

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

<hr/>		X
Nextcea Inc.,)	
)	Civil Action No.: 24-12624
Plaintiff,)	
)	COMPLAINT AND DEMAND
v.)	FOR JURY TRIAL
)	
Lipotype, Inc.)	
)	
Defendant.)	
)	
)	
)	
)	
<hr/>	X	

The plaintiff, Nextcea Inc. (“Nextcea” or “plaintiff”), for its complaint against the defendant Lipotype, Inc. (“Lipotype”) states that:

NATURE OF THE ACTION

1. In this action, the plaintiff, Nextcea Inc., seeks to recover damages and to obtain a permanent injunction for the defendant Lipotype, Inc.’s infringement of U.S. Patent No. 8,313,949 (“the ’949 Patent”).

JURISDICTION AND VENUE

2. This Court has jurisdiction of the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

3. This Court has personal jurisdiction over the defendant because it has had regular and consistent contacts with the Commonwealth of Massachusetts sufficient to confer personal jurisdiction.

4. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(b), 1391(c), and 1400(b).

THE PARTIES

5. The plaintiff is a Delaware corporation with a principal place of business at 500 West Cummings Park Suite 4550, Woburn, Massachusetts 01801.

6. The defendant is a Delaware corporation with a principal place of business at 1 Broadway, Cambridge, Massachusetts 02142.

FACTUAL BACKGROUND

NEXTCEA'S PATENTS

7. Nextcea was founded in 2006 by Dr. Frank Hsieh and specializes in providing drug development and diagnostic services comprising biomarker quantitation and safety assessments. Since its founding, Nextcea has emerged as a leader in assisting its customers in a range of important research areas such as, but not limited to, Parkinson's disease, Gaucher's disease, leukemia/lymphoma, drug-induced phospholipidosis, and oligonucleotide drug candidates.

8. Nextcea's services include determining the level of its proprietary biomarkers in samples provided by its customers using liquid chromatography-tandem mass spectrometry (LC-MS/MS) and other forms of spectrometry. The existence and amount of proprietary biomarkers in a sample correlate with specific conditions, such as particular diseases or drug-induced side effects like phospholipidosis. Nextcea's services can be used in the context of patient diagnosis, drug development, and patient treatment. Relevant to this litigation is Nextcea's proprietary biomarker di-docosahexaenoyl (22:6)- bis(monoacylglycerol)phosphate ("BMP") or "di-22:6-BMP." Di-22:6-BMP is a unique lysosomal phospholipid that plays important roles in

lysosomal degradation pathways and can be measured in noninvasively collected patient urine or plasma samples.

9. Nextcea's founder Dr. Hsieh was the first to identify di-22:6-BMP as a biomarker of several significant medical conditions, including drug-induced phospholipidosis ("DIPL") and lysosomal storage disorders such as Parkinson's disease, frontotemporal dementia, and Niemann-Pick disease. Similarly, Nextcea was the first to exploit this discovered correlation to create and perform tests for induced or inherited phospholipidosis and lysosomal storage disorders based on determining levels of di-22:6-BMP from collected samples. Dr. Hsieh's and Nextcea's contributions in discovering and exploiting their proprietary di-22:6-BMP biomarker are demonstrated by numerous scientific publications such as Tengstrand E, Miwa G, and Hsieh F, *Bis(monoacylglycerol)phosphate as a non-invasive biomarker to monitor the onset and time-course of phospholipidosis with drug-induced toxicities*, Expert Opin. Drug Metab. Toxicol. (2010) 6(5):555-570, Hsieh F. and Tengstrand E., *Drug-induced phospholipidosis assessment from nonclinical to clinical studies*, Dokusei Shitsumon-Bako 2015, 17: 24-36 and Alcalay R, Hsieh F, Tengstrand E, et al. *Higher Urine bis(Monoacylglycerol)Phosphate Levels in LRRK2 G2019S Mutation Carriers: Implications for Therapeutic Development*. Mov. Disord. 2020, 35(1): 134-141.

