UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION

COMMISSIONERS: **Joseph J. Simons, Chairman**
Noah Joshua Phillips
Rohit Chopra
Rebecca Kelly Slaughter
Christine S. Wilson

In the Matter of **Illumina, Incorporated** **a corporation,** **And** **Pacific Biosciences of California, Incorporated (PacBio)** **a corporation.**	**Docket No. 9387** **PUBLIC**

COMPLAINT

Pursuant to the provisions of the Federal Trade Commission Act ("FTC Act"), and by virtue of the authority vested in it by said Act, the Federal Trade Commission ("FTC" or "Commission"), having reason to believe that Respondents Illumina, Inc. ("Illumina") and Pacific Biosciences of California, Inc. ("Pacific Biosciences" or "PacBio"), have executed an agreement for the acquisition of PacBio by Illumina (the "Acquisition"), which, if consummated, would violate Section 2 of the Sherman Act, 15 U.S.C. § 2, Section 7 of the Clayton Act, as amended, 15 U.S.C. § 18, and Section 5 of the FTC Act, as amended, 15 U.S.C. § 45, and it appearing to the Commission that a proceeding by it in respect thereof would be in the public interest, hereby issues its complaint pursuant to Section 5(b) of the FTC Act, 15 U.S.C. § 45(b), and Section 11(b) of the Clayton Act, 15 U.S.C. § 21(b), stating its charges as follows:

I.

NATURE OF THE CASE

1. Illumina is a monopolist. It is the self-proclaimed leader in DNA sequencing and dominates DNA sequencing markets in the United States and worldwide. Its name is often considered synonymous with "next-generation sequencing" ("NGS"), the technology that allows researchers and clinicians quickly, accurately, and efficiently to identify the order of the component blocks—called nucleotides—in a DNA sample. In the United States, Illumina has complete dominance over the market for these products, with a share of over 90%. Historically, Illumina has faced little competition for its NGS instruments and consumables (collectively, "systems").

2. PacBio is one of the few firms that has managed to gain a foothold in the NGS market. PacBio sells a DNA sequencing system that offers substantial benefits over Illumina's systems, including longer individual sequence read lengths, but is a lower throughput and more expensive alternative.

3. Due to the benefits provided by PacBio's technology, some Illumina customers have shifted certain sequencing projects (or parts of projects) from Illumina to PacBio despite the differences in cost and throughput.

4. Respondents' internal documents show that PacBio and Illumina consistently and routinely refer to each other as competitors. These include many internal strategy documents, technical assessments, and sales support documents prepared over a period of years.

5. In the past two years, PacBio has made significant technological advancements, including the release of its "Sequel II" instrument in 2019. These advancements have brought down the cost of sequencing using PacBio systems and increased the accuracy and throughput of PacBio's instruments. Collectively, these improvements have made PacBio a closer alternative to Illumina than ever before.

6. In advance of the Sequel II's release, PacBio positioned its improved technology as an ever closer competitor to Illumina. By 2018, PacBio executives instructed its marketing department to [redacted] In October 2018, one PacBio marketing executive explained, [redacted]

7. Illumina has monitored PacBio as [redacted] and [redacted] from its inception. But as it learned details about PacBio's recent product improvements and the PacBio system's trajectory, Illumina recognized PacBio as [redacted].

8. Illumina now proposes to acquire PacBio and extinguish it as a competitive threat. Per an agreement executed November 1, 2018, Illumina will pay $1.2 billion for PacBio, a 71% premium over PacBio's share price at the time.

9. This Acquisition will eliminate competition between the two companies now and in the future. Accordingly, it will substantially lessen competition and further insulate Illumina's monopoly from PacBio's increasing competitive threat.

II.

BACKGROUND

A. Jurisdiction

10. Respondents are, and at all relevant times have been, engaged in commerce or in activities affecting "commerce" as defined in Section 4 of the FTC Act, 15 U.S.C. § 44, and Section 1 of the Clayton Act, 15 U.S.C. § 12.

