IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

CORNELL UNIVERSITY, CORNELL RESEARCH FOUNDATION, INC., LIFE TECHNOLOGIES CORPORATION AND APPLIED BIOSYSTEMS, LLC, Plaintiffs, v. ILLUMINA, INC., Defendant.	C.A. No. 10-433-LPS **DEMAND FOR JURY TRIAL**

FIRST AMENDED COMPLAINT

Plaintiffs Cornell University and Cornell Research Foundation, Inc. (collectively, "Cornell"), and Life Technologies Corporation and Applied Biosystems, LLC (collectively, "Life Technologies") allege as follows:

I.

NATURE OF THE ACTION

1. This is an action arising under the patent laws of the United States (35 U.S.C. §271 et seq.) based upon infringement by Defendant Illumina, Inc. ("Illumina") of patents owned by Cornell. Exclusive rights in and to each of the patents-in-suit have been granted to Life Technologies. Plaintiffs seek a preliminary injunction, damages for Defendant's infringement, and a permanent injunction restraining Defendant from further infringement.

II.

THE PARTIES

2. Plaintiff Cornell University is a private university located in Ithaca, New York. Plaintiff Cornell Research Foundation, Inc. is a New York non-profit corporation, having its principal place of business at 395 Pine Tree Road, Suite 310, Ithaca, New York 14850. Cornell Research Foundation, Inc. is a wholly owned subsidiary of Cornell University, whose mission is to manage the intellectual property invented by Cornell University employees under Cornell University's Inventions and Related Property Rights Policy, including obtaining patent, trademark or copyright protection where appropriate and licensing intellectual property for commercial development and use.

3. Plaintiff Life Technologies Corporation is a Delaware corporation with a principal place of business at 5791 Van Allen Way, Carlsbad, California 92008. Plaintiff Applied Biosystems, LLC is a wholly-owned subsidiary of Life Technologies Corporation. Life Technologies serves the life science industry and research community by developing and marketing instrument-based systems, consumables, software, and services. Its customers use these tools to analyze nucleic acids (DNA and RNA), small molecules, and proteins to make scientific discoveries and develop new pharmaceuticals. Life Technologies' products also serve the needs of some markets outside of life science research, in applied markets, such as the fields of: human identity testing (forensic and paternity testing); "biosecurity," which refers to products needed in response to the threat of biological terrorism and other malicious, accidental, and natural biological dangers; and quality and safety testing, for example in the food and drug environment.

4. Upon information and belief, Illumina, Inc., is a Delaware corporation, with its principal place of business located at 9885 Towne Centre Drive, San Diego, CA 92121-1975.

III.

JURISDICTION AND VENUE

5. This is an action for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code.

6. This Court has subject matter jurisdiction under 28 U.S.C. § 1331 and 1338(a).

7. Venue is proper in this judicial district under 28 U.S.C. §§ 1391 and 1400(b) because, upon information and belief, Illumina has, among other things, committed infringing acts in this district and does business in this district generally.

IV.

BACKGROUND

8. United States Patent No. 6,797,470 ("the '470 Patent"), entitled "Detection of Nucleic Acid Sequence Differences Using Coupled Ligase Detection and Polymerase Chain Reactions," was issued by the United States Patent and Trademark Office ("PTO") on September 28, 2004. A copy of the '470 Patent is attached hereto as Exhibit A.

9. The '470 Patent issued in the names of Francis Barany, Matthew Lubin, George Barany, and Robert P. Hammer.

10. Cornell is the assignee of all right, title and interest in and to the '470 Patent. Life Technologies is the exclusive licensee of the '470 Patent.

11. United States Patent No. 7,083,917 ("the '917 Patent"), entitled "Detection Of Nucleic Acid Sequence Differences Using The Ligase Detection Reaction With Addressable

Arrays," was issued by the PTO on August 1, 2006. A copy of the '917 Patent is attached hereto as Exhibit B.

12. The '917 Patent issued in the names of Francis Barany, George Barany, Robert P. Hammer, Maria Kempe, Herman Blok, and Monib Zirvi, and contains claims to instruments.

13. Cornell is the assignee of all right, title and interest in and to the '917 Patent. Life Technologies is the exclusive licensee of the '917 Patent.

14. United States Patent No. 7,166,434 ("the '434 Patent"), entitled "Detection of Nucleic Acid Sequence Differences Using Coupled Ligase Detection and Polymerase Chain Reactions," was issued by the PTO on January 23, 2007. A copy of the '434 Patent is attached hereto as Exhibit C.

15. The '434 Patent issued in the names of Francis Barany, Matthew Lubin, George Barany, and Robert P. Hammer.

16. Cornell is the assignee of all right, title and interest in and to the '434 Patent. Life Technologies is the exclusive licensee of the '434 Patent.