10. Not only did Dr. Hsieh and Nextcea pioneer the use of its proprietary di-22:6-BMP as a biomarker and the application of its correlation with induced or inherited phospholipidosis and lysosomal storage disorders, they also dedicated significant time, effort, and resources to develop and validate procedures using LC-MS to test for di-22:6-BMP and use determined levels of di-22:6-BMP to diagnose DIPL and lysosomal storage disorders. As a result of Nextcea's efforts, di-22:6-BMP has been established as a validated marker of drug-

induced phospholipidosis and has been accepted for use in drug trials by the FDA. *See e.g.*, Willard, JM Felics AD, *Lysosomes and Phospholipidosis in Drug Development and Regulation* 2016. Hsieh F., invited speaker, FDA CDER Advisory Committee for Pharmaceutical Science and Clinical Pharmacology, Apr. 14, 2010 and Thompson KL, et al., *Int J Toxicol.* 2012;31(1):14-24.

11. Nextcea's practice of its patented inventions involving the di-22:6-BMP biomarker was a key part of its success and growth. Nextcea, aware of the value of its discoveries, sought protection for its proprietary di-22:6-BMP biomarker and uses thereof by obtaining patent protection in the U.S. and around the world, including Japan (Japanese Patent No. 5,702,363) and the European Union (European Patent No. 2,419,742).

12. On November 20, 2012, the USPTO issued U.S. Patent No. 8,313,949 ("949 Patent"), titled "Detecting Phospholipidosis and Diagnosing Lysosomal Storage Disorders." A copy of the '949 Patent is being filed herewith as Exhibit A.

13. The '949 Patent was filed October 14, 2009, and claims priority to U.S. Provisional Application No. 61/169,789, filed April 16, 2009. Drs. Frank Hsieh and Elizabeth Tengstrand are listed as the inventors of the '949 Patent.

14. Nextcea exclusively owns all right, title, and interest in the '949 Patent.

15. The '949 Patent relates to methods of testing samples for the di-22:6-BMP biomarker and using determined levels to evaluate samples for induced phospholipidosis, lysosomal storage disorders, or to treat patients.

Lipotype's Infringing Activities

16. Lipotype is a U.S. subsidiary of the German company Lipotype GmbH. Lipotype sells, provides, and promotes services related to lipidomics including services that test and quantify the amount of selected lipids in provided samples.

17. According to Lipotype's website, it uses mass spectrometry to identify and quantify "100+ lipid classes, in total more than 4200 individual lipids." Lipotype provides a list of lipids it tests for and advertises its available lipid testing services on its website at least at the following page: <https://www.lipotype.com/lipidomics-services/>. Lipotype, in connection with its advertised lipid testing services, also offers project design guidance, sample preparation instructions, and consulting services. Copies, created September 20, 2024, of select pages of Lipotype's website, www.lipotype.com, are filed herewith as Exhibit B.

18. Lipotype, at least on its website at the page <https://www.lipotype.com/lipidomics-services/phospholipid-analysis/ester-phospholipid-analysis/bismonoacylglycerophosphate/>, promotes, advertises, and offers for sale services including "MS-based lipid analysis of BMP phospholipids," where "BMP" refers to bis(monoacylglycero)phosphate, hereinafter "Lipotype BMP Analysis Services." Lipotype's website provides links for customers to "request analysis," that, on information and belief, enable customers to request, purchase, and receive Lipotype BMP Analysis Services. *See* Exhibit B at pgs. 2-6 and 9-11.

19. As part of its promotion and solicitation of Lipotype BMP Analysis Services, Lipotype identifies the correlation between BMP and "lysosomal storage diseases" and "phospholipidosis with drug-induced toxicities." *See* Exhibit B at pg. 2. These match the correlation and uses thereof discovered by Nextcea and protected and disclosed by the '949 Patent.

20. Lipotype also provides and distributes a “Tech Sheet” describing, promoting, and soliciting Lipotype BMP Analysis Services (“Lipotype’s BMP Tech Sheet”). A copy of Lipotype’s BMP Tech Sheet is filed herewith as Exhibit C. Lipotype’s BMP Tech Sheet is available for download on its website. *See* Exhibit B at pg. 6.

