IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

EXELA PHARMA SCIENCES, LLC,

Plaintiff,

v.

AVADEL LEGACY PHARMACEUTICALS, LLC; and AVADEL US HOLDINGS, INC.,

Defendants.

Civil Action No.: _____

JURY TRIAL DEMANDED

COMPLAINT

Plaintiff Exela Pharma Sciences, LLC ("Plaintiff" or "Exela") by its attorneys, hereby alleges as follows:

NATURE OF ACTION

1. This is an action for a declaratory judgment of infringement of U.S. Patent No. 10,478,453 ("the '453 patent") under 28 U.S.C. §§ 2201 and 2202 and the Patent Laws of the United States, 35 U.S.C. § 1 *et seq.*, including §§ 271(a)-(c). Exela brings this action to enforce its patent rights covering ELCYS® brand L-cysteine hydrochloride injection, which is approved by the United States Food and Drug Administration ("FDA") for use as an additive to amino acid solutions to meet the nutritional requirements of newborn infants requiring total parenteral nutrition (TPN) and of adult and pediatric patients with severe liver disease who may have impaired enzymatic processes and require TPN.

THE PARTIES

2. Plaintiff Exela Pharma Sciences, LLC ("Exela") is a company existing under the laws of the state of Delaware and having a principal place of business at 1245 Blowing Rock Blvd., Lenoir, NC 28645.

3. On information and belief, Defendant Avadel Legacy Pharmaceuticals, LLC is a company existing under the laws of the State of Delaware and having a principal place of business at 16640 Chesterfield Grove Road, Suite 200, Chesterfield, MO 63005.

4. On information and belief, Defendant Avadel US Holdings Inc. is a company existing under the laws of the State of Delaware and having a principal place of business at 16640 Chesterfield Grove Road, Suite 200, Chesterfield, MO 63005.

5. On information and belief, Avadel Legacy Pharmaceuticals, LLC is a wholly-owned subsidiary of Avadel US Holdings, Inc.

6. On information and belief, Defendants Avadel Legacy Pharmaceuticals, LLC and Avadel US Holdings, Inc. (collectively, "Avadel") are in the business of formulating, developing, manufacturing, importing, marketing, offering for sale, and/or selling pharmaceutical products that are distributed in and sold throughout the United States, including in this District.

JURISDICTION AND VENUE

7. This Court has subject matter jurisdiction over the action under 28 U.S.C. §§ 1331 and 1338(a), 2201 and 2202, because the action concerns a federal question arising under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq*.

8. This Court has personal jurisdiction over Avadel US Holdings, Inc., and Avadel Legacy Pharmaceuticals, LLC, because each is incorporated in this District and is doing business in this District.

9. Venue is proper in this District with respect to Avadel US Holdings, Inc., and Avadel Legacy Pharmaceuticals, LLC, pursuant to 28 U.S.C. § 1391 and § 1400(b) because each resides in this District.

10. Joinder of both Defendants in this action is proper under 35 U.S.C. § 299(a) because Plaintiff's right to relief is asserted against the parties jointly and arising out of the same transaction, occurrence, or series of transactions or occurrences relating to the making, using, importing into the United Sates, offering for sale, and/or selling of the same accused product or process; and questions of fact common to all Defendants will arise in the action.

FACTUAL BACKGROUND

A. The Development and FDA Approval of Exela's ELCYS® L-Cysteine Product

11. Exela is a relatively small but fast-growing specialty pharmaceutical company focused on developing, manufacturing, and marketing injectable products, including L-cysteine.

12. L-cysteine is an amino acid that is important for human life. While healthy adults can naturally synthesize small amounts, high-risk patients such as preterm and/or low birth weight infants and patients with severe liver disease require L-cysteine supplementation by parenteral administration (i.e., injection or intravenous infusion). For these patients, L-cysteine is administered as a component of a nutritional supplement regimen referred to as "total parenteral nutrition" (TPN).

13. Before Exela began work on developing its L-cysteine product, there was no FDA-approved intravenous L-cysteine hydrochloride product on the market in the United States. However, multiple unapproved and compounded L-cysteine products were on the market during that time that were used in TPN regimens. One significant drawback of such L-cysteine products is that they were known to contain high amounts of aluminum, for example, 5,000 mcg/L.