17. United States Patent No. 7,312,039 ("the '039 Patent"), entitled "Detection of Nucleic Acid Sequence Differences Using Coupled Ligase Detection and Polymerase Chain Reactions," was issued by the PTO on December 25, 2007. A copy of the '039 Patent is attached hereto as Exhibit D.

18. The '039 Patent issued in the names of Francis Barany, Matthew Lubin, George Barany, and Robert P. Hammer.

19. Cornell is the assignee of all right, title and interest in and to the '039 Patent. Life Technologies is the exclusive licensee of the '039 Patent.

20. United States Patent No. 7,320,865 ("the '865 Patent"), entitled "Detection of Nucleic Acid Sequence Differences Using Coupled Ligase Detection and Polymerase Chain Reactions," was issued by the PTO on January 22, 2008. A copy of the '865 Patent is attached hereto as Exhibit E.

21. The '865 Patent issued in the names of Francis Barany, Matthew Lubin, George Barany, and Robert P. Hammer.

22. Cornell is the assignee of all right, title and interest in and to the '865 Patent. Life Technologies is the exclusive licensee of the '865 Patent.

23. United States Patent No. 7,332,285 ("the '285 Patent"), entitled "Detection of Nucleic Acid Sequence Differences Using Coupled Ligase Detection and Polymerase Chain Reactions," was issued by the PTO on February 19, 2008. A copy of the '285 Patent is attached hereto as Exhibit F.

24. The '285 Patent issued in the names of Francis Barany, Matthew Lubin, George Barany, and Robert P. Hammer.

25. Cornell is the assignee of all right, title and interest in and to the '285 Patent. Life Technologies is the exclusive licensee of the '285 Patent.

26. United States Patent No. 7,364,858 ("the '858 Patent"), entitled "Detection of Nucleic Acid Sequence Differences Using Coupled Ligase Detection and Polymerase Chain Reactions," was issued by the PTO on April 29, 2008. A copy of the '858 Patent is attached hereto as Exhibit G.

27. The '858 Patent issued in the names of Francis Barany, Matthew Lubin, George Barany, and Robert P. Hammer.

28. Cornell is the assignee of all right, title and interest in and to the '858 Patent. Life Technologies is the exclusive licensee of the '858 Patent.

29. United States Patent No. 7,429,453 ("the '453 Patent"), entitled "Detection of Nucleic Acid Sequence Differences Using Coupled Ligase Detection and Polymerase Chain Reactions," was issued by the PTO on September 30, 2008. A copy of the '453 Patent is attached hereto as Exhibit H.

30. The '453 Patent issued in the names of Francis Barany, Matthew Lubin, George Barany, and Robert P. Hammer.

31. Cornell is the assignee of all right, title and interest in and to the '453 Patent. Life Technologies is the exclusive licensee of the '453 Patent.

32. United States Patent No. 7,892,746 ("the '746 Patent"), entitled "Detection Of Nucleic Acid Sequence Differences Using The Ligase Detection Reaction With Addressable Arrays," was issued by the PTO on February 22, 2011. A copy of the '746 Patent is attached hereto as Exhibit I.

33. The '746 Patent issued in the names of Francis Barany, George Barany, Robert P. Hammer, Maria Kempe, Herman Blok, and Monib Zirvi.

34. Cornell is the assignee of all right, title and interest in and to the '746 Patent. Life Technologies is the exclusive licensee of the '746 Patent.

35. United States Patent No. 7,892,747 ("the '747 Patent"), entitled "Detection Of Nucleic Acid Sequence Differences Using The Ligase Detection Reaction With Addressable Arrays," was issued by the PTO on February 22, 2011. A copy of the '747 Patent is attached hereto as Exhibit J.

36. The ‘747 Patent issued in the names of Francis Barany, George Barany, Robert P. Hammer, Maria Kempe, Herman Blok, and Monib Zirvi.

37. Cornell is the assignee of all right, title and interest in and to the ‘747 Patent. Life Technologies is the exclusive licensee of the ‘747 Patent.

38. United States Patent No. 7,893,233 (“the ‘233 Patent”), entitled “Detection Of Nucleic Acid Sequence Differences Using The Ligase Detection Reaction With Addressable Arrays,” was issued by the PTO on February 22, 2011. A copy of the ‘746 Patent is attached hereto as Exhibit K.

39. The ‘233 Patent issued in the names of Francis Barany, George Barany, Robert P. Hammer, Maria Kempe, Herman Blok, and Monib Zirvi.

40. Cornell is the assignee of all right, title and interest in and to the ‘233 Patent. Life Technologies is the exclusive licensee of the ‘233 Patent.