11. The Acquisition constitutes an acquisition subject to Section 7 of the Clayton Act, 15 U.S.C. § 18.

B. Respondents

12. Respondent Illumina is a publicly traded Delaware corporation, headquartered in San Diego, California. Illumina develops, manufactures, and markets life sciences tools. Illumina's main product offerings are instruments used for DNA sequencing and associated consumable chemistry kits. Illumina offers seven DNA sequencing systems at a range of different price points and throughput levels. Its primary customers are leading genomic research centers, academic institutions, government laboratories, and hospitals, as well as companies in the pharmaceutical, biotechnology, agrigenomic, commercial diagnostics, and consumable genomics industries. Illumina was founded in 1998 and has 7,300 employees worldwide, with commercial offices located in Europe, Asia, Australia, and the Americas. In 2018, Illumina's worldwide revenue was $3.33 billion, approximately 55% of which was from U.S. sales.

13. Respondent PacBio is a publicly traded Delaware corporation, headquartered in Menlo Park, California. PacBio sells DNA sequencing instruments and consumable chemistry kits. It targets these products toward scientists striving to resolve complex and novel issues in genetics. PacBio's customer base is broadly similar to that of Illumina and includes research institutions, commercial laboratories, genome centers, pharmaceutical companies, and agricultural companies. PacBio was founded in 2004 and has about 400 full-time employees, almost all of whom are located in the United States. In 2018, PacBio's worldwide revenue was $78.6 million, approximately 45% of which was North American sales.

C. The Proposed Acquisition

14. Illumina agreed to acquire PacBio on November 1, 2018, for approximately $1.2 billion. The price per share represents a 71% premium to PacBio's share price as of market close on October 31, 2018. This agreement (the "Agreement") was set to expire on December 31, 2019. On September 25, 2019, Illumina and PacBio executed an amendment to this agreement to allow Illumina the unilateral right to extend the end date to March 31, 2020.

D. Background on Sequencing Technologies

15. DNA sequencing is the process of determining the order of nucleotides in DNA molecules from a biological sample. Scientists use DNA sequencing to ascertain the sequence of individual genes, larger genetic regions, full chromosomes, or the entire genome of any organism. DNA sequencing is foundational to research spanning the fields of molecular biology, evolutionary biology, genomics, medicine, pharmacology, ecology, and epidemiology. Other uses for DNA sequencing include clinical medical diagnostics, forensics, biometrics, and consumer genetics. Additionally, scientists can use DNA sequencing systems to sequence RNA, which has unique scientific utility for research and clinical use.

16. From the 1970s until the mid-2000s, the Sanger method was the predominant method of sequencing. It was, however, time consuming, costly, and labor intensive.

17. In the mid-2000s, new technologies—dubbed next-generation sequencing ("NGS")—began to appear. NGS systems offered much lower cost and higher throughput, with the ability to generate a large number of sequences at once. This technology rapidly eclipsed Sanger as the primary tool for genetic sequencing.

18. Illumina's technology is known as "short-read" sequencing. Short-read technology has been the predominant NGS technology for the last decade.

19. NGS sequencing also includes "long-read" sequencers. Long-read sequencing became commercially available in 2011. PacBio has been the leading system of this type since this technology emerged.

20. Short-read and long-read sequencing systems—and Illumina and PacBio in particular—currently differ on several metrics that drive the ways in which customers use them. Illumina's short-read systems currently have an advantage over PacBio's long-read systems on cost, number of sequence reads, and throughput. PacBio's system far surpasses Illumina's in terms of the length of DNA that it can cover in each individual sequence read. Both systems are capable of delivering highly accurate sequence reads.

21. The characteristics of PacBio's systems have been converging with those offered by Illumina. As PacBio has improved the individual sequence read length, cost, and throughput of its products over the years, it has become a closer substitute for Illumina's short-read technology for some customers in some projects. PacBio expects to continue to improve the cost and throughput of its system in the future. Historically, Illumina's short-read sequencing has been cheaper than long read on a cost per genome basis. However, because of the inherent benefits of long-read sequencing over short-read sequencing for certain applications, use cases, and projects, customers have been willing to pay a price premium to use PacBio for some sequencing projects. And, as PacBio's cost per genome decreases, customers expect to sequence more samples on PacBio and fewer samples on Illumina.