14. TPN solutions were also known to contain high amounts of aluminum, and aluminum toxicity from their use had been reported. Aluminum toxicity can cause serious health problems including dementia, impaired neurologic development, Alzheimer's disease, metabolic bone disease (including impaired bone growth, growth failure, bone pain, muscle weakness, nonhealing fractures, and premature osteoporosis), encephalopathy, and cholestasis (liver disease), among others.

15. In 2000, FDA issued regulations requiring manufacturers to reduce aluminum levels of parenteral products. 65 Fed. Reg. 4103 (Jan. 26, 2000). That regulation became final in 2004. 68 Fed. Reg. 32,979 (June 3, 2003). It requires manufacturers of TPN components to include the following warning on their product labeling: "Research indicates that patients with impaired kidney function, including premature neonates, who receive parenteral levels of aluminum at greater than 4 to 5 [micro]g/kg/day accumulate aluminum at levels associated with central nervous system and bone toxicity." 65 Fed. Reg. 4103, 4111 (Jan. 26, 2000). These regulations are codified at 21 C.F.R. § 201.323.

16. In April of 2019, after extensive effort, research and development, including substantial work to achieve the ≤ 145 mcg/L aluminum level FDA mandated for the product, [Ex. A (8/4/2017 FDA Letter)], Exela secured FDA approval for an injectable L-cysteine hydrochloride product containing low aluminum levels, finally fulfilling a long-felt need for a low-aluminum injectable cysteine product.

17. Exela's FDA approved L-cysteine hydrochloride product, sold under the brand name ELCYS®, is labeled to contain no more than 120 micrograms/liter ("mcg/L," "μg/L" or, more commonly, parts per billion or ppb) of aluminum, and is the only FDA approved L-cysteine product available on the market today. [Ex. B (ELCYS® Label), §11.]

18. Exela's ELCYS® product is a sterile, nonpyrogenic solution for intravenous use. Each 10 mL of ELCYS® contains 500 mg of cysteine hydrochloride, USP (equivalent of 345 mg of cysteine) in water for injection. [*Id.* at §11.]

19. The FDA-approved labeling for Exela's ELCYS® product instructs healthcare providers that "ELCYS is indicated for use as an additive to amino acid solutions to meet the nutritional requirements of newborn infants requiring total parenteral nutrition (TPN) and of adult and pediatric patients with severe liver disease who may have impaired enzymatic processes and require TPN. It can also be added to amino acid solutions to provide a more complete profile of amino acids for protein synthesis." [*Id.* at §1.]

20. The FDA-approved labeling for Exela's ELCYS® product instructs healthcare providers that "Prior to administration, ELCYS *must be diluted and used as an admixture* in parenteral nutrition (PN) solutions." [*Id.* at §2.1.] It further instructs, "ELCYS is for addition to amino acid solutions prior to further admixing with dextrose injection using a PN container." [*Id.* at §2.2.]

21. The FDA-approved labeling for Exela's ELCYS® product instructs healthcare providers:

- "Transfer the required amount of ELCYS to an amino acid solution . . . ."
- "The amino acid solution containing ELCYS can then be used to prepare admixtures in the PN container . . . ."
- "Amino acid solutions containing ELCYS may be mixed with dextrose injection. The following proper mixing sequence must be followed to minimize pH related problems:
    1. Transfer dextrose injection to the parenteral nutrition pooling container

2. Transfer phosphate salt
3. Transfer ELCYS-containing amino acid solution
4. Transfer electrolytes
5. Transfer trace elements"

[*Id.* at §2.3.]

22. The FDA-approved labeling for Exela's ELCYS® product includes the following Warnings: "Aluminum may reach toxic levels with prolonged parenteral administration in patients with renal impairment. Preterm infants are particularly at risk for aluminum toxicity because their kidneys are immature, and they require large amounts of calcium and phosphate solutions, which also contain aluminum. Patients with renal impairment, including preterm infants, who receive greater than 4 to 5 mcg/kg/day of parenteral aluminum can accumulate aluminum to levels associated with central nervous system and bone toxicity." [*Id.* at §5.7.] It further instructs, "[e]xposure to aluminum from ELCYS is not more than 0.21 mcg/kg/day when preterm and term infants less than 1 month of age are administered the recommended maximum dosage of ELCYS (15 mg cysteine/g of amino acids and 4 g of amino acids/kg/day) *[see Table 1, Dosage and Administration (2.5)]*. When prescribing ELCYS for use in PN containing other small volume parenteral products, the total daily patient exposure to aluminum from the admixture should be considered and maintained at no more than 5 mcg/kg/day *[see Use in Specific Populations (8.4)]*." [*Id.*]