41. Defendant’s genetic analysis products and services infringe at least one claim of each of the ‘470, ‘917, ‘434, ‘039, ‘865, ‘285, ‘858, ‘453, ‘746, ‘747 and ‘233 Patents (the “Patents-in-Suit”).

42. With the exception of the ‘917 and ‘233 Patents, which contains claims to instruments, all of the other Patents-In-Suit contain claims to polymerase chain reaction (“PCR”) methods.

V.

FIRST CLAIM FOR RELIEF

(INFRINGEMENT OF THE '470 PATENT)

43. Plaintiffs incorporate ¶¶ 1-42 of this Complaint here.

44. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including detection of single nucleotide polymorphisms ("SNPs"), within the United States, thereby infringing, both directly and indirectly, at least one claim of the '470 Patent. Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments, reagents and kits to perform the Illumina GoldenGate Genotyping Assay and the Illumina "cDNA-mediated Annealing, Selection, Extension and Ligation Assay" (the "DASL Assay") and services using the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay. The GoldenGate Genotyping Assay and DASL Assay detect nucleic acid sequence differences using an improved PCR method that includes a ligase detection reaction, in a manner which infringes one or more claims of the '470 Patent.

45. Illumina provides to its customers instructions for the use of Illumina instruments, reagents and kits to perform the GoldenGate Genotyping Assay and DASL Assay. For example, these instructions recite the steps of: providing a nucleic acid sample; adding oligonucleotide probe sets designed to detect specific SNP loci; allowing said oligonucleotide probes to hybridize to the sample nucleic acid and ligation of said probes; amplifying said ligated oligonucleotide probes using PCR; hybridizing amplification products to Illumina's Sentrix Array Matrix, BeadChip or VeraCode beads; and detecting said products using Illumina's BeadStation, BeadArray Reader, iScan, HiScanSQ, BeadLab or BeadXpress Reader.

VI.

SECOND CLAIM FOR RELIEF

(INFRINGEMENT OF THE '917 PATENT)

46. Plaintiffs incorporate ¶¶ 1-45 of this Complaint here.

47. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including SNP detection, within the United States, thereby infringing, both directly and indirectly, at least one claim of the '917 Patent. Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments for the detection of nucleic acid sequence differences using addressable arrays. The Sentrix Array Matrix, BeadChip, VeraCode beads, BeadStation, BeadArray Reader, iScan, HiScanSQ, BeadLab and BeadXpress Reader are instruments for the detection of nucleic acid sequence differences which infringe one or more claims of the '917 Patent.

VII.

THIRD CLAIM FOR RELIEF

(INFRINGEMENT OF THE '434 PATENT)

48. Plaintiffs incorporate ¶¶ 1-47 of this Complaint here.

49. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including SNP detection, within the United States, thereby infringing, both directly and indirectly, at least one claim of the '434 Patent. Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments, reagents and kits to perform the Illumina GoldenGate Genotyping Assay and the DASL Assay and services using the Illumina GoldenGate Genotyping Assay and

the Illumina DASL Assay. The GoldenGate Genotyping Assay and DASL Assay detect nucleic acid sequence differences using an improved PCR method that includes a ligase detection reaction, in a manner which infringes one or more claims of the '434 Patent.

VIII.

FOURTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '039 PATENT)

50. Plaintiffs incorporate ¶¶ 1-49 of this Complaint here.

51. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including SNP detection, within the United States, thereby infringing, both directly and indirectly, at least one claim of the '039 Patent. Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments, reagents and kits to perform the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay and services using the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay. The GoldenGate Genotyping Assay and DASL Assay detect nucleic acid sequence differences using an improved PCR method that includes a ligase detection reaction, in a manner which infringes one or more claims of the '039 Patent.

IX.

FIFTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '865 PATENT)

52. Plaintiffs incorporate ¶¶ 1-51 of this Complaint here.

53. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including SNP detection, within the United States, thereby infringing, both directly and indirectly, at least one claim of the '865 Patent.

Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments, reagents and kits to perform the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay and services using the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay. The GoldenGate Genotyping Assay and DASL Assay detect nucleic acid sequence differences using an improved PCR method that includes a ligase detection reaction, in a manner which infringes one or more claims of the '865 Patent.

X.

SIXTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '285 PATENT)

54. Plaintiffs incorporate ¶¶ 1-53 of this Complaint here.

55. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including SNP detection, within the United States, thereby infringing, both directly and indirectly, at least one claim of the '285 Patent. Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments, reagents and kits to perform the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay and services using the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay. The GoldenGate Genotyping Assay and DASL Assay detect nucleic acid sequence differences using an improved PCR method that includes a ligase detection reaction, in a manner which infringes one or more claims of the '285 Patent.