21. Lipotype’s BMP Tech Sheet specifically identifies the BMP species “22:6_22:6,” which corresponds to Nextcea’s proprietary di-22:6-BMP biomarker disclosed and protected by the ’949 Patent, as a covered analyte/species in Lipotype BMP Analysis Services. Lipotype’s BMP Tech Sheet further notes that Lipotype BMP Analysis Services provide “fully quantitative results” and that “species are reported at the level of sn-isomers.” *See* Exhibit C at pg. 3.

22. On information and belief, Lipotype BMP Analysis Services include determining the level of Nextcea’s proprietary di-22:6-BMP biomarker, at an isomer level, in test samples.

23. As “Applications” for Lipotype BMP Analysis Services, Lipotype’s BMP Tech Sheet mentions lysosomal storage disorders and phospholipidosis, the same applications discovered by Nextcea and protected and disclosed by the ’949 Patent. *See* Exhibit C at pg. 2.

24. Lipotype’s BMP Tech Sheet also includes guidelines on how to prepare and ship test samples used in Lipotype BMP Analysis Services to Lipotype. *See* Exhibit C at pg. 2.

25. On information and belief, as a result of Lipotype’s offers for sale, advertising and promotion of Lipotype BMP Analysis Services, entities (“Lipotype’s BMP customers”) purchase those services for use in drug development or disease diagnosis testing activities, including uses related to lysosomal storage disorders and phospholipidosis such as determining if a compound has the activity to induce phospholipidosis in a target subject, determining if a patient is suitable for treatment, or determining if a subject has or is at the risk of developing a lipid storage disorder.

26. On information and belief, Lipotype provides instructions and guidance to Lipotype's BMP customers on how to use and apply Lipotype BMP Analysis Services to their diagnostic and/or drug testing applications and research. *See e.g.*, Exhibit B at pg. 10. On information and belief, this includes diagnostic and/or drug testing activities related to phospholipidosis and lysosomal storage disorders such as Parkinson's disease, frontotemporal dementia, and Niemann-Pick disease.

27. On information and belief, Lipotype actively encourages infringement of the '949 Patent by Lipotype's BMP customers at least through its advertisement, sale, and promotion of Lipotype BMP Analysis Services and by providing instructions and guidance on how to use Lipotype BMP Analysis Services.

28. On information and belief, Lipotype's BMP customers directly infringe the '949 Patent either literally or under the doctrine of equivalents by practicing methods protected by at least one claim of the '949 Patent. On information and belief, Lipotype encourages and induces, at least by advertising, selling, and promoting Linotype BMP Analysis Services and providing sample preparation and research guidance, Lipotype's BMP customers to practice methods protected by at least one claim of the '949 Patent. On information and belief, Lipotype's BMP customers control and direct Lipotype's performance of Lipotype BMP Analysis Services as part of drug development and/or disease diagnosis activities induced and encouraged by Lipotype, including, but not limited to, activities related to lysosomal storage disorders and drug-induced phospholipidosis.

29. On information and belief, Lipotype BMP Analysis Services constitute a material part of and are especially made or adapted for the invention recited in and protected by at least

one claim of the '949 Patent and are not a staple article or commodity of commerce suitable for substantial noninfringing use.

30. On information and belief, Lipotype is aware, or should be aware, that it is encouraging and inducing Lipotype's BMP customers to infringe at least one claim of the '949 Patent.

31. On information and belief, Lipotype is aware, or should be aware that Lipotype BMP Analysis Services contribute to Lipotype's BMP customers infringement of at least one claim of the '949 Patent.

32. On August 19, 2024, Nextcea sent Notice Letters to both Lipotype and its German parent, Lipotype GmbH, providing notice of the '949 Patent and Lipotype's infringement of the '949 Patent.

33. On information and belief, Lipotype knew of Nextcea and the '949 Patent prior to the filing of this complaint, and, in any event, is on notice of the '949 Patent and its infringement thereof at least as of the date of this complaint and the Notice Letter.