B. The Asserted '453 Patent

23. On November 19, 2019, the United States Patent and Trademark Office ("USPTO") duly and legally issued the '453 patent, entitled "Stable, Highly Pure L-Cysteine Compositions for Injection and Methods of Use," and naming John Maloney, Aruna Koganti,

and Phanesh Koneru as inventors. A true and correct copy of the '453 patent is attached to this Complaint as Exhibit C.

24. The '453 patent is assigned to Plaintiff Exela.

25. On November 19, 2019, Exela submitted the '453 patent for listing in the "Approved Drug Products with Therapeutic Equivalence Evaluations," commonly referred to as the "Orange Book," which provides notice concerning patents covering FDA-approved drugs.

26. On or about November 20, 2019, the FDA published the '453 patent in the Orange Book.

27. Claim 1 of the '453 patent reads as follows:

> 1. A stable L-cysteine composition for parenteral administration, comprising:
> L-cysteine or a pharmaceutically acceptable salt thereof and/or hydrate thereof in an amount from about 10 mg/mL to about 100 mg/mL;
> Aluminum (Al) in an amount from about 1.0 parts per billion (ppb) to about 250 ppb;
> L-cystine in an amount from about 0.001 wt % to about 2.0 wt % relative to L-cysteine;
> pyruvic acid in an amount from about 0.001 wt % to about 2.0 wt % relative to L-cysteine;
> a pharmaceutically acceptable carrier, comprising water;
> headspace oxygen that is from about 0.5% v/v to 4.0% v/v from the time of manufacture to about 1 month from manufacture when stored at room temperature;
> dissolved oxygen present in the carrier in an amount from about 0.1 parts per million (ppm) to about 5 ppm from the time of manufacture to about 1 month from manufacture when stored at room temperature,
> wherein the composition is enclosed in a single-use container having a volume of from about 10 mL to about 100 mL.

28. Claim 4 of the '453 patent reads as follows:

> 4. The composition of claim 1, wherein said Aluminum is present in an amount from about 1.0 ppb to about 150 ppb.

29. Claim 5 of the '453 patent reads as follows:

> 5. The composition of claim 1, wherein said Aluminum is present in an amount from about 1.0 ppb to about 100 ppb.

30. Claim 6 of the '453 patent reads as follows:

6. The composition of claim 1, wherein said Aluminum is present in an amount from about 1.0 ppb to about 50 ppb.

31. Claim 7 of the '453 patent reads as follows:

7. The composition of claim 1, wherein said Aluminum is present in an amount from about 1.0 ppb to about 20 ppb.

32. Claim 22 of the '453 patent reads as follows:

22. A method of preparing a reduced Aluminum composition for a total parenteral nutrition regimen comprising L-cysteine, the method comprising:
mixing a composition comprising L-cysteine or a pharmaceutically acceptable salt thereof and/or hydrate thereof comprising:
Aluminum in an amount from about 1.0 parts per billion (ppb) to about 250 ppb;
L-cystine in an amount from about 0.001 wt % to about 2.0 wt % relative to L-cysteine; and
pyruvic acid in an amount from about 0.001 wt % to about 2.0 wt % relative to L-cysteine;
with a composition comprising one or more amino acids selected from the group consisting of: leucine, isoleucine, lysine, valine, phenylalanine, histidine, threonine, methionine, tryptophan, alanine, arginine, glycine, proline, serine, and tyrosine; and a pharmaceutically acceptable carrier, comprising water, to form a composition for infusion having a volume of about 100 mL to about 1000 mL,
wherein the Aluminum provided in said parenteral nutrition regimen is from about 1-2 to about 4-5 micrograms/kg/day.

