendants' statements and implications were published and republished to third parties. The Dot.com Defendants knew and intended for their false and defamatory statements and implications to be republished to and by third parties. Among others, the Dot.com Defendants' publications and republications with these false statements and implications were widely disseminated by the Defendants.

483. The Dot.com Defendants' statements and implications were defamatory because they exposed Cassava to public hate, contempt, ridicule, and disgrace, and because they induced an evil and unsavory opinion of Cassava and its business into the minds of a substantial number of the community.

484. The Dot.com Defendants' statements and implications were defamatory *per se* because they charged Cassava with a serious crime, including fraud, and were of a nature tending to injure Cassava in its trade, business, and profession.

485. The Dot.com Defendants acted with fault, at least negligence, and with actual malice. The Dot.com Defendants knew that their defamatory statements and implications were false, or acted with reckless disregarded for the truth or falsity of the statements and implications, when they published and republished the defamatory statements and implications. Allegations related to the Dot.com Defendants' actual malice are pled throughout the Complaint.

486. The Dot.com Defendants also acted to deliberately and malicious injure Cassava out of hatred, ill-will or spite, and/or for improper motives. Among other things, the Dot.com Defendants acted to make a profit by disseminating false and defamatory statements about Cassava, which would cause its stock price to decline and allow them to make a profit on their

short position.

487. The Dot.com Defendants' false statements and implications were a substantial factor in causing Cassava to suffer irreparable harm to its reputation and suffer economic loss. Cassava is thus entitled to compensatory damages.

488. As a direct and proximate result of the Dot.com Defendants' false statements and implications, Cassava has also suffered and will continue to suffer actual, consequential, and special damages in an amount that will be determined at trial.

489. Cassava is also entitled to punitive damages because the Dot.com Defendants acted with actual malice, ill will, and spite towards Cassava and for improper motives.

Count 5: Conspiracy to Defame Cassava By and Among the Dot.com Defendants (Defendants Heilbut, Milioris, Brodkin, and Markey)

490. Cassava repeats, realleges, and incorporates by reference Paragraphs 1 to 438 as if fully stated herein.

491. Defendants Heilbut, Milioris, Brodkin, and Markey knowingly and willfully conspired and agreed among themselves to defame Cassava. As alleged in the Complaint, Defendants Heilbut, Milioris, Brodkin, and Markey entered an agreement to publish false and defamatory statements about Cassava in order to drive down the price of Cassava's stock and make a profit from their short positions. Defendants Heilbut, Milioris, Brodkin, and Markey made this agreement prior to publishing their false and defamatory statements about Cassava, as discussed in the Complaint and Appendix. Defendants Heilbut, Milioris, Brodkin, and Markey continued the conspiracy through today.

492. In furtherance of their conspiracy and agreement, among other things, Defendants Heilbut, Milioris, Brodkin, and Markey engaged in the concerted and coordinated campaign to publish false and defamatory statements about Cassava as set forth in the Complaint and Appendix, including, but not limited to, a disinformation campaign to persuade people that Cassava was (and is) a fraud. The details of the conspiracy and Defendants Heilbut, Milioris, Brodkin, and Markey's actions in further of the conspiracy are set forth in the Complaint.

493. All of the Dot.com Defendants' actions set forth in the Complaint were in violation of Cassava's rights and committed in furtherance of their conspiracy and agreement to publish disinformation about Cassava to drive down the Company's stock price. Moreover, each of the Dot.com Defendants aided and encouraged the other, and knowingly ratified and adopted the acts of the other. Cassava suffered significant damage in an amount to be determined at trial as a

proximate result of the wrongful acts of the Dot.com Defendants.

494. The Dot.com Defendants' acts constituted malicious conduct that was carried on by Defendants Heilbut, Milioris, Brodkin, and Markey with willful and conscious disregard for Cassava's rights and with the intention of harming Cassava's reputation, artificially deflating its stock price, and making money from the short sale of Cassava's stock.

495. The Dot.com Defendants' actions constitute despicable conduct that subjected Cassava to cruel and unjust hardship so as to justify an award of exemplary damages. Accordingly, punitive damages should be awarded against the Dot.com Defendants to punish them and deter them and others from committing such wrongful and malicious acts in the future.

PRAYER FOR RELIEF

Plaintiff Cassava Sciences, Inc. prays for judgment against Defendants David Bredt, Geoffrey Pitt, Quintessential Capital Management LLC, Adrian Heilbut, Enea Milioris, Jesse Brodkin, and Patrick Markey for each of the causes of action raised herein. Plaintiff respectfully requests a judgment in its favor and against Defendants for:

1. Compensatory damages in an amount to be determined at trial;
2. Actual, consequential, and special damages in an amount to be determined at trial;
3. Punitive damages;
4. Reasonable and necessary attorneys' fees;
5. Reasonable and necessary costs of the suit;
6. Prejudgment and post-judgment interest at the highest lawful rates; and
7. Such other and further relief as this Court deems just and appropriate.

JURY DEMAND

Plaintiff Cassava Sciences, Inc. demands a trial by a jury of twelve jurors.

Dated: November 2, 2022

/s/ Matthew J. Langley
Matthew J. Langley
MLangely@beneschlaw.com
New York Registration No. 4831749

J. Erik Connolly (*pro hac vice forthcoming)*
EConnolly@beneschlaw.com
Illinois ARDC No. 6269558
Timothy Frey (*pro hac vice forthcoming)*
Illinois ARDC No. 6303335
TFrey@beneschlaw.com
Kate Watson Moss (*pro hac vice forthcoming*)
kwatsonmoss@beneschlaw.com
Illinois ARDC No. 6321176
BENESCH, FRIEDLANDER, COPLAN & ARONOFF LLP
71 South Wacker Drive, Suite 1600
Chicago, IL 60606
Telephone: (312) 212-4949