22. Sequencing is used for a number of different applications, use cases, projects, and sample sets within projects. Today, certain applications are best served by short-read systems, other applications are adequately served only by long-read systems, and some applications may be served by either short-read or long-read technology depending upon the objectives, budget, and time for a particular use case or project. As the cost of PacBio's long-read sequencing has decreased and its accuracy and throughput have increased, sequencing volume has shifted from short read to long read, as long read is able to fit the needs of more use cases and projects within several applications. Market participants expect this trend to continue for a broader set of projects and use cases.

III.

THE NGS PRODUCT MARKET

23. A relevant product market in which to assess the competitive impact of the proposed Acquisition is no broader than all next-generation sequencing systems (the "NGS Market").

24. The NGS Market comprises highly differentiated systems, including those of Illumina, PacBio, and a few other small participants.

25. In internal documents, both Illumina and PacBio routinely recognize the existence of an NGS market, consistently refer to each other as competitors in that market, and refer to competition across NGS systems. These documents include investor presentations, SEC filings, strategic planning documents, sales plans, and technical assessments.

26. Other market participants also recognize the existence of an NGS market, and other sequencing companies consider themselves to be competing in the NGS Market. Industry analysts also assess and monitor the NGS Market.

27. PacBio's long-read systems have characteristics and uses similar to those of Illumina's short-read systems for certain projects and use cases. As PacBio continues to improve the cost, accuracy, and throughput of its long-read systems, their characteristics and uses will become even more similar to those of Illumina's short-read systems.

28. In some instances, customers have switched sequencing volume from Illumina to PacBio as a result of past improvements in the cost, accuracy, and throughput of PacBio's systems. PacBio expects to continue improving its system's cost, accuracy, and throughput in the future, and customers expect to switch additional volume from Illumina to PacBio as a result of those improvements.

29. Sanger sequencing systems, the only other technology capable of sequencing DNA, are properly excluded from the NGS Market. It costs much less to sequence DNA with NGS than Sanger sequencing, and the legacy Sanger approach is so much slower that it is impractical for almost all purposes for which scientists employ NGS.

30. Non-sequencing products, such as microarrays, are properly excluded from the NGS Market. Microarrays do not sequence DNA. They merely identify known single nucleotide variants in a genome. These products lack the throughput and technical capabilities of NGS products, qualities that customers require for their sequencing work.

IV.

THE RELEVANT GEOGRAPHIC MARKET

31. The United States is the relevant geographic market in which to assess the competitive effects of the proposed Acquisition.

32. U.S. NGS customers cannot practically turn to suppliers that do not have a U.S. presence to purchase an NGS system. NGS customers require local service and support networks. Reflecting the reality of regional competitive differences, Illumina [redacted]

33. Intellectual property is a significant barrier to entry in the NGS Market. The strength of incumbent NGS companies' patent portfolios differs depending on the region. Using intellectual property, incumbent U.S. NGS suppliers (namely, Illumina) exclude other firms from selling NGS products in the United States, including some companies that supply NGS products elsewhere in the world. Accordingly, intellectual property creates a unique set of entry conditions in the United States.

V.

MARKET STRUCTURE

34. Illumina is the dominant manufacturer of NGS systems in the United States, where it enjoys a market share of more than 90%. PacBio is one of three other companies manufacturing and selling NGS systems in the United States. All of the companies that could, theoretically, enter the U.S. NGS Market at some point in the future [redacted].

A. Illumina

35. Illumina describes itself as the "global leader in DNA sequencing" and has enjoyed an enduring dominance in the sale of sequencers. Market participants describe Illumina as "synonymous with sequencing" because its technology generates more than 90% of the world's sequencing data. Illumina has sustained its dominance for years.

36. Illumina has possessed since at least 2009, and continues to possess today, monopoly power in the markets in which it sells its DNA sequencing systems, including in the NGS Market.

37. Substantial direct evidence demonstrates Illumina's durable monopoly power. For many projects and use cases, customers have few, if any, commercially reasonable alternatives to Illumina.

38. Customers recognize that they have few commercially reasonable alternatives and lack bargaining leverage to obtain lower prices or better contract terms from Illumina. When Illumina has implemented price increases, those increases have been profitable and have not driven sales toward other DNA sequencing systems.