33. Exela's ELCYS® product, and its use, is covered by at least claims 1, 4-7, and 22 of the '453 patent.

ACTS GIVING RISE TO THIS ACTION FOR DEFENDANTS' INFRINGEMENT OF THE PATENT-IN-SUIT

34. On December 13, 2019, FDA approved NDA No. 212-535 for NOURESS™ brand cysteine hydrochloride injection USP, 50 mg/mL (the "Accused Product").

35. The FDA-approved labeling for the Accused Product (the "NOURESS Label") states that it is "Manufactured for: Avadel Legacy Pharmaceuticals, LLC." [Ex. D (NOURESS Label) at §17.]

36. On information and belief, Avadel Legacy Pharmaceuticals, LLC currently markets and sells three FDA-approved, sterile injectable drug products—Bloxiverz®,

Vazculep®, and Akovaz®—throughout the United States in active concert with and/or for the benefit of Avadel US Holdings, Inc.

37. Each of the current FDA approved labels for Bloxiverz®, Vazculep®, and Akovaz® states, as the NOURESS Label states, that the product is "Manufactured for: Avadel Legacy Pharmaceuticals, LLC."

38. On information and belief, Avadel Legacy Pharmaceuticals, LLC will import, manufacture, market, offer for sell, and/or sell the Accused Product throughout the United States, including in this District, in active concert with and/or for the benefit of Avadel US Holdings, Inc.

39. On December 16, 2019, a press release was issued announcing the approval of NOURESS™. [Ex. E (12/16/2019 Press Release).]

40. In that December 16, 2019 press release, the Accused Product was identified by the code name AV001.

41. In its Form 10-Q Quarterly Report dated November 12, 2019, Avadel US Holding Inc.'s parent company, Avadel Pharmaceuticals plc, represented: "AV001, if approved, could contribute revenues to Avadel starting in 2020."

42. In an earnings call dated August 9, 2019, the Chief Executive Officer of Avadel Pharmaceuticals plc represented: "It is our expectation that if approved AV001 will begin to contribute to revenues in the first quarter of 2020."

43. The December 16, 2019 press release stated that, "With FDA approvals of Nouress and another U.S. company's cysteine hydrochloride injection earlier this year, Avadel expects domestic supply of cysteine hydrochloride injection earlier this year, Avadel expects domestic supply of cysteine hydrochloride injection will be sufficient to support the entire U.S.

market, which, under FDA regulations, should preclude further import or U.S. marketing of unapproved cysteine hydrochloride injection products. Under these potential market conditions, the U.S. annual market for cysteine hydrochloride could be greater than $50 million." [Ex. E (12/16/2019 Press Release).]

44. On information and belief, the manufacture and/or launch of the Accused Product in the United States by Avadel Legacy Pharmaceuticals, LLC, in active concert with and/or for the benefit of Avadel US Holdings, Inc. is imminent.

45. The December 16, 2019 press release states that the Accused Product is covered by U.S. Patent No. 10,493,051 ("the '051 patent"), entitled "Cysteine Composition and Injection." [Ex. E (12/16/2019 Press Release).] The '051 patent is attached hereto as Exhibit F.

46. The December 16, 2019 press release states that the '051 patent is listed in the Orange Book for the Accused Product.

47. The NOURESS Label states that "NOURESS (cysteine hydrochloride injection) is a sterile, nonpyrogenic solution for intravenous use supplied as 500 mg/10mL cysteine hydrochloride, USP in a single-dose vial. Each mL of NOURESS contains 50 mg of cysteine hydrochloride, (equivalent to 34.5 mg of cysteine), and 0.006 mL of hydrochloric acid (6M) in water for injection." [Ex. D (NOURESS Label) at §11.]

48. The NOURESS Label states that "NOURESS contains no more than 145 mcg/L of aluminum." [Ex. D (NOURESS Label) at §11.]

49. The '051 patent, which has been represented to cover the Accused Product, discloses solutions of cysteine having less than 3 ppb Aluminum when stored at room temperature for up to 9 months. [Ex. F, '051 patent at 13:17-41 (Tbl. 5).]

50. Accordingly, on information and belief, the actual amount of aluminum in the Accused Product is from about 1.0 ppb to about 20 ppb.

51. L-cystine is a degradation product of L-cysteine.

52. The ’051 patent, which has been represented to cover the Accused Product, discloses solutions of cysteine “having a cysteine monomer content of at least 99% by weight and a cystine dimer content of less than 1% by weight.” [*See, e.g.*, Ex. F., ’051 patent at 2:29-32; *see also id.* at 4:48-56, 5:53-57.]