34. On information and belief, Nextcea's discoveries and services related to its proprietary BMP biomarker are the source of Lipotype's knowledge of BMP's correlation with lysosomal storage disorders and drug induced phospholipidosis and the resulting applications of Lipotype BMP Analysis Services.

35. On information and belief, at least due to Lipotype's existing knowledge of Nextcea, its product, and its intellectual property, including the '949 Patent, Lipotype's infringement of the '949 Patent is willful.

36. Lipotype's infringement of the '949 Patent is already causing clear and irreparable harm to Nextcea. Nextcea, despite the resources it spent and contributions it

provided in its discovery of its proprietary BMP biomarker methods, is at risk of being pushed out of the market it created by the larger and later adopter Lipotype.

37. Appropriation of Nextcea's intellectual property by the larger Lipotype also threatens to induce other companies to similarly copy Nextcea's proprietary methods and infringe its intellectual property, including but not limited to the '949 Patent.

38. The actions of Lipotype have caused, and will cause, irreparable damage to Nextcea, including risk of the loss of Nextcea's ability to control its intellectual property and loss of the business advantages resulting from the time, materials, and know how it dedicated to the discovery and exploitation of its proprietary BMP biomarker.

39. The damage and threat to the Nextcea's business and intellectual property has become untenable.

COUNT I
(Infringement of U.S. Patent No. 8,313,949)

40. Nextcea repeats and realleges the allegations in paragraphs 1-39 of this complaint as if fully set forth herein.

41. On information and belief, Lipotype has infringed and is infringing, one or more claims of the '949 Patent in violation of 35 U.S.C. § 271(b) by inducing customers and users of its Lipotype BMP Analysis Services to infringe one or more claims of the '949 Patent.

42. On information and belief, Lipotype has contributed and is contributing to the infringement of, one or more claims of the '949 Patent in violation of 35 U.S.C. § 271(c) by customers of its Lipotype BMP Analysis Services.

43. Nextcea has suffered and will continue to suffer damages as a result of at least Lipotype's induced and contributory infringement of the '949 Patent.

44. Lipotype's induced and contributory infringement are causing irreparable harm to Nextcea for which Nextcea has no adequate remedy at law and will continue to cause irreparable harm unless Lipotype is enjoined by this Court.

45. On information and belief, Lipotype's infringement of the '949 Patent is willful and Nextcea is entitled to enhancement of damages under 35 U.S.C. § 284, and attorneys' fees and costs incurred under § 285.

WHEREFORE, the plaintiff, Nextcea Inc. demands judgment as follows:

A. Entry of judgment in favor of Nextcea and against Lipotype that Lipotype has infringed and is infringing the '949 Patent as alleged in Count I;

B. Permanently enjoining Lipotype and its affiliates, subsidiaries, assigns, employees, agents, or anyone acting in privity or concert with Lipotype, from infringing, directly or indirectly, the '949 Patent, including enjoining Lipotype from using or performing methods claimed in the '949 Patent; enjoining Lipotype from inducing others to use and perform methods that infringe any claim of the '949 Patent; and enjoining Lipotype from contributing to others using and performing methods that infringe any claim of the '949 Patent, until the expiration thereof;

C. Determining and awarding Nextcea its damages resulting from Lipotype's infringement of the '949 Patent;

D. Determining Lipotype's infringement of the '949 Patent to be willful and awarding enhanced damages under 35 U.S.C. § 284, and attorneys' fees and costs incurred under § 285;

E. Granting such other and further relief as this Court may deem just and proper.

THE PLAINTIFF DEMANDS A TRIAL BY JURY.

Nextcea Inc.,

By its attorneys,

/s/ Lawrence P. Cogswell III, Ph.D.

Lawrence P. Cogswell III, Ph.D. (BBO# 664386)

lawrence.cogswell@hbsr.com

Samuel J. Sussman (BBO# 696909)

samuel.sussman@hbsr.com

Hamilton, Brook, Smith & Reynolds, P.C.

155 Seaport Blvd.

Boston, Massachusetts 02210

Telephone: 617-607-5900

Fax: 978-341-0136

Dated: October 15, 2024

4027510.v1