39. Illumina's own documents provide evidence of its monopoly power. An internal 2016 document answers the question [redacted]. It also states that [redacted] but explains that [redacted].

40. Illumina is so dominant that it sees limited sales left to compete for. Illumina's Vice President of Regional Sales and Marketing for the Americas explained in an email [redacted]

41. Illumina's monopoly power may also be established through indirect evidence. Illumina possesses an extremely high share of the NGS Market. It has had a share of over 80% since at least 2013, and over 90% since 2015.

42. Substantial barriers to entry prevent other firms from competing with Illumina in the sale of DNA sequencing systems. DNA sequencing is complex, and any new entrant would need to overcome significant scientific, commercial, and intellectual property barriers to develop and commercialize a new NGS system successfully. Since 2013, only one new firm, Oxford Nanopore, has entered and remained in the U.S. NGS Market, and three years later it holds only a [redacted]% market share.

B. PacBio

43. PacBio systems use an innovative "Single-Molecule, Real-Time" ("SMRT") sequencing approach. With its ability to generate accurate long reads, PacBio can provide more comprehensive and higher quality information than short-read sequencing systems like Illumina's. While PacBio's system offers advantages over short read, it currently has substantially lower throughput and higher costs than Illumina.

44. PacBio has continually improved its system with the goal of converting ever more sequencing volume from short-read systems to its long-read technology. Some Illumina customers have switched samples, projects, or entire applications from Illumina to PacBio already.

45. PacBio's innovations and sequencing advances over the past two years have enabled the company to deliver significantly higher quality sequencing at dramatically lower prices, bringing its offerings closer to those of Illumina in terms of both capability and price.

46. PacBio's share of the NGS Market is 2-3% today. Both PacBio and Illumina project [redacted]. Some of that [redacted].

C. Other Market Participants

47. Oxford Nanopore Technologies ("Oxford Nanopore") is a U.K.-based NGS company that markets native long-read sequencing systems based on a nanopore technology. This technology, which functions differently than PacBio's, generates longer—but significantly less accurate—reads than other systems. Oxford Nanopore [redacted] a unique device that is portable and serves only niche use cases. The low accuracy of Oxford Nanopore's technology has limited its acceptance among customers.

48. Thermo Fisher Scientific ("Thermo Fisher") markets short-read, benchtop sequencing systems. Thermo Fisher is the second-leading provider of NGS systems, albeit well behind Illumina. Thermo Fisher's systems have significant technological limitations that constrain the company's ability to compete for business outside the application of targeted sequencing for clinical use. Thermo Fisher's technology is not an option for most customers of NGS products and services.

49. No other firm attempting to develop a sequencing system [redacted]. One firm, Beijing Genomics Institute ("BGI"), currently provides sequencing instruments outside of the United States, but it is deterred from participating in the U.S. NGS Market due to Illumina's claims that BGI's instruments infringe Illumina's patents.

D. Market Shares

50. Illumina makes the dominant NGS system and earns revenues [redacted] greater than those of the next-largest firm.

51. Illumina, which has held its dominant position for years, currently maintains a share of more than 90% of the U.S. NGS Market. PacBio holds a share approximately 2-3% of the NGS Market in the United States.

VI.

CONDITIONS OF ENTRY OR EXPANSION

52. Entry into the U.S. NGS Market is time consuming and extremely difficult. A new entrant into the NGS Market would need to overcome significant scientific, legal, and commercial barriers.

53. DNA sequencing systems are highly complex systems comprising advanced chemistry, sensitive optics, and powerful semiconductors. Integrating these components into a system that delivers value and performance sufficient to compete with existing systems, is scalable, and is cost effective to manufacture and operate is an immense challenge that requires considerable investment of capital and time.