53. Accordingly, on information and belief, the Accused Product contains L-cystine in an amount between about 0.001 wt % and about 2.0 wt % relative to L-cysteine.

54. Pyruvic acid is a degradation product of L-cysteine.

55. On information and belief, pyruvic acid is present in low amounts in cysteine hydrochloride solutions and will not exceed about 2.0 wt % relative to L-cysteine over the FDA-approved shelf life for a cysteine hydrochloride injection product.

56. Accordingly, on information and belief, the Accused Product contains pyruvic acid in an amount between about 0.001 wt % and about 2.0 wt % relative to L-cysteine.

57. The ’051 patent, which has been represented to cover the Accused Product, states that its cysteine solutions “include low levels of dissolved oxygen content” and that “some solutions may have a dissolved oxygen content of less than 2 mg/L.” [Ex. F, ’051 patent at 1:57-63; *see also id.* at 2:29-33, 3:1-4, 5:8-19.]

58. The ’051 patent further states that “exemplary embodiments” include those comprising a “50 mg/mL solution of cysteine hydrochloride monohydrate.” The ’051 patent further states that this exemplary “50 mg/mL solution of cysteine hydrochloride monohydrate may have a dissolved oxygen content of less than 2 mg/L.” [Ex. F, ’051 patent at 6:33-45.]

59. 2 mg/L is equivalent to 2 ppm.

60. The ’051 patent, which has been represented to cover the Accused Product, states, “In some embodiments of the above-described processes for preparing cysteine, the filtered solution in the container may be overlaid with a layer of nitrogen, and the container may be sealed.” [Ex. F, ’051 patent at 3:5-8; *see also id.* at 2:13-16.]

61. The ’051 patent further discloses that, “[o]nce filled with the appropriate volume, the cysteine solution generally is overlaid with nitrogen, and then the vial is sealed using conventional means.” [Ex. F, ’051 patent at 7:57-59.]

62. On information and belief, the purpose of overlaying nitrogen above the cysteine solution in the container is to reduce or remove oxygen from the container’s headspace.

63. The ’051 patent discloses that reduction of oxygen in the cysteine composition, including by use of nitrogen overlay before sealing the container, reduces the formation of cystine. [Ex. F, ’051 patent at 10:62-13:16 (Exs. 4-6).]

64. On information and belief, especially in view of the ’051 patent and the NOURESS Label, the container for the Accused Product is a 10 mL Type I plus® vial coated with silica. [*See, e.g.*, Ex. D (Nouress Label) §3; Ex. F, ’051 patent at 7:66-8:1; *id.* at 9:45-66.]

65. On information and belief, in the absence of overlaying nitrogen or an inert gas, the headspace oxygen in a 10 mL coated glass container comprising a cysteine solution is approximately 8% v/v.

66. On information and belief, reduction of headspace oxygen in a 10 mL coated glass container comprising a cysteine solution to about 4% v/v or less increases stability and decreases likelihood cysteine oxidizes to cystine.

67. On information and belief, during manufacture of the Accused Product, the cysteine solution in the container is overlaid with nitrogen prior to sealing.

68. On information and belief, the amount of headspace oxygen in the Accused Product is about 4.0% v/v or less.

69. On information and belief, including because it has received FDA approval, the Accused Product is stable for at least one month from manufacture when stored at room temperature.

70. In addition, the ’051 patent, which has been represented to cover the Accused Product, discloses solutions of cysteine that are stable when stored at room temperature for up to 18 months. [Ex. F, ’051 patent at 13:17-41 (Ex. 7 & Tbl. 5).]

71. The ’051 patent further states that its “cysteine compositions or solutions, when dispensed into vials as described above, are substantially stable for at least one month . . . when stored at 25° C and 60% relative humidity or 40° C and 75% relative humidity.” [Ex. F, ’051 patent at 6:10-15.]

72. Accordingly, on information and belief, the Accused Product contains dissolved oxygen present in the carrier in an amount from about 0.1 ppm to about 5 ppm, and headspace oxygen that is from about 0.5% v/v to 4.0% v/v, from the time of manufacture to about 1 month from manufacture when stored at room temperature.