XI.

SEVENTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '858 PATENT)

56. Plaintiffs incorporate ¶¶ 1-55 of this Complaint here.

57. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including SNP detection, within the United States, thereby infringing, both directly and indirectly, at least one claim of the '858 Patent. Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments, reagents and kits to perform the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay and services using the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay. The GoldenGate Genotyping Assay and DASL Assay detect nucleic acid sequence differences using an improved PCR method that includes a ligase detection reaction, in a manner which infringes one or more claims of the '858 Patent.

XII.

EIGHTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '453 PATENT)

58. Plaintiffs incorporate ¶¶ 1-57 of this Complaint here.

59. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including SNP detection, within the United States, thereby infringing, both directly and indirectly, at least one claim of the '453 Patent. Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments, reagents, kits and services to perform the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay and services using the Illumina GoldenGate Genotyping Assay and the Illumina DASL Assay. The GoldenGate Genotyping Assay and DASL Assay detect nucleic acid sequence differences using an improved PCR method that includes a ligase detection reaction, in a manner which infringes one or more claims of the '453 Patent.

XIII.

NINTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '746 PATENT)

60. Plaintiffs incorporate ¶¶ 1-59 of this Complaint here.

61. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including SNP detection, within the United States, thereby infringing, both directly and indirectly, at least one claim of the '746 Patent. Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments for the detection of nucleic acid sequences. Illumina's Array Matrix, BeadChip, VeraCode beads, BeadStation, BeadArray Reader, iScan, HiScan, HiScanSQ, BeadLab and BeadXpress Reader are instruments for the detection of nucleic acid sequences which infringe one or more claims of the '746 Patent.

XIV.

TENTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '747 PATENT)

62. Plaintiffs incorporate ¶¶ 1-61 of this Complaint here.

63. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including SNP detection, within the United States, thereby infringing, both directly and indirectly, at least one claim of the '747 Patent. Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments for the detection of nucleic acid sequences. Illumina's BeadChip, BeadStation, BeadArray Reader, iScan, HiScan, HiScanSQ, and BeadLab are instruments for the detection of nucleic acid sequences which infringe one or more claims of the '747 Patent.

64. Illumina provides to its customers instructions for the use of Illumina instruments, reagents and kits to perform Illumina Infinium Assays (including the Infinium II Whole-Genome Genotyping Assay, Infinium HD Assay and Infinium DNA Analysis Assay). For example, these instructions recite the steps of: providing a nucleic acid sample; fragmenting said nucleic acid sample; hybridizing said fragments to oligonucleotide probes of Illumina's BeadChip; labeling said oligonucleotide probes that have hybridized to said fragments; and detecting and distinguishing said labeled probes using Illumina's BeadStation, BeadArray Reader, iScan, HiScan, HiScanSQ, or BeadLab.

XV.

ELEVENTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '233 PATENT)

65. Plaintiffs incorporate ¶¶ 1-64 of this Complaint here.

66. Illumina has been and is making, using, selling, and offering to sell instruments, reagents, kits and services for genetic analysis, including SNP detection, within the United States, thereby infringing, both directly and indirectly, at least one claim of the '233 Patent. Illumina's infringing activities include, without limitation, the making, using, selling and offering to sell instruments for the detection of nucleic acid sequences. Illumina's Array Matrix, BeadChip, VeraCode beads, BeadStation, BeadArray Reader, iScan, HiScan, HiScanSQ, BeadLab and BeadXpress Reader are instruments for the detection of nucleic acid sequences which infringe one or more claims of the '233 Patent.

XVI.

PRAYER FOR RELIEF

1. That Illumina be adjudged to have infringed the Patents-in-Suit;

2. That Illumina, its officers, agents, servants, employees, attorneys, and those persons in active concert or participation with any of them, be preliminarily and permanently restrained and enjoined from infringing in any manner the Patents-in-Suit;
3. An accounting for damages by virtue of Illumina's infringement of the Patents-in-Suit;
4. An assessment of pre-judgment and post-judgment interest and costs against Illumina, together with an award of such interest and costs, in accordance with 35 U.S.C. § 284; and
5. That Plaintiffs have such other and further relief as this Court may deem just and proper.

DATED: August 19, 2011

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CERTIFICATE OF SERVICE

I, Karen E. Keller, Esquire, hereby certify that on August 19, 2011, I caused to be electronically filed a copy of the foregoing document with the Clerk of the Court using CM/ECF, which will send notification that such filing is available for viewing and downloading to the following counsel of record:

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I further certify that on August 19, 2011, I caused a copy of the foregoing document to be served by e-mail on the above-listed counsel and on the following non-registered participants:

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