54. The intellectual property landscape surrounding existing sequencing technologies is broad, dense, and difficult to invent around. Illumina has an extensive patent portfolio—with hundreds of U.S. patent registrations—that it devotes considerable resources to enforcing. Illumina's patent enforcement efforts have prevented, and likely will continue to prevent, new competitors from emerging in the United States. PacBio, which also owns a substantial patent portfolio, uses a different sequencing technology than Illumina. Accordingly, PacBio is not vulnerable to a patent infringement suit from Illumina, but both Illumina and PacBio have a long history of asserting their patents to exclude competitive technologies from the U.S. NGS Market, and the combined firm will have a strong incentive to exclude any firm seeking to enter the United States with a new long-read or short-read product.

55. Gaining acceptance in the marketplace after launching a product takes significant time and effort. A new system must prove itself reliable and robust before it can expect significant sales to customers in the research and clinical communities. New entrants typically must convince key opinion leaders to use their technology and publish papers to support the use of their products by other researchers, which takes a significant amount of time and creates uncertainty about whether new products, even after they are launched, would be able to compete effectively with existing, proven products.

VII.

HARM TO COMPETITION

A. The Acquisition Removes PacBio as a Competitive Threat to Illumina

56. By late 2018, improvements to PacBio's sequencing system had positioned PacBio as a significant threat to Illumina's longstanding monopoly.

57. As early as 2014, Illumina identified PacBio in internal documents as [redacted] and recognized that [redacted]

58. As PacBio's continued innovation produced incrementally better sequencing offerings, Illumina became increasingly concerned. In 2016, Illumina characterized PacBio as a [redacted] and one executive commented that, [redacted]

59. Internally, Illumina refers to PacBio specifically as a [redacted], with the frequency of references to PacBio as [redacted].

60. Illumina identified two companies as [redacted]. Of those two companies, only PacBio sells sequencing systems in the United States.

61. Respondents' internal documents demonstrate intensifying head-to-head competition and a mutual recognition of the threat that an independent PacBio posed to Illumina going forward. As PacBio's CEO told investors in August 2018, PacBio was getting close to "demonstrat[ing] that a high-quality PacBio analysis of the human genome can be performed at a comparable cost [to short-read technologies]," a "milestone" where it "anticipate[s] seeing larger cohorts of population sequencing samples shift over [from short read] to PacBio."

62. In early 2018, PacBio senior executives contacted Illumina's top executives to explore potential partnership opportunities, which afforded Illumina the ability to evaluate the sequencing data generated by PacBio's new chemistry. An Illumina Principal Scientist [redacted]—describing it internally as [redacted]

63. In light of PacBio's improving technology and the increasing threat to its monopoly, Illumina in 2018 contemplated specific competitive responses, including discounting its NGS products to protect its market position and developing new products that could compete with PacBio, which Illumina recognized was [redacted]

64. Instead of discounting or accelerating its internal innovation projects to maintain its market share in the face of PacBio's significant advancements, Illumina began evaluating PacBio as an acquisition target, as it had done before with [redacted] In 2017, Illumina determined that [redacted].

65. By August 2018, Illumina recognized [redacted]" because of recent PacBio product improvements.

66. Illumina and PacBio agreed to merge on November 1, 2018, and shortly after, Illumina executives explained in the company's [redacted] that PacBio was [redacted]

B. The Proposed Acquisition Extinguishes All Current and Future Competition Between Illumina and PacBio

67. The proposed Acquisition will eliminate significant current and future competition between Illumina and PacBio, substantially harming consumers. As PacBio has improved its technology, customers have benefitted from these cost and quality improvements and moved sequencing volume from Illumina to PacBio systems in certain projects, use cases, and applications.

68. Respondents, customers, and other market participants recognize that, as an independent company, PacBio is poised to take increasing sequencing volume from Illumina in the future. In the absence of the merger, Illumina's response to that competition would likely include discounting the prices of its systems, improving their quality, and developing innovative new products.

69. When the parties entered into the Acquisition agreement, PacBio expected its Sequel II instrument and related chemistry improvements to be an inflection point for the company. The Sequel II will expand the projects and use cases for which customers could use PacBio, and will position PacBio as a much closer alternative to Illumina.