73. Accordingly, on information and belief, the Accused Product infringes claims 1 and 4-7 of the ’453 patent, either literally or under the doctrine of equivalents.

74. The NOURESS Label instructs healthcare providers that “NOURESS is indicated for use as an additive to amino acid solutions to meet nutritional requirements of neonates

(preterm and term infants less than one month of age) requiring total parenteral nutrition." [Ex. D (NOURESS Label) at §1.]

75. The NOURESS Label instructs healthcare providers that "Prior to administration, NOURESS *must be diluted and used as an admixture* in parenteral nutrition solutions." [*Id.* at §2.2.] It further instructs, "NOURESS is for addition to amino acid solutions prior to further admixing with dextrose injection using a parenteral nutrition container." [*Id.*]

76. The NOURESS Label instructs healthcare providers:

- "Transfer the required amount of NOURESS to an amino acid solution . . . ."
- "The amino acid solution containing NOURESS can then be used to prepare admixtures in the parenteral nutrition container . . . ."
- "Amino acid solutions containing NOURESS may be mixed with dextrose injection. The following proper mixing sequence must be followed to minimize pH related problems:
    1. Transfer dextrose injection to the parenteral nutrition pooling container
    2. Transfer phosphate salt
    3. Transfer NOURESS-containing amino acid solution
    4. Transfer electrolytes
    5. Transfer trace elements"

[*Id.* at §2.3.]

77. The NOURESS Label contains the Warning: "Aluminum may reach toxic levels with prolonged parenteral administration in patients with renal impairment. Neonates and preterm infants are particularly at risk for aluminum toxicity because their kidneys are immature, and they require large amounts of calcium and phosphate solutions, which also contain

aluminum. Patients with renal impairment including neonates and preterm infants, who receive greater than 4 to 5 mcg/kg/day of parenteral aluminum can accumulate aluminum to levels associated with central nervous system and bone toxicity." [*Id.* at §5.6.] It further instructs, "[e]xposure to aluminum from NOURESS is not more than 0.25 mcg/kg/day when preterm and term neonates are administered the recommended maximum dosage of NOURESS (22 mg cysteine/g of amino acids and 4 g of amino acids/kg/day) *[see Dosage and Administration (2.5)]*. When prescribing NOURESS for use in parenteral nutrition containing other small volume parenteral products, the total daily patient exposure to aluminum from the admixture should be considered and maintained at no more than 5 mcg/kg/day *[see Use in Specific Populations (8.4)]*." [*Id.*]

78. The volume of TPN solution prepared for a given patient depends upon the patient's weight and nutritional needs and, on information and belief, neonates and preterm infants typically receive around 100 mL of TPN while larger patients receive around 1000 mL of TPN solution. Thus, on information and belief, when healthcare providers admix the Accused Product with amino acid compositions and other components to prepare a TPN regimen for such patients, they will prepare compositions having a volume of about 100 mL to about 1000 mL.

79. In the "Preparation and Administration Information" section, the NOURESS Label instructs that "NOURESS is for addition to amino acid solutions prior to further admixing with dextrose injection using a parenteral nutrition container," and that "[c]alcium and phosphate ratios must be considered." [Ex. D (NOURESS Label) at §2.2.]

80. In the "Preparation Instructions for Admixing Using a Parenteral Nutrition Container" section, the NOURESS Label instructs the admixing of "dextrose injection,"

"phosphate salt," "NOURESS-containing amino acid solution," "electrolytes," and "trace elements." [*Id.* at §2.3.]

81. In the "Aluminum Toxicity" section, the NOURESS Label teaches that "[n]eonates and preterm infants…require large amounts of calcium and phosphate solutions, which also contain aluminum," and instructs that "[w]hen prescribing NOURESS for use in parenteral nutrition containing other small volume parenteral products, the total daily patient exposure to aluminum from the admixture should be considered and maintained at no more than 5 mcg/kg/day." [*Id.* at § 5.6.]

82. On information and belief, when healthcare providers admix the Accused Product, NOURESS™, with other components as instructed by the NOURESS Label to prepare compositions for a TPN regimen, they will prepare compositions that provide aluminum from about 1-2 to about 4-5 mcg/kg/day. For example, a healthcare provider making an admixture of the Accused Product, an amino acid composition such as Travasol®, dextrose injection, calcium and/or phosphate solutions, electrolytes, and trace elements for use with a 1 kg infant according to the instructions on the respective product labels, will prepare the composition in a volume of about 100 mL to about 1000 mL, and the admixture will provide, when dosed, from about 1-2 mcg/kg/day to about 4-5 mcg/kg/day of aluminum, in compliance with FDA regulations.

83. Accordingly, on information and belief, healthcare providers that follow the instructions on the NOURESS Label will directly infringe claim 22 of the '453 patent, either literally or under the doctrine of equivalents.

84. The commercial manufacture, importation, use, sale, or offer for sale of the Accused Product will result in infringement of the '453 patent.

COUNT I

(Declaratory Judgment of Infringement of the '453 Patent Under 35 U.S.C. § 271(a), (b), and/or (c))

85. Plaintiff incorporates each of the preceding paragraphs as if fully set forth herein.

86. This claim arises under the Declaratory Judgment Act, 28 U.S.C. §§ 2201 and 2202.

87. There is an actual case or controversy such that the Court may entertain Plaintiff's request for declaratory relief consistent with Article III of the United States Constitution, and that actual case or controversy requires a declaration of rights by this Court.

88. On information and belief, Avadel will engage in the commercial manufacture, use, offer for sale, sale, and/or importation of the Accused Product immediately and imminently.

89. The actions alleged herein, including but not limited to, the development of the Accused Product, the filing of NDA No. 212-535, the content of the NOURESS Label, and representations in SEC filings and on earnings calls and in a press release, as detailed herein, reliably predict that Avadel has made and will continue to make substantial preparations to manufacture, sell, offer to sell, and/or import the Accused Product.

90. On information and belief, Avadel became aware of the '453 patent no later than when it was listed in the Orange Book as covering ELCYS®.

91. Alternatively, Avadel knew of the '453 patent at least by December 16, 2019, when a press release was issued acknowledging the '453 patent. [Ex. E (12/16/2019 Press Release).]

92. On information and belief, and as detailed herein, the Accused Product practices all limitations of claims 1 and 4-7 of the '453 patent, and thus the manufacture, importation, use,

sale, and/or offer for sale of the Accused Product in the United States will constitute an act of infringement of the ’453 patent.

93. On information and belief, Avadel will include within the packaging of the Accused Product, or will otherwise make available, a label and/or instructions for use that instruct healthcare providers to perform the method of at least claim 22 of the ’453 patent.

94. On information and belief, healthcare providers preparing a total parenteral nutrition regimen using the Accused Product within the United States and according to the instructions in the NOURESS Label will directly infringe at least claim 22 of the ’453 patent.

95. On information and belief, Avadel possesses specific intent to encourage direct infringement of at least claim 22 of the ’453 patent, including because the NOURESS Label instructs users to perform the patented method of claim 22, providing evidence of an affirmative intent to induce infringement.

96. In addition, the ’051 patent, which has been represented to cover the Accused Product, includes claims describing that the cysteine solution “is suitable for use as an additive in total parenteral nutrition formulation for a neonate or an infant,” and “is designed to be parenterally administered as part of a total parenteral nutrition injection to a neonate or an infant,” and discloses admixing its cysteine solutions with amino acid solutions and/or other components for use in TPN regimens, which further evidences Avadel’s specific intent that users infringe claim 22 of the ’453 patent. [Ex. F, ’051 patent at claims 1 & 26; *id.* at 8:4-9:14.]

97. On information and belief, upon awareness of the ’453 patent, Avadel either actually knew of the potential for infringement of one or more claims of the ’453 patent, or was willfully blind as to the potential for that infringement, at least because Avadel provides

instructions for infringement of at least the method of claim 22 of the ’453 patent in its NOURESS Label.

98. The commercial manufacture, importation, use, sale, or offer for sale of the Accused Product will constitute an act of active inducement of infringement of the ’453 patent.

99. On information and belief, Avadel knows of the ’453 patent and knows that the Accused Product, NOURESS™, is a material part of the method of claim 22 of the ’453 patent, including as evidenced by the contents of the NOURESS Label.