70. PacBio expected the Sequel II would [redacted] the NGS space. In 2018, as PacBio was planning to introduce a significant chemistry improvement, its executives directed the company's marketing department to [redacted] As a marketing executive described PacBio's focus in October 2018, [redacted]

71. The merger would harm consumers, in part, by hampering competition, particularly innovation competition. Both PacBio and Illumina have engaged in innovation efforts to compete with each other for years, they were engaged in such efforts at the time of the merger announcement, and both expected to compete against each other with new products in the future.

72. PacBio is continually improving its system to reduce costs, increase throughput, and take market share from Illumina. Illumina, in turn, is [redacted], motivated in large part by the competitive threat posed by PacBio.

73. The merger reduces the combined firm's incentives to innovate and develop new products relative to the incentives PacBio and Illumina faced as independent competitors. Post-acquisition, Illumina will have reduced incentives to develop new long-read systems that would cannibalize its existing short-read business, and Illumina will have little or no incentive to continue its efforts to launch new long-read products after acquiring PacBio's long-read business. As a result, consumers will have fewer innovative products to choose from, and they will lose the price and quality benefits that competition between Illumina's and PacBio's new products would have created absent the merger.

C. The Acquisition Presumptively Harms Competition in the NGS Market

74. The 2010 Department of Justice and Federal Trade Commission Horizontal Merger Guidelines ("Horizontal Merger Guidelines") and courts measure concentration using the Herfindahl-Hirschman Index ("HHI"). HHI levels are calculated by totaling the squares of the market shares of each firm in the relevant market. A relevant market is "highly concentrated" if it has an HHI level of 2,500 or more. A merger or acquisition is presumed likely to create or enhance market power—and presumptively illegal—when the post-merger HHI exceeds 2,500 and the merger increases the HHI by more than 200 points.

75. Post-Acquisition U.S. NGS market concentration, and the change in concentration caused by the Acquisition, will exceed the thresholds established in the Horizontal Merger Guidelines. Pre-Acquisition, the U.S. NGS Market is highly concentrated, with an HHI of 8,290, which far exceeds the threshold level in the Horizontal Merger Guidelines. The Acquisition will increase the HHI of the U.S. NGS market by 443 points. Post-Acquisition, the HHI of the U.S. NGS Market will be 8,733.

76. The Acquisition is presumptively unlawful under the Horizontal Merger Guidelines and relevant case law.

VIII.

EFFICIENCIES AND PROCOMPETITIVE JUSTIFICATIONS

77. Respondents cannot verify or substantiate any merger-specific efficiencies. Even if Respondents could identify some efficiencies that would result from the Acquisition, they could not show that such savings would likely be passed on to customers. In any event, any cognizable efficiencies are far outweighed by the Acquisition's harm and do not justify the Acquisition.

78. Respondents' procompetitive justifications for the Acquisition are pretextual. To the extent that there are any procompetitive effects flowing from the Acquisition at all, those effects could be accomplished through other means, without eliminating all competition between Illumina and PacBio.

IX.

VIOLATIONS

COUNT I—MONOPOLIZATION

79. The allegations of Paragraphs 1 through 78 above are incorporated by reference.

80. Respondent Illumina has, and at all relevant times had, monopoly power in the U.S. NGS Market, as well as in any other market in which it sells DNA sequencing systems.

81. The Acquisition, if consummated, would eliminate the nascent competitive threat that an independently owned PacBio poses to Illumina's monopoly power. The Acquisition is anticompetitive conduct because it eliminates competition between Illumina and PacBio. The Acquisition is anticompetitive conduct reasonably capable of contributing significantly to Illumina's maintenance of monopoly power.

82. Illumina's claimed procompetitive justifications are pretextual and, in any event, do not outweigh the anticompetitive effect of the Acquisition.

83. The Acquisition constitutes monopolization in violation of Section 2 of the Sherman Act, 15 U.S.C. § 2, and thus constitutes an unfair method of competition in violation of Section 5(a) of the FTC Act, as amended, 15 U.S.C. § 45(a).

COUNT II—ILLEGAL ACQUISITION

84. The allegations of Paragraphs 1 through 78 above are incorporated by reference.

85. Respondents currently compete with each other in the highly concentrated NGS Market. Competition between Respondents has been increasing over time and will increase substantially in the future. Respondents cannot show that any cognizable efficiencies are of a character and magnitude such that the Acquisition is not likely to be anticompetitive.