100. On information and belief, the Accused Product was especially made or especially adapted for use by a healthcare provider in a manner that would infringe claim 22 of the ’453 patent, as evidenced by the instructions in the NOURESS Label and the content of the ’051 patent and its claims.

101. On information and belief, the Accused Product is not a staple article or commodity of commerce suitable for a substantial non-infringing use, as evidenced by the NOURESS Label and the fact that it is FDA-approved for a particular use.

102. There are no suitable uses for cysteine hydrochloride injections other than treating patients pursuant to FDA’s approval for such products.

103. The commercial manufacture, importation, use, sale, or offer for sale of the Accused Product will constitute an act of contributory infringement of the ’453 patent.

104. Given that Avadel is on notice of the ’453 patent, that its infringement of at least claims 1, 4-7, and 22 of the ’453 patent is readily determinable, and that Exela, as a competitor of Avadel, will be harmed by the importation, use, offer for sale, and/or sales of the Accused Product, any manufacture, importation, use, offer for sale, and/or sales of the Accused Product

by Avadel in the United States will be both deliberate and malicious, and constitute willful infringement of at least claims 1, 4-7, and 22 of the ’453 patent.

105. The commercial manufacture, importation, use, sale, or offer for sale of the Accused Product in violation of Plaintiff’s patent rights will cause harm to Plaintiff for which damages are inadequate.

106. Plaintiff is entitled to a declaratory judgment that the future manufacture, use, offer for sale, sale, and/or importation of the Accused Product before patent expiration will constitute direct infringement of at least claims 1 and 4-7 of the ’453 patent, and active inducement of infringement and contributory infringement of at least claim 22 of the ’453 patent.

107. Unless and until Avadel is enjoined from infringing the ’453 patent, Plaintiff will suffer irreparable injury for which damages are an inadequate remedy.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for the following relief:

A. That a declaration be issued under 28 U.S.C. § 2201 that the manufacture, use, offer for sale, sale, and/or importation of the Accused Product before expiration of the ’453 patent does and will infringe the ’453 patent;

B. That an order preliminarily and permanently enjoining Defendants and their affiliates, subsidiaries, officers, agents, employees, attorneys, and all persons in active concert or participation with any of them, or acting on their behalf, from infringing the ’453 patent;

C. That, if Defendants launch the Accused Product, judgment be entered that Defendants have infringed one or more of claims of the ’453 Patent by making, using, selling, and offering to sell the Accused Product within the United States and/or importing the Accused Product into the United States;

D. That, if Defendants launch the Accused Product, Plaintiff be awarded damages in an amount sufficient to compensate them for Defendants' infringement of the '453 patent, together with prejudgment and post-judgment interest and costs under 35 U.S.C. § 284;

E. That, if Defendants launch the Accused Product, Plaintiff be awarded enhanced damages pursuant to 35 U.S.C. § 284 for Defendants' willful infringement of the '453 patent;

F. That this case be declared an exceptional case under 35 U.S.C. § 285, and that Plaintiff be awarded reasonable attorneys' fees and costs;

G. That, if Defendants launch the Accused Product, an accounting be performed of Defendants' infringing activities through trial and judgment; and

H. That this Court award such other and further relief as it may deem just and proper.

JURY TRIAL DEMANDED

Pursuant to Federal Rule of Civil Procedure 38(b), Plaintiff hereby demands a trial by jury of all issues so triable. Specifically, Plaintiff demands a jury trial in the event Defendants launch the Accused Product and damages are in issue.

Dated: January 7, 2020

By: /s/ *Robert M. Oakes*

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ATTORNEYS FOR PLAINTIFF
EXELA PHARMA SCIENCES, LLC

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

EXELA PHARMA SCIENCES, LLC,

Plaintiff,

v.

AVADEL LEGACY PHARMACEUTICALS, LLC; and AVADEL US HOLDINGS, INC.,

Defendants.

VERIFICATION

I, Phanesh Koneru, verify under penalty of perjury under the laws of the United States of America that the allegations in the above Complaint are true and correct to the best of my knowledge.

This the 6th day of January, 2020.

Phanesh Koneru

The foregoing document was acknowledged before me this 6th day of January, 2020, by Phanesh Koneru.

Witness my hand and official seal.

Bernadine Kincaid
Notary Public

My commission expires: May 22, 2024