86. The Acquisition, if consummated, may substantially lessen current and future competition in violation of Section 7 of the Clayton Act, as amended, 15 U.S.C. § 18, and thus constitutes an unfair method of competition in violation of Section 5(a) of the FTC Act, as amended, 15 U.S.C. § 45(a).

NOTICE

Notice is hereby given to the Respondents that the eighteenth day of August 2020, at 10:00 a.m., is hereby fixed as the time, and the Federal Trade Commission offices at 600 Pennsylvania Avenue, N.W., Room 532, Washington, D.C. 20580, as the place, when and where an evidentiary hearing will be had before an Administrative Law Judge of the Federal Trade Commission, on the charges set forth in this complaint, at which time and place you will have the right under the Federal Trade Commission Act and the Clayton Act to appear and show cause why an order should not be entered requiring you to cease and desist from the violations of law charged in the complaint.

You are notified that the opportunity is afforded you to file with the Commission an answer to this complaint on or before the fourteenth (14th) day after service of it upon you. An answer in which the allegations of the complaint are contested shall contain a concise statement of the facts constituting each ground of defense; and specific admission, denial, or explanation of each fact alleged in the complaint or, if you are without knowledge thereof, a statement to that effect. Allegations of the complaint not thus answered shall be deemed to have been admitted. If you elect not to contest the allegations of fact set forth in the complaint, the answer shall consist of a statement that you admit all of the material facts to be true. Such an answer shall constitute a waiver of hearings as to the facts alleged in the complaint and, together with the complaint, will provide a record basis on which the Commission shall issue a final decision containing appropriate findings and conclusions and a final order disposing of the proceeding. In such answer, you may, however, reserve the right to submit proposed findings and conclusions under Rule 3.46 of the Commission's Rules of Practice for Adjudicative Proceedings.

Failure to file an answer within the time above provided shall be deemed to constitute a waiver of your right to appear and to contest the allegations of the complaint and shall authorize the Commission, without further notice to you, to find the facts to be as alleged in the complaint and to enter a final decision containing appropriate findings and conclusions, and a final order disposing of the proceeding.

The Administrative Law Judge shall hold a prehearing scheduling conference not later than ten (10) days after the Respondents file their answers. Unless otherwise directed by the Administrative Law Judge, the scheduling conference and further proceedings will take place at the Federal Trade Commission, 600 Pennsylvania Avenue, N.W., Room 532, Washington, D.C. 20580. Rule 3.21(a) requires a meeting of the parties' counsel as early as practicable before the pre-hearing scheduling conference (but in any event no later than five (5) days after the Respondents file their answers). Rule 3.31(b) obligates counsel for each party, within five (5) days of receiving the Respondents' answers, to make certain initial disclosures without awaiting a discovery request.

NOTICE OF CONTEMPLATED RELIEF

Should the Commission conclude from the record developed in any adjudicative proceedings in this matter that the Acquisition challenged in this proceeding violates Section 2 of the Sherman Act, Section 7 of the Clayton Act, as amended, and/or Section 5 of the Federal Trade Commission Act, as amended, the Commission may order such relief against the Respondents as is supported by the record and is necessary and appropriate, including, but not limited to:

1. If the Acquisition is consummated, divestiture or reconstitution of all associated and necessary assets, in a manner that restores two or more distinct and separate, viable and independent businesses in the relevant market, with the ability to offer such products and services as Illumina and PacBio were offering and planning to offer prior to the Acquisition.

2. A prohibition against any transaction between Illumina and PacBio that combines their businesses in the relevant market, except as may be approved by the Commission.

3. A requirement that, for a period of time, Illumina and PacBio provide notice to the Commission of acquisitions, merger, consolidations, or any other combinations of their businesses in the relevant market with any other company operating in the relevant market.

4. A requirement to file periodic compliance reports with the Commission.

IN WITNESS WHEREOF, the Federal Trade Commission has caused this complaint to be signed by its Secretary and its official seal to be hereto affixed, at Washington, D.C., this seventeenth day of December, 2019.

By the Commission.

April J. Tabor
Acting Secretary

SEAL: