

**UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES**

In the Matter of

**Illumina, Inc.,
a corporation,**

and

**GRAIL, Inc.,
a corporation,**

Respondents.

Docket No. 9401

NON-PARTY THERMO FISHER SCIENTIFIC INC.
MOTION FOR *IN CAMERA* TREATMENT

Pursuant to Rule 3.45 of the Federal Trade Commission’s Rules of Practices, non-party Thermo Fisher Scientific Inc. (“Thermo Fisher”) respectfully moves this Court for *in camera* treatment, in whole or in part, of seventeen confidential, competitively sensitive documents and testimony identified in Exhibit B hereto (“Confidential Materials”). These Confidential Materials were produced pursuant to subpoenas issued by the Federal Trade Commission and Respondent GRAIL, Inc. (the “Subpoenas”). The Federal Trade Commission (“FTC”) and Respondent GRAIL, Inc. (“GRAIL”) have notified non-party Thermo Fisher that they intend to introduce the Confidential Materials that are the subject of this motion into evidence at the administrative trial in the above-captioned matter. Thermo Fisher closely reviewed every proposed trial exhibit identified by the Parties, and it limits its request for *in camera* treatment to only those documents and/or portions of documents that contain competitively sensitive, non-public information.

This motion seeks to prevent disclosure of documents and testimony that contain confidential business information that Thermo Fisher has kept secret and that are material to

Thermo Fisher's business. If these Confidential Materials were to become part of the public record, Thermo Fisher would be significantly harmed in its ability to compete in the development, manufacturing, and sale of next-generation sequencing (NGS) instruments, consumables, and other products. The Confidential Materials collectively provide insights into Thermo Fisher's strategic plans, competitive analyses, financial information, and present and future R&D plans. Disclosure of such information would give Thermo Fisher's competitors – including Illumina – an unfair competitive advantage resulting in serious competitive injury to Thermo Fisher.

For the avoidance of doubt, and to the extent the materials are not already protected by the existing Protective Order, Thermo Fisher also requests that this Court restrict access to the Confidential Materials to only those persons set forth in Paragraph 7 of the Protective Order entered in this matter.

I. THERMO FISHER'S DOCUMENTS ARE SECRET AND MATERIAL TO ITS BUSINESS SUCH THAT DISCLOSURE WOULD RESULT IN SERIOUS COMPETITIVE INJURY TO THERMO FISHER

Thermo Fisher's Confidential Materials contain information that, if publicly disclosed, will cause irreparable harm to Thermo Fisher, and therefore warrants *in camera* treatment pursuant to 16 C.F.R. § 3.45(b).

In camera treatment of material is appropriate when its “public disclosure will likely result in a clearly defined, serious injury to the person, partnership, or corporation” requesting such treatment. 16 C.F.R. § 3.45(b). A proponent demonstrates such injury by showing that the documents are secret and material to its business. *In re General Foods Corp.*, 95 F.T.C. 352, 355 (1980). “The likely loss of business advantages is a good example of a ‘clearly defined, serious injury.’” *In re Dura Lube Corp.*, 1999 FTC Lexis 255, at *7 (Dec. 23, 1999) (quoting *Gen. Foods*, 95 F.T.C. at 355). Moreover, “it is proper to infer, without a specific showing of how a competitor

would use it, that disclosure of allegedly sensitive information would seriously affect the firm's commercial position.” *In re E.I. Dupont de Nemours & Co.*, No. 9108, 1981 WL 389447, at *1 (1981) (hereinafter *Dupont I*).

Courts generally attempt “to protect confidential business information from unnecessary airing.” *In re HP. Hood & Sons, Inc.*, 58 F.T.C. 1184, 1188 (1961). “There can be no question that the confidential records of businesses involved in Commission proceedings should be protected insofar as possible.” *Id.* In determining whether the document or testimony is sufficiently secret and material, the Court may consider:

(1) the extent to which the information is known outside of the business; (2) the extent to which it is known by employees and others involved in the business; (3) the extent of measures taken to guard the secrecy of information; (4) the value of the information to the business and its competitors; (5) the amount of effort or money expended in developing the information; and (6) the ease or difficulty with which information could be acquired or duplicated by others.

In re Bristol-Myers Co., 90 F.T.C. 455, 456-57 (1977).

Thermo Fisher’s status as a third party is relevant to the *in camera* treatment of the materials sought. Non-parties deserve “special solicitude” when requesting *in camera* treatment for confidential information. *In re Kaiser Aluminum & Chem. Corp.*, No. 9080, 1984 WL 565325, at *1 (1984) (“As a policy matter, extensions of confidential or *in camera* treatment in appropriate cases involving third party bystanders encourages cooperation with future adjudicative discovery requests.”). Thermo Fisher’s status as a non-party thus weighs in favor of granting *in camera* status to its Confidential Materials.

A. Thermo Fisher Has Preserved the Secrecy of the Confidential Materials

Thermo Fisher has taken significant steps to protect the secrecy of the Confidential Materials. Thermo Fisher produced the Confidential Materials pursuant to the Subpoenas. All of the Confidential Materials were produced with stamps marking them “Confidential,” “Highly Confidential” or “Highly Confidential Business Information.” *See* Felton Decl. ¶ 9. Thermo Fisher designated each of the Confidential Materials pursuant to (i) the Protective Order entered in the related *FTC v. Illumina Inc.* case in the federal district court or (ii) in the case of documents produced to the FTC prior to the entry of the Protective Order, pursuant to statute and the FTC’s rules of practice. *See* Protective Order, *FTC v. Illumina Inc.*, 3:21-cv-00800-CAB-BGS, (S.D. Cal. Apr. 01, 2021), ECF No. 15; 15 U.S.C. § 57b-2(b); 16 C.F.R. § 4.10-.11.

With the exception of disclosure described above and of contracts to R&D partners and customers, Thermo Fisher has limited disclosure of the Confidential Materials to select Thermo Fisher employees with reason to have access to the information. This court has previously held that contracts between the business and an external party meet the burden of being sufficiently secret. *See In re Axon Enter., Inc., & Safariland, LLC*, No. 9389, 2020 WL 6058522, at *7 (Oct. 2, 2020) (finding Motorola’s contracts were sufficiently secret); *In re Louisiana Real Est. Appraisers Bd.*, No. 9374, 2021 WL 1223991, at *5 (Mar. 29, 2021) (finding Clear Capital contracts with vendors were sufficiently secret).

As such, Thermo Fisher has taken all reasonable steps to guard the secrecy of the information contained in its Confidential Materials. Absent disclosure in the current matter, it would be difficult for Thermo Fisher’s competitors or others within the industry to access or duplicate the information contained in the Confidential Materials. The “secrecy” prong of the “serious injury” standard is therefore met.

To assist the Court in analyzing Thermo Fisher’s request for *in camera* treatment of the Confidential Materials, Thermo Fisher has grouped each document comprising the Confidential Materials into the following categories: i) strategic plans containing strategic objectives and considerations, competitive analyses, and financial information; ii) R&D plans and R&D-related contracts; and iii) Andrew Felton’s deposition and investigative hearing transcripts and Declaration.

B. Disclosure of Strategic Plans Containing Thermo Fisher’s Strategic Objectives and Considerations, Competitive Analyses, and Financial Information Will Give Competitors an Unfair Advantage.

This Court has previously held that strategic plans and competitive analyses shall be protected for up to ten years. *See In re Tronox Ltd.*, No. 9377, 2018 WL 2336016, at *5, *7, *9 (May 15, 2018) (granting ten years *in camera* treatment for documents revealing “business plans,” “competitive analyses,” and “strategic plans”). Thermo Fisher requests the following documents be afforded *in camera* treatment for ten years, except for certain information related to R&D discussed below in Section C for which Thermo Fisher requests indefinite, or alternatively ten years *in camera* treatment.

Exhibit	Description	Type(s) of Information	In Camera Treatment Requested
PX8444	November 25, 2019 Presentation: Turing dPCR Market Opportunity Assessment	Business strategy, competitive analyses	Full
PX8649	<p>March 17, 2021 Cover email from Ira Herbst to Andrew Felton re Recent strategic planning documents.</p> <p>Attachments included in the exhibit are Valhalla CEO discussion 11222020 final.pptx; NIPT scenarios v10 2021.01.27.pptx; 2020 CSD STRAP v23 2020.10.28.pptx; and 2020 CSD STRAP vPre-Read for CLT.pptx</p>	Business strategy, competitive analyses	<p>Full</p> <p>(Note: Indefinite <i>in camera</i> treatment is requested specifically for PX8649-017, PX8649-021, PX8649-024, and PX8649-236 due to R&D sensitivity. See “R&D Plans and Information” Table.)</p>
PX8650	<p>March 18, 2019 cover email from Peter Vuong to Andrew Felton re Offcite_Roadmapping.pptx</p> <p>Attachment included in the exhibit is March 2019 Presentation: A Look into the Future</p>	Business strategy, competitive analyses	<p>Full</p> <p>(Note: Indefinite <i>in camera</i> treatment is requested specifically for PX8650-011 to PX8650-016 due to R&D sensitivity. See “R&D Plans and Information” Table.)</p>
RX2728	March 20, 2020 Presentation: CSD - Strategy and Bus Dev Review	Business strategy, competitive analyses	Full
RX2729	March 2019 Presentation: A Look into the Future	Business strategy, competitive analyses	<p>Full</p> <p>(Note: Indefinite <i>in camera</i> treatment is requested specifically for RX2729-9 to RX2729-14 due to R&D sensitivity. See “R&D Plans and Information” Table.)</p>

RX2730	April 10, 2018 Email from Suresh Pisharody to Joydeep Goswami re Re: Interested in speaking	Business strategy	Full
RX2732	October 9, 2019 Presentation: IVD Strategy	Business strategy	Full
RX2735	October 30, 20 Presentation: Clinical Next-Generation Sequencing Division STRAP 2020	Business strategy; competitive analysis; financial information	Full
RX2737	October 27, 2020 Email from Luca Quagliata to Garret Hampton et al re RE: EXAS -- Flash I Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt I Outperform	Business strategy	Partial

Thermo Fisher’s business and strategic plans containing its strategic objectives and considerations and competitive analyses are competitively sensitive because they shed light on Thermo Fisher’s positioning and strategy to compete against other NGS players. Competitors, such as Illumina, could use this information to adjust their own strategies or development efforts to reposition against Thermo Fisher. This type of sensitive information has previously received *in camera* treatment. *In re 1-800 Contacts, Inc.*, No. 9372, 2017 WL 1345290, at *5 (Apr. 4, 2017) (granting *in camera* treatment for internal documents containing positioning, marketing, and other strategy information). Financial information, including pricing and cost information, is competitively sensitive because competitors could use it to adjust their own prices or sales strategies to disadvantage Thermo Fisher. *See In re Polypore Int’l, Inc.*, No. 9327, 2009 WL 1499350, at *5 (May 13, 2009) (granting *in camera* treatment for “costing data” and “sales and financial information”). If made public, this information would provide competitors insight into Thermo Fisher’s revenue, profits, and overall strategy.

Disclosure of these internal analyses will give competitors considerable and unfair advantage at Thermo Fisher's expense. FTC precedent makes clear that a specific showing of how competitors might use the confidential information is not necessary. *Dupont I*, 1981 WL 389447, at *1. Strategic planning in the NGS business involves long lead times in keeping with the substantial investments and development cycles for NGS products, and strategic plans accordingly have significant business values for many years after they are created. Felton Decl. ¶ 9.

The Court should therefore grant *in camera* treatment for ten years over the documents containing Thermo Fisher's strategic plans. See *In re Tronox Ltd.*, No. 9377, 2018 WL 2336016, at *5, *7, *9, *12 (May 15, 2018) (granting ten years *in camera* treatment for documents revealing "business plans," "competitive analyses," and "strategic plans").

C. Disclosure of Documents Regarding Thermo Fisher's R&D Plans and R&D-related Contracts and Partnership Terms Will Cause Serious Injury.

This Court has previously conferred indefinite *in camera* treatment on competitively sensitive R&D materials. See *Tronox*, 2018 WL 2336016, at *9-10 (granting indefinite *in camera* treatment for R&D test results). R&D plans have also received *in camera* treatment for ten years. See *Otto Bock Non-Parties' Motions Order*, ECF No. 591472 ("The second category contains one document, Endolite's research and development plan...Endolite has met its burden of demonstrating that this document is entitled to *in camera* treatment for a period of ten years."); see also Federal Rule of Civil Procedure 26(c)(1)(G) (upon a showing of good cause, a court may enter an order "requiring that a trade secret or other confidential research, development, or commercial information not be revealed or be revealed only in a specified way").

This Court has also provided *in camera* treatment for contracts that should also extend to R&D-related contractual provisions and deal terms that appear in the documents. See *Axon Enter.*, 2020 WL 6058522, at *7 (granting *in camera* treatment for Motorola's contracts); *Louisiana Real*

Est. Appraisers Bd., 2021 WL 1223991, at *5 (granting *in camera* treatment for Clear Capital contracts with vendors).

Furthermore, references to non-public R&D partners or customer names should receive *in camera* treatment. See Administrative Law Judge’s Order on Non-Parties’ Motions for *In Camera* Treatment, *In re Otto Bock Healthcare N. Am., Inc.*, No. 9378, 2018 WL 3373830, at *3 (July 6, 2018) ECF No. 591472 (“...ordinary business records include information such as customer names, pricing to customers, business costs and profits, as well as business plans, marketing plans, or sales documents”).

Thermo Fisher requests the following documents or portions of documents be afforded *in camera* treatment indefinitely, or alternatively for at least 10 years:

Exhibit	Description	Type(s) of Information	<i>In Camera</i> Treatment Requested
PX8649	<p>March 17, 2021 Cover email from Ira Herbst to Andrew Felton re Recent strategic planning documents.</p> <p>Attachments included in the exhibit are Valhalla CEO discussion 11222020 final.pptx; NIPT scenarios v10 2021.01.27.pptx; 2020 CSD STRAP v23 2020.10.28.pptx; and 2020 CSD STRAP vPre-Read for CLT.ppt</p>	Detailed information on R&D product, partnership, and budgeting	<p>Partial (PX8649-017; PX8649-021; PX8649-024; PX8649-236)</p> <p>(Note: Full <i>in camera</i> treatment for 10 years is requested for non-R&D materials in this document. See “Strategic” Table.)</p>

PX8650	Mar. 18, 2019 cover email from Peter Vuong to Andrew Felton re Offcite_Roadmapping.pptx Attachments in the exhibit include March 2019 Presentation: A Look into the Future	Detailed R&D roadmaps	Partial (PX8650-011 to PX8650-016) (Note: Full <i>in camera</i> treatment for 10 years is requested for non-R&D materials in this document. See “Strategic” Table.)
RX2729	March 2019 Presentation: A Look into the Future	Detailed information on R&D including new product details and development timeline	Partial (RX2729-9 to RX2729-14) (Note: Full <i>in camera</i> treatment for 10 years is requested for non-R&D materials in this document. See “Strategic” Table.)
RX2731	March 2020 Presentation: Partnering Strategy; March 2020	Detailed information on R&D including product development and new specifications	Full
RX2733	August 13, 2020 Presentation: [REDACTED] [REDACTED] [REDACTED]	Detailed information on R&D including R&D strategy; contract terms; financial information; and non-public R&D partner/customer name	Full
RX2734	February 12, 2021 Presentation: Project Starship - Equity Investment Overview	Detailed information on R&D partnership including details about R&D product and partnership contract terms	Full
RX2736	April 12, 2021 Term Sheet-Commercial Agreement between Thermo Fisher and Strata	R&D partnership contract contains details about R&D plans and partnership deal terms	Full
RX2738	April 30, 2020 Thermo Fisher Supply Agreement with Strata	Detailed information on R&D partnership contract	Full

Thermo Fisher competes in the constantly innovating market for analytical, research and bioprocessing products, including NGS instruments and consumables. *See* Felton Decl. ¶ 11. Research and product development in the NGS business involves long lead times in keeping with the substantial investments and development cycles for NGS products, and R&D plans accordingly have significant business values for many years after they are created. Felton Decl. ¶ 11. Its R&D efforts are essential to its ability to compete in the industry and achieve success. Felton Decl. ¶ 11. Innovation is particularly key to competition in this industry as customers' needs evolve for their own scientific and medical research and product development. Felton Decl. ¶ 11. As a result, Thermo Fisher invests significant time and money on research and development in order to remain competitive, and those pursuits could then take even more years to come to market. Felton Decl. ¶ 11. Thermo Fisher also makes significant efforts to protect the confidentiality of its R&D projects, especially from its competitors. Felton Decl. ¶ 12.

Thermo Fisher seeks protection of its competitively sensitive and highly confidential R&D plans and related information that appear in R&D focused documents, strategic plans, and contracts. The documents contain highly confidential Thermo Fisher R&D plans for [REDACTED]. More specifically, they contain specific, detailed descriptions and pictures of the development of Thermo Fisher's [REDACTED]. The highly confidential information also includes project names; project and new product descriptions; project timelines and roadmaps; expected financial results and revenue impact from the projects; current and considered partners names and assessments of individual partnerships;

and detailed R&D spending. It also includes contracts with partners for R&D development detailing the specific commercial and financial terms of the partnership.

Disclosure of such R&D specific and related information will give competitors considerable and unfair advantage at Thermo Fisher's expense. The Court should therefore grant *in camera* treatment indefinitely, or alternatively for ten years over the documents containing Thermo Fisher's R&D plans and R&D related information because the need for confidentiality of the material is not likely to decrease over time. *See Tronox*, 2018 WL 2336016, at *9-10 (granting indefinite *in camera* treatment for R&D test results). *See also Otto Bock Non-Parties' Motion Order*, ECF No. 591472 (granting ten year *in camera* treatment for R&D plan)

D. Disclosure of Andrew Felton's Investigative Hearing and Deposition Testimonies and Declaration, which Contain Competitively Sensitive Information, Will Cause Serious Injury

This Court has previously conferred at least ten years *in camera* treatment to deposition testimony discussing R&D plans and at least five years *in camera* treatment to other competitively sensitive information. *See Otto Bock Non-Parties' Motions Order*, ECF No. 591472, at *6 (granting Endolite portions of a deposition transcript "relating to research and development plans...*in camera* treatment for a period of ten years" and other competitively sensitive information *in camera* treatment for a period of five years). "[I]ndividuals' names and addresses...have been found to be 'sensitive personal information'" that "shall be accorded permanent *in camera* treatment." *See In re Altria Grp., Inc., & Juul Labs, Inc.*, No. 9393, 2021 WL 2379509, at *3 (May 26, 2021).

Andrew Felton's deposition and investigative hearing testimonies and Declaration encompass information in all of the categories above, including discussions of current and future R&D plans and sensitive personal information. Thermo Fisher requests the following portions

from the transcripts containing sensitive personal information be afforded *in camera* treatment indefinitely:

Testimony Cite	Type of Information
Mar. 23, 2021 Andrew Felton Investigative Hearing Transcript (PX7070): 8:16-8:19	Employee information

Thermo Fisher requests the following the following portions from the transcripts and Declaration containing R&D information be afforded *in camera* treatment indefinitely, or alternatively for at least ten years:

Mar. 23, 2021 Andrew Felton Investigative Hearing (PX7070) R&D Testimony Cite	June 2, 2021 Andrew Felton Deposition (PX7097/RX3823) R&D Testimony Cite	Declaration Cite (Page & paragraph number)
36:10-37:21; 38:1-38:3; 38:14- 38:18; 55:8-55:12; 55:17-55:20; 55:22-55:23; 56:1-57:1	21:23-21:25; 22:2-22:5; 22:7-22:13; 30:4-30:7; 30:9-30:22; 30:24-31:8; 31:10-31:17; 31:20-31:24; 32:2-32:10; 32:13-32:14; 93:17-93:20; 93:22-94:7; 94:9-94:12; 117:21-117:23; 118:1-118:3; 118:5-118:21; 118:24-119:1; 119:3-119:10; 119:13-119:16; 119:18-119:24; 120:2-120:9; 125:5-125:8; 125:15-125:16; 125:19-125:22; 125:24-126:1; 126:4-126:13; 126:20-126:22; 126:24-127:24; 128:1-128:6; 128:8-129:8; 129:10-129:20; 129:23-130:21; 130:24-131:16; 131:18-131:22; 131:25-132:6; 132:8-132:11; 132:13-132:15; 132:18-133:20; 133:23-134:3; 134:6-135:12; 135:14-136:12; 136:15-137:20; 137:23-138:9; 138:12-138:15; 138:17-139:3; 139:5-139:6 ; 168:1 - 168:24	Paragraph 10 limited portions Paragraph 13 limited portions

Thermo Fisher requests the following the following portions from the transcripts be afforded *in camera* treatment for a period of five years :

Testimony Cite	Type of Information
<p>Mar. 23, 2021 Andrew Felton Investigative Hearing Transcript (PX7070):26:9-26:15; 26:22-27:12; 27:25-28:15; 57:2-57:21</p> <p>June 2, 2021 Andrew Felton Deposition Transcript (PX7097/RX3823): 27:7-27:9; 27:11-27:19; 32:23-33:1; 33:4; 35:4-35:6; 35:9-35:21; 68:3-68:6; 68:8-68:17; 68:20-68:21; 103:4-103:7; 103:9-103:11; 105:4-105:8; 105:10-105:15; 120:10-120:15; 173:21-173:23; 173:25-174:12; 174:14-174:22; 174:24-175:4; 175:7 176:2; 176:5-176:13</p>	Competitive analysis
<p>Mar. 23, 2021 Andrew Felton Investigative Hearing Transcript (PX7070): 32:12-32:25; 34:1-34:21; 34:25-35:15; 48:15-49:3; 57:22-60:18; 68:7-69:13; 70:3-71:5</p> <p>June 2, 2021 Andrew Felton Deposition Transcript (PX7097/RX3823): 23:9-23:11; 23:13-23:22; 29:2-29:5; 29:8-29:10; 36:14-36:19; 36:23-37:2; 37:4-37:5; 42:12-42:15; 42:17-42:21; 42:23-43:1; 52:20-52:23; 60:10-60:15; 60:22-60:23; 60:25-61:14; 61:18-61:20; 61:22-62:6; 62:8-62:16; 62:18-62:20; 70:21-70:25; 71:8-71:11; 71:13-71:25; 72:3-72:7; 72:12-72:14; 72:16-72:21; 72:24-73:12; 73:14-74:4; 74:7-74:14; 74:16-74:25; 75:2-75:16; 75:23-75:25; 76:3-76:5; 76:7-76:14; 76:17-76:25; 77:3-77:12; 78:13-78:14; 78:16; 79:1-79:5; 79:12-79:17; 79:19-79:21; 79:23-79:25; 80:13-80:18; 80:21-81:7; 81:10-81:14; 82:9-83:4; 83:7-83:19; 83:21-83:22; 83:25-84:11; 85:5-85:9; 85:11; 86:2-86:5; 86:7-86:23; 86:25-87:9; 87:12-87:13; 87:15-87:24; 88:1-88:6; 88:8-88:11; 89:1-89:7; 91:11-91:22; 91:24-91:25; 103:23-104:1; 104:3-104:6; 105:22-106:9; 107:16-109:2; 109:6-110:7; 110:19-110:21; 110:24-111:6; 111:9-111:25; 112:4-112:5; 112:8-112:11; 113:1-113:3; 113:6-113:12; 113:20-113:23; 114:9-114:11; 114:14-114:21; 114:24-115:2; 115:7-115:11; 115:13-115:15; 115:17-115:23; 116:1-116:8; 116:12-117:2; 115:9-115:11; 124:8-124:17; 140:23-141:9; 141:17-142:1; 142:6-142:10; 142:13-143:2; 143:4-143:11; 143:13-143:19; 144:1-144:4; 148:19-149:16; 149:18-149:22; 149:25-150:2; 150:18-150:24; 151:1-151:8; 152:3-152:13; 152:15-152:21; 152:23-152:25; 153:13-153:15; 153:17-154:5; 154:8-154:9; 155:13 - 155:21; 160:13 - 161:10; 172:9-173:1</p>	Business strategy
<p>Mar. 23, 2021 Andrew Felton Investigative Hearing Transcript (PX7070): 38:5-38:9</p>	Financial information
<p>Mar. 23, 2021 Andrew Felton Investigative Hearing Transcript (PX7070): 51:3-51:8</p> <p>June 2, 2021 Andrew Felton Deposition Transcript (PX7097/RX3823): 48:23-49:2; 49:4; 49:14-49:18; 158:18 - 159:4</p>	Non-public partner or customer name

Competitively sensitive information in the transcripts include Thermo Fisher's competitive assessment and positioning of its NGS products and its competitors' NGS products, current and potential customer names, and, significantly, its NGS R&D plans, [REDACTED], and contract terms with its R&D partners. Portions of Andrew Felton's Declaration include specific information related to Thermo Fisher's R&D plans. Sensitive personal information appearing in the transcript such as Dr. Felton's home address [REDACTED] should also receive protection.

Thermo Fisher therefore requests confidential treatment of competitively sensitive portions of Dr. Felton's investigative hearing and deposition testimonies for a minimum of five years, discussions of sensitive personal information to receive indefinite *in camera* treatment, and discussions about Thermo Fisher's R&D plans to receive *in camera* treatment indefinitely, or alternatively for at least ten years.

II. NONE OF THE CONFIDENTIAL MATERIALS ARE NECESSARY TO EXPLAIN THE RATIONALE OF THE CASE OR FOR PUBLIC UNDERSTANDING

The importance of the information in explaining the rationale of FTC decisions is "the principal countervailing consideration weighing in favor of disclosure." *Otto Bock Non-Parties' Motions Order*, ECF No. 591472. The *Kaiser* court found that, "a public understanding of this proceeding does not depend on access to [this] data submitted by these third party firms." *See Kaiser*, 1984 WL 565325, at *1. Here, the competitively sensitive information in the Confidential Materials, detailing Thermo Fisher's strategic and R&D plans is not necessary or even useful in explaining the rationale of the case or for public understanding. *See id.* The need to explain the rationale of the outcome of the above-captioned matter therefore does not overcome the need for *in camera* treatment of the Confidential Materials.

CONCLUSION

For the foregoing reasons, Thermo Fisher respectfully requests that this Court grant *in camera* treatment for the Confidential Materials, in whole or in part, as set forth in Exhibit B.

Dated: August 5, 2021

Respectfully submitted,

s/ John D. Harkrider _____

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CERTIFICATE OF SERVICE

I hereby certify that on August 5, 2021, I filed the foregoing documents electronically using the FTC's E-Filing System, which will send notification of such filings to:

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The Honorable D. Michael Chappell
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I also certify that I delivered via electronic mail a copy of the foregoing documents to:

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August 5, 2021

s/ John D. Harkrider
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CERTIFICATE OF ELECTRONIC FILING

I certify that the electronic copy sent to the Secretary of the Commission is a true and correct copy of the paper original and that I possess a paper original of the signed document that is available for review by the parties and the adjudicator.

August 5, 2021

s/ John D. Harkrider
John D. Harkrider

PUBLIC VERSION

EXHIBIT A **Declaration of Andrew Charles Felton**

***PARTIAL IN CAMERA
TREATMENT REQUESTED***

**UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES**

In the Matter of

**Illumina, Inc.,
a corporation,**

and

**GRAIL, Inc.,
a corporation,**

Respondents.

Docket No. 9401

DECLARATION OF ANDREW CHARLES FELTON
IN SUPPORT OF THERMO FISHER'S MOTION FOR *IN CAMERA* TREATMENT

I, Andrew Charles Felton, pursuant to 28 U.S.C. §1746, declare as follows:

1. I am Vice President of Product Management, Platforms and Research for Thermo Fisher Inc. (“Thermo Fisher”). Thermo Fisher is a global manufacturer and supplier of a broad range of analytical, research and bioprocessing products, including next-generation sequencing (NGS) instruments and consumables. As part of my duties, I participate in strategic planning and decisions for Thermo Fisher.

2. I submit this Declaration on behalf of Thermo Fisher in support of the Motion for *In Camera* Treatment (the “Motion”) for documents containing confidential and commercially sensitive information belonging to Thermo Fisher (the “Confidential Materials”) in this matter.

3. I have personal knowledge of the facts set forth in this Declaration or believe such facts to be true based upon personal knowledge, information provided by knowledgeable persons who work with me at Thermo Fisher, and upon review of records kept in the ordinary course of Thermo Fisher’s business.

4. This case concerns an antitrust dispute between Plaintiff Federal Trade Commission (“Plaintiff” or “FTC”) and Respondents Illumina, Inc. and GRAIL, Inc. (collectively, “Respondents”), where the FTC alleges that, among other things, Respondents’ proposed merger would harm competition.

5. Given my position at Thermo Fisher, I am familiar with the type of information contained in the Confidential Materials to Thermo Fisher’s Motion and their competitive significance to Thermo Fisher. The confidential information included in the Confidential Materials is sourced from Thermo Fisher’s sensitive proprietary and commercial information regarding, among other things, forward-looking business and R&D strategies, its partnership and contract terms with R&D partners, and assessments of competition in NGS. I am also familiar with the measures Thermo Fisher takes to protect the confidentiality of these materials. As detailed further below, these materials contain highly confidential, sensitive information that Thermo Fisher maintains in strict confidentiality.

6. If the Confidential Materials were to become available to the public or Thermo Fisher’s competitors, Thermo Fisher would suffer serious commercial injury. Public disclosure of Thermo Fisher’s sensitive business information would give competitors an unfair advantage, potentially causing Thermo Fisher significant competitive harm. I submit that disclosure of these documents to the public and to competitors of Thermo Fisher would cause serious competitive injury to Thermo Fisher.

7. The FTC and Respondent GRAIL have informed Thermo Fisher they plan to use eighteen exhibits. Of those potential exhibits, seventeen are particularly sensitive and contain confidential business or proprietary information. As described in the Motion, Thermo Fisher seeks *in camera* treatment of the following documents:

Strategic Plans		
Exhibit	Description	<i>In Camera</i> Treatment Requested
PX8444	November 25, 2019 Presentation: Turing dPCR Market Opportunity Assessment	Full
PX8649	March 17, 2021 Cover email from Ira Herbst to Andrew Felton re Recent strategic planning documents. Attachments included in the exhibit are Valhalla CEO discussion 11222020 final.pptx; NIPT scenarios v10 2021.01.27.pptx; 2020 CSD STRAP v23 2020.10.28.pptx; and 2020 CSD STRAP vPre-Read for CLT.pptx	Full (Note: Indefinite <i>in camera</i> treatment is requested specifically for PX8649-017, PX8649-021, PX8649-024, and PX8649-236 due to R&D sensitivity. See “R&D Plans and Information” Table.)
PX8650	March 18, 2019 cover email from Peter Vuong to Andrew Felton re Offcite_Roadmapping.pptx Attachment included in the exhibit is March 2019 Presentation: A Look into the Future	Full (Note: Indefinite <i>in camera</i> treatment is requested specifically for PX8650-011 to PX8650-016 due to R&D sensitivity. See “R&D Plans and Information” Table.)
RX2728	March 20, 2020 Presentation: CSD - Strategy and Bus Dev Review	Full
RX2729	March 2019 Presentation: A Look into the Future	Full (Note: Indefinite <i>in camera</i> treatment is requested specifically for RX2729-9 to RX2729-14 due to R&D sensitivity. See “R&D Plans and Information” Table.)
RX2730	April 10, 2018 Email from Suresh Pisharody to Joydeep Goswami re Re: Interested in speaking	Full
RX2732	October 9, 2019 Presentation: IVD Strategy	Full

RX2735	October 30, 20 Presentation: Clinical Next-Generation Sequencing Division STRAP 2020	Full
RX2737	October 27, 2020 Email from Luca Quagliata to Garret Hampton et al re RE: EXAS -- Flash I Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt I Outperform	Partial

R&D Plans and Information		
Exhibit	Description	<i>In Camera</i> Treatment Requested
PX8649	<p>March 17, 2021 Cover email from Ira Herbst to Andrew Felton re Recent strategic planning documents.</p> <p>Attachments included in the exhibit are Valhalla CEO discussion 11222020 final.pptx; NIPT scenarios v10 2021.01.27.pptx; 2020 CSD STRAP v23 2020.10.28.pptx; and 2020 CSD STRAP vPre-Read for CLT.ppt</p>	<p>Partial (PX8649-017; PX8649-021; PX8649-024; PX8649-236)</p> <p>(Note: Full <i>in camera</i> treatment for 10 years is requested for non-R&D materials in this document. See “Strategic” Table.)</p>
PX8650	<p>Mar. 18, 2019 cover email from Peter Vuong to Andrew Felton re Offcite_Roadmapping.pptx</p> <p>Attachments in the exhibit include March 2019 Presentation: A Look into the Future</p>	<p>Partial (PX8650-011 to PX8650-016)</p> <p>(Note: Full <i>in camera</i> treatment for 10 years is requested for non-R&D materials in this document. See “Strategic” Table.)</p>
RX2729	March 2019 Presentation: A Look into the Future	<p>Partial (RX2729-9 to RX2729-14)</p> <p>(Note: Full <i>in camera</i> treatment for 10 years is requested for non-R&D materials in this document. See “Strategic” Table.)</p>
RX2731	March 2020 Presentation: Partnering Strategy; March 2020	Full
RX2733	August 13, 2020 Presentation: [REDACTED]	Full

RX2734	February 12, 2021 Presentation: Project Starship - Equity Investment Overview	Full
RX2736	April 12, 2021 Term Sheet-Commercial Agreement between Thermo Fisher and Strata	Full
RX2738	April 30, 2020 Thermo Fisher Supply Agreement with Strata	Full

Mar. 23, 2021 Andrew Felton Investigative Hearing (PX7070) R&D Testimony Cite	June 2, 2021 Andrew Felton Deposition (PX7097/RX3823) R&D Testimony Cite	<u>Declaration Cite</u> (Page & paragraph number)
8:16-8:19; 36:10-37:21; 38:1-38:3; 38:14- 38:18; 55:8-55:12; 55:17-55:20; 55:22-55:23; 56:1-57:1	21:23-21:25; 22:2-22:5; 22:7-22:13; 30:4-30:7; 30:9-30:22; 30:24-31:8; 31:10-31:17; 31:20-31:24; 32:2-32:10; 32:13-32:14; 93:17-93:20; 93:22-94:7; 94:9-94:12; 117:21-117:23; 118:1-118:3; 118:5-118:21; 118:24-119:1; 119:3-119:10; 119:13-119:16; 119:18-119:24; 120:2-120:9; 125:5-125:8; 125:15-125:16; 125:19-125:22; 125:24-126:1; 126:4-126:13; 126:20-126:22; 126:24-127:24; 128:1-128:6; 128:8-129:8; 129:10-129:20; 129:23-130:21; 130:24-131:16; 131:18-131:22; 131:25-132:6; 132:8-132:11; 132:13-132:15; 132:18-133:20; 133:23-134:3; 134:6-135:12; 135:14-136:12; 136:15-137:20; 137:23-138:9; 138:12-138:15; 138:17-139:3; 139:5-139:6 ; 168:1 -168:24	Paragraph 10 limited portions Paragraph 13 limited portions

Mar. 23, 2021 Andrew Felton Investigative Hearing Transcript (PX7070)	June 2, 2021 Andrew Felton Deposition (PX7097/RX3823) Testimony Cite
<p>26:9-26:15; 26:22-27:12; 27:25-28:15; 32:12-32:25; 34:1-34:21; 34:25-35:15; 38:5-38:9; 48:15-49:3; 51:3-51:8; 57:2-60:18; 68:7-69:13; 70:3-71:5</p>	<p>23:9-23:11; 23:13-23:22; 27:7-27:9; 27:11-27:19; 29:2-29:5; 29:8-29:10; 32:23-33:1; 33:4; 35:4-35:6; 35:9-35:21; 36:14-36:19; 36:23-37:2; 37:4-37:5; 42:12-42:15; 42:17-42:21; 42:23-43:1; 48:23-49:2; 49:4; 49:14-49:18; 52:20-52:23; 60:10-60:15; 60:22-60:23; 60:25-61:14; 61:18-61:20; 61:22-62:6; 62:8-62:16; 62:18-62:20; 68:3-68:6; 68:8-68:17; 68:20-68:21; 70:21-70:25; 71:8-71:11; 71:13-71:25; 72:3-72:7; 72:12-72:14; 72:16-72:21; 72:24-73:12; 73:14-74:4; 74:7-74:14; 74:16-74:25; 75:2-75:16; 75:23-75:25; 76:3-76:5; 76:7-76:14; 76:17-76:25; 77:3-77:12; 78:13-78:14; 78:16; 79:1-79:5; 79:12-79:17; 79:19-79:21; 79:23-79:25; 80:13-80:18; 80:21-81:7; 81:10-81:14; 82:9-83:4; 83:7-83:19; 83:21-83:22; 83:25-84:11; 85:5-85:9; 85:11; 86:2-86:5; 86:7-86:23; 86:25-87:9; 87:12-87:13; 87:15-87:24; 88:1-88:6; 88:8-88:11; 89:1-89:7; 91:11-91:22; 91:24-91:25; 103:4-103:7; 103:9-103:11; 103:23-104:1; 104:3-104:6; 105:4-105:8; 105:10-105:15; 105:22-106:9; 107:16-109:2; 109:6-110:7; 110:19-110:21; 110:24-111:6; 111:9-111:25; 112:4-112:5; 112:8-112:11; 113:1-113:3; 113:6-113:12; 113:20-113:23; 114:9-114:11; 114:14-114:21; 114:24-115:2; 115:7-115:11; 115:13-115:15; 115:17-115:23; 116:1-116:8; 116:12-117:2; 120:10-120:15; 124:8-124:17; 140:23-141:9; 141:17-142:1; 142:6-142:10; 142:13-143:2; 143:4-143:11; 143:13-143:19; 144:1-144:4; 148:19-149:16; 149:18-149:22; 149:25-150:2; 150:18-150:24; 151:1-151:8; 152:3-152:13; 152:15-152:21; 152:23-152:25; 153:13-153:15; 153:17-154:5; 154:8-154:9; 155:13 - 155:21; 158:18 - 159:4; 160:13 - 161:10; 166:9 - 167:21; 172:9-173:1; 173:21-173:23; 173:25-174:12; 174:14-174:22; 174:24-175:4; 175:7-176:2; 176:5-176:13</p>

8. The first category of documents contains Strategic Plans. Those competitively sensitive documents reflect Thermo Fisher's strategic objectives, as well as the competitive intelligence it relies on to develop its strategies and position itself in the marketplace. They also contain competitively sensitive financial information and customer and partner names.

9. The documents in this category are maintained in confidence. They are created and maintained by Thermo Fisher's senior executives and not disseminated widely around the company. Additionally, all of the Confidential Materials were produced with stamps marking them "Confidential," "Highly Confidential" or "Highly Confidential Business Information" when produced pursuant to a subpoena or in connection with regulatory review of a different transaction. The documents in this category reveal highly-confidential information regarding Thermo Fisher's strategic planning on business maintenance and development. For example, the documents contain Thermo Fisher's internal analysis of its business strategies in the NGS and related markets, assessment of competitors and its own products, and financial models and projections. Disclosure of these internal analyses will give competitors considerable and unfair advantage at the expense of Thermo Fisher's success. Strategic planning in the NGS business involves long lead times in keeping with the substantial investments and development cycles for NGS products, and strategic plans accordingly have significant business values for many years after they are created.

10. The second document category contains highly confidential Thermo Fisher R&D strategies for [REDACTED]. More specifically, it contains specific, detailed descriptions and pictures of the development of Thermo Fisher's [REDACTED]

[REDACTED]

[REDACTED]. The highly confidential information includes project names; project and new product descriptions; project timelines and roadmaps; expected financial results and revenue impact from the projects; and current and considered partners' names and assessments of individual partnerships. It also includes contracts with partners for R&D development detailing the specific commercial and financial terms of the partnership.

11. R&D efforts are significant to Thermo Fisher's business as a global manufacturer and supplier of a broad range of analytical, research and bioprocessing products, including NGS instruments and consumables. Research and product development in the NGS business involves long lead times in keeping with the substantial investments and development cycles for NGS products, and R&D plans accordingly have significant business values for many years after they are created. Thermo Fisher's R&D efforts are essential to its ability to compete in the industry and achieve success. Innovation is particularly key to competition in this industry as customers' needs evolve for their own scientific and medical research and product development. A substantial portion of Thermo Fisher's resources are devoted to developing innovative products to continuously meet its customers' needs. Thermo Fisher often takes years to decide whether to pursue R&D objectives, and those pursuits could then take even more years to come to market.

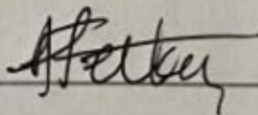
12. Thermo Fisher takes great care to maintain the confidentiality of its R&D plans, limiting distribution to only senior executives and the R&D team of Thermo Fisher, unless R&D efforts are pursued in partnership with external parties in which case our partners sign non-disclosure agreements. Disclosure of competitively sensitive R&D materials will

permanently disadvantage Thermo Fisher by revealing future product development and innovation strategies to competitors, giving them an unfair advantage over Thermo Fisher.

13. Finally, the last document category is the investigative hearing and deposition testimonies I gave on March 23, 2021 and June 2, 2021 in response to the Subpoenas and this Declaration. The investigative hearing and deposition transcripts include discussions of Thermo Fisher's competitively sensitive material in each of the categories described above. For example, the transcripts discuss Thermo Fisher's competitive assessment and positioning of its NGS products and its competitors' NGS products, current and potential customer names, contract terms with its R&D partners, and, significantly, its NGS R&D plans, including a **{new platform in development}**. This Declaration also includes statements about Thermo Fisher's NGS R&D plans.

Pursuant to 28 U.S.C. § 1746, I declare, under the penalty of perjury, that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed on: 08/05/21



Name: Andrew Charles Felton
Title: Vice President of Product
Management, Platforms and Research
Thermo Fisher Scientific Inc.

PUBLIC VERSION

EXHIBIT B ***In Camera* Treatment Exhibit List**

I. Strategic Plans

Exhibit	Description	PX/RX Beginning No.	PX/RX Ending No.	<i>In Camera Treatment Requested</i>
PX8444	November 25, 2019 Presentation: Turing dPCR Market Opportunity Assessment	PX8444-001	PX8444-017	Full
PX8649	<p>March 17, 2021 Cover email from Ira Herbst to Andrew Felton re Recent strategic planning documents.</p> <p>Attachments included in the exhibit are Valhalla CEO discussion 11222020 final.pptx; NIPT scenarios v10 2021.01.27.pptx; 2020 CSD STRAP v23 2020.10.28.pptx; and 2020 CSD STRAP vPre-Read for CLT.pptx</p>	PX8649-001	PX8649-240	<p>Full</p> <p>(Note: Indefinite <i>in camera</i> treatment is requested specifically for PX8649-017, PX8649-021, PX8649-024, and PX8649-236 due to R&D sensitivity. See “R&D Plans and Information” Table.)</p>
PX8650	<p>March 18, 2019 cover email from Peter Vuong to Andrew Felton re Offcite_Roadmapping.pptx</p> <p>Attachment included in the exhibit is March 2019 Presentation: A Look into the Future</p>	PX8650-001	PX8650-032	<p>Full</p> <p>(Note: Indefinite <i>in camera</i> treatment is requested specifically for PX8650-011 to PX8650-016 due to R&D sensitivity. See “R&D Plans and Information” Table.)</p>
RX2728	March 20, 2020 Presentation: CSD -	RX2728-1	RX2728-36	Full

	Strategy and Bus Dev Review			
RX2729	March 2019 Presentation: A Look into the Future	RX2729-1	RX2729-30	Full (Note: Indefinite <i>in camera</i> treatment is requested specifically for RX2729-9 to RX2729-14 due to R&D sensitivity. See “R&D Plans and Information” Table.)
RX2730	April 10, 2018 Email from Suresh Pisharody to Joydeep Goswami re Re: Interested in speaking	RX2730-1	RX2730-4	Full
RX2732	October 9, 2019 Presentation: IVD Strategy	RX2732-1	RX2732-22	Full
RX2735	October 30, 20 Presentation: Clinical Next-Generation Sequencing Division STRAP 2020	RX2735-1	RX2735-157	Full
RX2737	October 27, 2020 Email from Luca Quagliata to Garret Hampton et al re RE: EXAS -- Flash I Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt I Outperform	RX2737-1	RX2737-3	Partial

II. R&D Plans and Information

Exhibit	Description	PX/RX Beginning No.	PX/RX Ending No.	<i>In Camera</i> Treatment Requested
PX8649	Nov. 20, 2020 Presentation CSD STRAP follow-up #1 Valhalla IVD	PX8649-001	PX8649-240	Partial (PX8649-017; PX8649-021; PX8649-024; PX8649-236) (Note: Full <i>in camera</i> treatment for 10 years is requested for non-R&D materials in this document. See “Strategic” Table.)
PX8650	Mar. 18, 2019 cover email from Peter Vuong to Andrew Felton re Offcite_Roadmapping .pptx Attachments in the exhibit include March 2019 Presentation: A Look into the Future	PX8650-001	PX8650-032	Partial (PX8650-011 to PX8650-016) (Note: Full <i>in camera</i> treatment for 10 years is requested for non-R&D materials in this document. See “Strategic” Table.)
RX2729	March 2019 Presentation: A Look into the Future	RX2729-1	RX2729-30	Partial (RX2729-9 to RX2729-14) (Note: Full <i>in camera</i> treatment for 10 years is requested for non-R&D materials in this document. See “Strategic” Table.)
RX2731	March 2020 Presentation: Partnering Strategy; March 2020	RX2731-1	RX2731-14	Full
RX2733	August 13, 2020 Presentation: ██████████ ██████████ ██████████ ██████████	RX2733-1	RX2733-9	Full

RX2734	February 12, 2021 Presentation: Project Starship - Equity Investment Overview	RX2734-1	RX2734-17	Full
RX2736	April 12, 2021 Term Sheet-Commercial Agreement between Thermo Fisher and Strata	RX2736-1	RX2736-12	Full
RX2738	April 30, 2020 Thermo Fisher Supply Agreement with Strata	RX2738-1	RX2738-31	Full

III. Investigative and Deposition Transcripts and Declaration

Mar. 23, 2021 Andrew Felton Investigative Hearing (PX7070) R&D <u>Testimony Cite</u>	June 2, 2021 Andrew Felton Deposition (PX7097/RX3823) R&D <u>Testimony Cite</u>	<u>Declaration Cite</u> (Page & paragraph number)
8:16-8:19; 36:10-37:21; 38:1-38:3; 38:14- 38:18; 55:8-55:12; 55:17-55:20; 55:22-55:23; 56:1-57:1	21:23-21:25; 22:2-22:5; 22:7-22:13; 30:4-30:7; 30:9- 30:22; 30:24-31:8; 31:10- 31:17; 31:20-31:24; 32:2- 32:10; 32:13-32:14; 93:17- 93:20; 93:22-94:7; 94:9- 94:12; 117:21-117:23; 118:1-118:3; 118:5-118:21; 118:24-119:1; 119:3-119:10; 119:13-119:16; 119:18- 119:24; 120:2-120:9; 125:5- 125:8; 125:15-125:16; 125:19-125:22; 125:24- 126:1; 126:4-126:13; 126:20-126:22; 126:24- 127:24; 128:1-128:6; 128:8- 129:8; 129:10-129:20; 129:23-130:21; 130:24- 131:16; 131:18-131:22; 131:25-132:6; 132:8-132:11; 132:13-132:15; 132:18- 133:20; 133:23-134:3; 134:6-135:12; 135:14- 136:12; 136:15-137:20; 137:23-138:9; 138:12-	Paragraph 10 limited portions Paragraph 13 limited portions

	138:15; 138:17-139:3; 139:5-139:6 ; 168:1 -168:24	
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Mar. 23, 2021 Andrew Felton Investigative Hearing Transcript (PX7070)	June 2, 2021 Andrew Felton Deposition (PX7097/RX3823) Testimony Cite
26:9-26:15; 26:22-27:12; 27:25-28:15; 32:12-32:25; 34:1-34:21; 34:25-35:15; 38:5-38:9; 48:15-49:3; 51:3-51:8; 57:2-60:18; 68:7-69:13; 70:3-71:5	23:9-23:11; 23:13-23:22; 27:7-27:9; 27:11-27:19; 29:2-29:5; 29:8-29:10; 32:23-33:1; 33:4; 35:4-35:6; 35:9-35:21; 36:14-36:19; 36:23-37:2; 37:4-37:5; 42:12-42:15; 42:17-42:21; 42:23-43:1; 48:23-49:2; 49:4; 49:14-49:18; 52:20-52:23; 60:10-60:15; 60:22-60:23; 60:25-61:14; 61:18-61:20; 61:22-62:6; 62:8-62:16; 62:18-62:20; 68:3-68:6; 68:8-68:17; 68:20-68:21; 70:21-70:25; 71:8-71:11; 71:13-71:25; 72:3-72:7; 72:12-72:14; 72:16-72:21; 72:24-73:12; 73:14-74:4; 74:7-74:14; 74:16-74:25; 75:2-75:16; 75:23-75:25; 76:3-76:5; 76:7-76:14; 76:17-76:25; 77:3-77:12; 78:13-78:14; 78:16; 79:1-79:5; 79:12-79:17; 79:19-79:21; 79:23-79:25; 80:13-80:18; 80:21-81:7; 81:10-81:14; 82:9-83:4; 83:7-83:19; 83:21-83:22; 83:25-84:11; 85:5-85:9; 85:11; 86:2-86:5; 86:7-86:23; 86:25-87:9; 87:12-87:13; 87:15-87:24; 88:1-88:6; 88:8-88:11; 89:1-89:7; 91:11-91:22; 91:24-91:25; 103:4-103:7; 103:9-103:11; 103:23-104:1; 104:3-104:6; 105:4-105:8; 105:10-105:15; 105:22-106:9; 107:16-109:2; 109:6-110:7; 110:19-110:21; 110:24-111:6; 111:9-111:25; 112:4-112:5; 112:8-112:11; 113:1-113:3; 113:6-113:12; 113:20-113:23; 114:9-114:11; 114:14-114:21; 114:24-115:2; 115:7-115:11; 115:13-115:15; 115:17-115:23; 116:1-116:8; 116:12-117:2; 120:10-120:15; 124:8-124:17; 140:23-141:9; 141:17-142:1; 142:6-142:10; 142:13-143:2; 143:4-143:11; 143:13-143:19; 144:1-144:4; 148:19-149:16; 149:18-149:22; 149:25-150:2; 150:18-150:24; 151:1-151:8; 152:3-152:13; 152:15-152:21; 152:23-152:25; 153:13-153:15; 153:17-154:5; 154:8-154:9; 155:13 - 155:21; 158:18 - 159:4; 160:13 - 161:10; 166:9 - 167:21; 172:9-173:1; 173:21-173:23; 173:25-174:12; 174:14-174:22; 174:24-175:4; 175:7 176:2; 176:5-176:13

PUBLIC VERSION

EXHIBIT B-1 PX8444

***CONFIDENTIAL - REDACTED IN
ENTIRETY***

PUBLIC VERSION

EXHIBIT B-2 PX8649

***CONFIDENTIAL - REDACTED IN
ENTIRETY***

PUBLIC VERSION

EXHIBIT B-3 PX8650

***CONFIDENTIAL - REDACTED IN
ENTIRETY***

PUBLIC VERSION

EXHIBIT B-4 RX2728

***CONFIDENTIAL - REDACTED IN
ENTIRETY***

PUBLIC VERSION

EXHIBIT B-5 RX2729

***CONFIDENTIAL - REDACTED IN
ENTIRETY***

PUBLIC VERSION

EXHIBIT B-6 RX2730

***CONFIDENTIAL - REDACTED IN
ENTIRETY***

PUBLIC VERSION

EXHIBIT B-7 RX2732

***CONFIDENTIAL - REDACTED IN
ENTIRETY***

PUBLIC VERSION

EXHIBIT B-8 RX2735

***CONFIDENTIAL - REDACTED IN
ENTIRETY***

PUBLIC VERSION

EXHIBIT B-9 RX2737

***PARTIAL IN CAMERA
TREATMENT REQUESTED***

From: "Quagliata, Luca" <luca.quagliata@thermofisher.com>
Sent: Tue, 27 Oct 2020 08:42:30 -0700 (PDT)
To: "Hampton, Garret" <garret.hampton@thermofisher.com>
Cc: "Felton, Andrew C." <Andy.Felton@thermofisher.com>; "Herbst, Ira" <Ira.Herbst@thermofisher.com>; "Tanzella, Kelli" <Kelli.Tanzella@thermofisher.com>; "Bennett, Robert" <Rob.Bennett@thermofisher.com>
Subject: Re: EXAS -- Flash / Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt / Outperform

Hi Ira and Team,
Grail: will lunch Galleri as a lab developed test (LDT) in 2021 and seek full FDA approval most likely in early 2023 (multi-cancer early detection).
Freemome: the PREEMPT CRC clinical study is planned to be finished by July 30 2021 so likely they will be ready in mid 2022, for CRC only.
GH: has 3 major studies (plus one more to go) on going with the LUNARs being in mid to advance stages. It is likely they will seek for first approval in mid 2022.
EXAS (with Thrive): registration study next year in 2021, they will seek for first approval in mid 2022.

Please note that some will go for pan-cancer while others for tumour specific indication.

Best
Luca

On 27 Oct 2020, at 16:39, Hampton, Garret <garret.hampton@thermofisher.com> wrote:

What kind of investments would this require?

From: "Felton, Andrew C." <Andy.Felton@thermofisher.com>
Date: Tuesday, October 27, 2020 at 8:38 AM
To: "Hampton, Garret" <garret.hampton@thermofisher.com>; "Herbst, Ira" <Ira.Herbst@thermofisher.com>; "Quagliata, Luca" <luca.quagliata@thermofisher.com>; "Tanzella, Kelli" <Kelli.Tanzella@thermofisher.com>
Cc: "Bennett, Robert" <Rob.Bennett@thermofisher.com>
Subject: RE: EXAS -- Flash / Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt / Outperform

Garret

Andy

Andy Felton Ph.D.
Vice President Product Management
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<image001.jpg>

From: Hampton, Garret <garret.hampton@thermofisher.com>
Sent: Tuesday, October 27, 2020 8:35 AM
To: Felton, Andrew C. <Andy.Felton@thermofisher.com>; Herbst, Ira <Ira.Herbst@thermofisher.com>; Quagliata, Luca <luca.quagliata@thermofisher.com>; Tanzella, Kelli <Kelli.Tanzella@thermofisher.com>
Subject: Re: EXAS -- Flash / Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt / Outperform

Feels like there's some consolidation here and probably more to come. I wonder to what extent Thrive was a reaction to GRAIL. Regardless, seems like early detection will be centralized for quite a long time.

From: "Felton, Andrew C." <Andy.Felton@thermofisher.com>
Date: Tuesday, October 27, 2020 at 8:28 AM
To: "Herbst, Ira" <Ira.Herbst@thermofisher.com>; "Quagliata, Luca" <luca.quagliata@thermofisher.com>; "Tanzella, Kelli" <Kelli.Tanzella@thermofisher.com>
Cc: "Hampton, Garret" <garret.hampton@thermofisher.com>
Subject: RE: EXAS -- Flash / Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt / Outperform

Ira

From one of the links in the doc

With early screening data frequently showing retrospective results, or prospective case controlled studies including known cancer patients, we believe large prospective, multi-center, registration trials are ultimately needed in early detection. We see this in colorectal cancer with three targeted assays currently undergoing large 10k+ patient trials with expectation of only 70 true positives given a 0.07% incidence rate (LINK to CRC screening deep dive). From a multi-cancer standpoint, we believe this is even more important in terms of validating test performance, given the various incidence and tumor shedding rates across indications.

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From: Herbst, Ira <Ira.Herbst@thermofisher.com>
Sent: Tuesday, October 27, 2020 7:55 AM
To: Quagliata, Luca <luca.quagliata@thermofisher.com>; Tanzella, Kelli <Kelli.Tanzella@thermofisher.com>
Cc: Hampton, Garret <garret.hampton@thermofisher.com>; Felton, Andrew C. <Andy.Felton@thermofisher.com>
Subject: Fwd: EXAS -- Flash / Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt / Outperform

Luca, Kelli,

I suspect we're going to get some questions from CLT at Friday's STRAP on early detection. Do we have an estimate when any of these companies (Grail, Thrive, Freenome, GH) will submit for FDA approval of their tests? Ballpark estimate - what is the size, duration, and primary endpoint of a trial necessary to demonstrate clinical utility of an early detection test?

Thanks,
Ira

Begin forwarded message:


From: "Herbst, Ira" <ira.herbst@thermofisher.com>
Date: October 27, 2020 at 7:36:58 AM PDT
To: "Hampton, Garret" <garret.hampton@thermofisher.com>, "Felton, Andrew C." <Andy.Felton@thermofisher.com>
Subject: Fwd: EXAS -- Flash / Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt / Outperform

Begin forwarded message:

From: Puneet Souda / SVB Leerink Research <LSCResearch@svbleerink.com>
Date: October 27, 2020 at 6:36:32 AM PDT
To: "Herbst, Ira" <ira.herbst@thermofisher.com>
Subject: EXAS -- Flash / Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt / Outperform
Reply-To: puneet.souda@svbleerink.com

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Bottom Line: This morning, EXAS announced a strong 3Q20 volume and revenue beat and two acquisitions to further entrench themselves in the liquid biopsy cancer screening market.

EXAS announced the acquisition of blood-based cancer screening company Thrive Earlier Detection for up to \$2.15B in cash and stock considerations. The acquisition includes \$1.7B payable upon closing, consisting of 65% EXAS common stock and 35% cash, with an additional \$450M payable upon the achievement of certain milestones related to Thrive's assay CancerSEEK and is expected to close in 1Q21. EXAS' acquisition of Thrive comes just over one month after Illumina's (ILMN, OP) acquisition of competing, also pre-revenue, liquid biopsy screening company GRAIL for ~\$8B, and provides further validation for the liquid biopsy market as a whole, in our view.

Thrive's CancerSEEK assay has presented the only "real-world" prospective multi-cancer liquid biopsy screening data.

Thrive has conducted a first-of-its-kind 10k patient, prospective, interventional screening study in a real world setting, while other presented data in the industry has primarily been on smaller, case-controlled cohorts. We recently highlighted Thrive's data in depth in a multi-cancer screening deep dive ([LINK](#)), as well as our key "must-have" features for success in early detection of cancer via liquid biopsy. EXAS plans to combine its methylation technology and markers with Thrive's assay to enhance the sensitivity of the combined assay (at 99%+ specificity lock in multi-cancer) prior to pursuing an FDA registration trial. We believe this acquisition further catalyzes the entire liquid biopsy market, and view expected commercial synergies upon launch of CancerSEEK given EXAS' large, established sales team and relationships with primary care physicians and offices throughout the country.

Doubling down on methylation as acquisition of Base Genomics to expand EXAS' DNA methylation capabilities.

This morning EXAS also announced the acquisition of Base Genomics, an epigenetics company working to set a new standard in DNA methylation, for \$410M net of cash received. Base Genomics allows for the analysis of DNA methylation and mutations in a single sample, with their differentiated technology being highly complementary to EXAS' technology and approach. DNA methylation analysis has proven to be a useful approach in improving sensitivity and tissue of origin identification in early detection assays, though we note that Thrive's CancerSEEK assay does not currently use the technology, and rather pairs their test result with a PET scan to improve performance.

EXAS posts revenue beat on largely in-line base business and stronger than expected COVID-19 testing revenue.


Total revenue was \$408M vs. Street expectations of \$337M buoyed by a recovering base business and COVID testing revenue of \$100M+. Total Screening revenue (Cologuard) was down LSDs versus 3Q19, and up 63% q/q to \$215M – moderately ahead of Street's \$211M

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estimate. Precision Oncology (Genomic Health) generated \$92M vs. Street expectations of \$86M. COVID testing provided most of the benefit posting \$102M in revenue vs. Street expectations of \$40M and our \$54M. The stronger than expected revenue results aided GM of 77% vs. Street's expectations of 72%.

Share offering in conjunction with acquisition.

EXAS also announced their entry into an agreement to sell ~8.6M shares of common stock to ten institutional investors for a purchase price of \$101, totaling \$869.2M in net proceeds to support their acquisitions. The offering, which is being made without an underwriter or placement agent, is expected to close on or about October 29, 2020, and the shares were offered pursuant to an automatically effective shelf registration statement previously filed on June 1, 2020.

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EXHIBIT B-10 RX2731

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EXHIBIT B-11 RX2733

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EXHIBIT B-13 RX2736

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EXHIBIT B-14 RX2738

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EXHIBIT B-15 PX7070

***PARTIAL IN CAMERA
TREATMENT REQUESTED***

In the Matter of:

llumina, Inc. and Grail, Inc.

March 23, 2021

Andrew Felton

Condensed Transcript with Word Index



For The Record, Inc.
(301) 870-8025 - www.ftrinc.net - (800) 921-5555

Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

1	<p>FEDERAL TRADE COMMISSION</p> <p>ILLUMINA,) a corporation,) and) File No. 201-0144 GRAIL,) a corporation.) -----)</p> <p>March 23, 2021 Via Zoom</p> <p>The above-entitled matter came on for investigational hearing, pursuant to subpoena, at 11:05 a.m.</p>	3
2	<p>APPEARANCES:</p> <p>ON BEHALF OF THE FEDERAL TRADE COMMISSION:</p> <p>JORDAN ANDREW, ESQUIRE Federal Trade Commission 600 Pennsylvania Avenue, N.W. Washington, D.C. 20580 jandrew@ftc.gov</p> <p>ON BEHALF OF THERMO FISHER SCIENTIFIC & THE DEPONENT:</p> <p>MARK D. ALEXANDER, ESQUIRE Axinn, Veltrop & Harkrider 90 State House Square Hartford, Connecticut 06103 (860) 275-8130 malexander@axinn.com</p> <p>ALSO PRESENT:</p> <p>John McAdams, FTC Economist</p>	4
1	<p>I N D E X</p> <p>WITNESS PAGE: Andrew Felton By Mr. Andrew 4</p>	3
1	<p>P R O C E E D I N G S</p> <p>COURT REPORTER: Does everyone stipulate to the following: No party to the hearing will object to the remote hearing on the grounds that the stenographer may not have the legal authority to swear in the witness? MR. ANDREW: I agree. MR. ALEXANDER: I agree. ANDREW FELTON, after having been duly sworn remotely by the stenographer, was examined and testified as follows: EXAMINATION BY COUNSEL FOR THE FTC BY MR. ANDREW:</p> <p>Q Good morning, Dr. Felton. Please state your full name for the record.</p> <p>A Andrew Charles Felton.</p> <p>Q Who is your current employer?</p> <p>A Thermo Fisher Scientific.</p> <p>Q What is your current position at Thermo Fisher Scientific?</p> <p>A Vice-president, product management.</p> <p>Q My name is Jordan Andrew, and I'm an attorney at the Federal Trade Commission.</p> <p>MR. ANDREW: Can everyone else who's</p>	4

Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

5

1 participating in today's investigational hearing,
 2 please, introduce themselves for the record?
 3 MR. ALEXANDER: This is Mark
 4 Alexander. I'm with the law firm of Axinn,
 5 Veltrop & Harkrider. Axinn represents Thermo
 6 Fisher Scientific and Mr. Felton in this
 7 proceeding.
 8 MR. MCDONALD: I am John McAdams. I'm
 9 an economist at the FTC.
 10 MR. ALEXANDER: And before we begin,
 11 on behalf of Thermo Fisher, we would request the
 12 transcript be designated confidential to the
 13 maximum extent that the laws and rules provide.
 14 MR. ANDREW: Thank you.
 15 BY MR. ANDREW:
 16 **Q Unless I state otherwise, I will refer**
 17 **to Thermo Fisher Scientific throughout this**
 18 **investigational hearing as Thermo; I will refer**
 19 **to Illumina, Inc., as Illumina; and I will refer**
 20 **to GRAIL, Inc., as GRAIL. And when I refer to**
 21 **the proposed transaction, proposed acquisition,**
 22 **or proposed merger, I'm referring to Illumina's**
 23 **proposed acquisition of GRAIL.**
 24 **Does that work for you?**
 25 A Yes.

6

1 **Q Do you understand that you are here**
 2 **today pursuant to a subpoena from the Federal**
 3 **Trade Commission?**
 4 A Yes, I do.
 5 **Q You previously testified in an**
 6 **investigational hearing with the FTC, correct?**
 7 A Correct.
 8 **Q And that was approximately two years**
 9 **ago, correct?**
 10 A Yes.
 11 **Q That testimony was related to the**
 12 **proposed merger of Illumina and Pacific**
 13 **Biosciences, correct?**
 14 A That is correct.
 15 **Q To the best of your knowledge, was the**
 16 **testimony that you provided in that**
 17 **investigational hearing accurate?**
 18 A Yes. To the best of my knowledge, it
 19 was accurate.
 20 **Q Since you testified, has anything**
 21 **caused you to believe that any of the testimony**
 22 **you provided in that investigational hearing was**
 23 **not accurate?**
 24 A No, it has not.
 25 **Q Okay. Well, even though you've**

7

1 **testified before, I'd like to briefly explain how**
 2 **this hearing will be conducted.**
 3 **All of my questions and your answers**
 4 **will be recorded by the court reporter. Please**
 5 **understand that you need to speak up and answer**
 6 **my questions orally so that the court reporter**
 7 **can record your answers. She won't be able to**
 8 **record a nod or shake of the head.**
 9 **To make the questions and answers**
 10 **easier to record, we should do our best not to**
 11 **talk at the same time. If you don't understand**
 12 **one of my questions or you can't hear a question,**
 13 **I'll be happy to clarify it, rephrase it, or do**
 14 **whatever is necessary so that you and I can**
 15 **understand each other. This is particularly**
 16 **important because we are conducting this hearing**
 17 **remotely, and I want to make sure you can hear.**
 18 **I want to remind you that you're under**
 19 **oath. If at any point you realize that you have**
 20 **answered a question incorrectly or you remember**
 21 **something else that would make your answer more**
 22 **complete, just let me know, and you can add to**
 23 **your earlier answer right there when it's on your**
 24 **mind. If you need a break at any point, let me**
 25 **know, and we can take one. I only ask that you**

8

1 **don't request a break while a question is**
 2 **pending.**
 3 **Do you understand these instructions?**
 4 A Yes, I do.
 5 **Q Since we're conducting this hearing**
 6 **remotely today, I have a few questions regarding**
 7 **the circumstances of your remote appearance for**
 8 **the record.**
 9 **You are currently accessing Zoom; is**
 10 **that correct?**
 11 A I am.
 12 **Q Is this platform working for you as**
 13 **far as you can tell?**
 14 A This platform seems to be pretty
 15 operational.
 16 [REDACTED]
 17 [REDACTED]
 18 [REDACTED]
 19 [REDACTED]
 20 **Q Is there anyone else in the room with**
 21 **you right now?**
 22 A No, there is not.
 23 **Q Do you have any other programs or**
 24 **applications running on your device such as**
 25 **instant messaging app or e-mail?**

Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

9

1 A E-mail is running on the device, but
 2 I'm not using it.
 3 **Q Okay. Do you have any form of**
 4 **communication with your attorney at your**
 5 **disposal?**
 6 A No, other than over the phone, which
 7 we have no Internet connection on. So no.
 8 **Q And to be clear, you are currently**
 9 **using your phone to access Zoom; is that right?**
 10 A That is correct.
 11 **Q Will you let me know if anyone else**
 12 **tries to communicate with you while I'm asking**
 13 **you questions?**
 14 A I will.
 15 **Q If for any reason our line of**
 16 **communication breaks down, you have a way to**
 17 **contact your attorney?**
 18 A Yes. I can -- I can phone him.
 19 **Q Is there any reason why you would not**
 20 **be able to testify fully and accurately today?**
 21 A No.
 22 **Q What, if anything, did you do to**
 23 **prepare for today's hearing?**
 24 A We had a couple of phone calls with
 25 the lawyer team, internal and external lawyer

10

1 team.
 2 **Q Other than speaking with your internal**
 3 **and external legal teams, did you discuss the**
 4 **testimony you expect to give today with anyone**
 5 **else?**
 6 A No.
 7 **Q Other than --**
 8 A Sorry. Let me correct. My superior,
 9 Garret Hampton.
 10 **Q Who is Garret Hampton?**
 11 A Garret Hampton is the division
 12 president.
 13 **Q And he is employed at Thermo as well,**
 14 **correct?**
 15 A Correct.
 16 **Q Other than documents or data that may**
 17 **have been shown to you by your attorneys, did you**
 18 **review any documents or data to prepare for**
 19 **today's hearing?**
 20 A Reviewed some of the market share data
 21 we had generated in 2019.
 22 **Q Anything else?**
 23 A No. That was pretty much it.
 24 **Q Okay. Then I'd like to move to some**
 25 **questions about your educational and professional**

11

1 **background.**
 2 **Briefly describe your educational**
 3 **background starting with college.**
 4 A Undergrad degree in chemistry from
 5 Liverpool John Moores University and a Ph.D. in
 6 peptide chemistry from Oxford Brookes University.
 7 **Q Do you have any other degrees?**
 8 A No, I do not.
 9 **Q When did you earn your Ph.D.?**
 10 A 1992.
 11 **Q Describe your professional experience**
 12 **prior to working at Thermo starting with the**
 13 **first position you had after earning your Ph.D.**
 14 A I worked for the government, UK
 15 development, health and safety executive for
 16 about two years, and then I transferred to
 17 Applied Biosystems UK in about 1994. From
 18 Applied Biosystems UK, I went to Applied
 19 Biosystems U.S. in 1997 and left that role to
 20 start at Ion Torrent in 2010. And Ion Torrent
 21 was subsequently acquired by Life Technologies,
 22 which acquired Applied Biosystems, and have been
 23 in that role since 2010.
 24 **Q What was your role at Applied**
 25 **Biosystems UK?**

12

1 A I was a field applications support
 2 scientist.
 3 **Q What were your responsibilities in**
 4 **that role?**
 5 A Primarily supporting peptide and
 6 protein products. I also supported DNA synthesis
 7 products on our factory production site facility.
 8 **Q What was your role at Applied**
 9 **Biosystems U.S.?**
 10 A I started as associate product manager
 11 in the DNA synthesis team and moved to product
 12 management role on sample preparation systems and
 13 then to real-time PCR where I became a senior
 14 product manager and then to the capillary
 15 electrophoresis business --
 16 COURT REPORTER: I'm sorry. To the
 17 what business?
 18 THE WITNESS: Capillary
 19 electrophoresis.
 20 COURT REPORTER: That's what I didn't
 21 hear.
 22 THE WITNESS: No worries.
 23 -- eventually becoming the director of
 24 product management for that business. From
 25 there, I moved to Ion Torrent Systems.

13

1 BY MR. ANDREW:
 2 **Q And again, when did you join Ion**
 3 **Torrent Systems?**
 4 A 2010.
 5 **Q What was your role at Ion Torrent?**
 6 A Senior director, product management.
 7 **Q What were your responsibilities in**
 8 **that role?**
 9 A Responsible for commercializing of NGS
 10 products from Ion Torrent including the systems,
 11 reagents, and eventually I also acquired the
 12 software function as well but not in the
 13 beginning.
 14 **Q How long were you in that role?**
 15 A I was in that role for about three
 16 years and then became the VP of product
 17 management -- three to four years. My memory is
 18 not 100 percent clear on that date.
 19 **Q Was that before or after Ion Torrent**
 20 **was acquired by Life Technologies?**
 21 A That was after.
 22 **Q How did your role change, if at all,**
 23 **after Life Technologies acquired Ion Torrent?**
 24 A Role was essentially the same. No
 25 major changes to the function or responsibilities

14

1 of the role.
 2 **Q What was your next role?**
 3 A Next role was vice-president of
 4 product management function which, for a time,
 5 also included the marketing activities for Ion
 6 Torrent. A few years later, about four years
 7 ago, that function was separated out from my
 8 role. So we had vice-president of marketing,
 9 vice-president of product management, which is
 10 the current situation.
 11 **Q So you previously had marketing**
 12 **responsibilities?**
 13 A Previously had marketing
 14 responsibilities for about three years I would
 15 estimate.
 16 **Q From about what time frame?**
 17 A That would probably be from about --
 18 probably about 2015 or '16 to about 2018, '19.
 19 My memory is not very exact on those dates.
 20 **Q Approximate dates are fine.**
 21 A Yeah.
 22 **Q What were your responsibilities**
 23 **related to marketing at that time?**
 24 A So marketing function for the
 25 development of collateral and marketing programs

15

1 reported in to me through a team leader.
 2 **Q Do you have any responsibilities**
 3 **related to competitive intelligence?**
 4 A Some, although we have a competitive
 5 market intelligence function within the business.
 6 So prior to the substantiation of that function,
 7 market intelligence was also a component of the
 8 role in marketing and product management.
 9 **Q At that time did you do any direct**
 10 **interfacing with customers?**
 11 A Yes. I've always had direct customer
 12 interfacing in all roles.
 13 **Q Including your current role?**
 14 A Including my current role.
 15 **Q Did you have in your marketing role**
 16 **any pricing responsibilities?**
 17 A Yes. Actually, the marketing role
 18 doesn't have direct control of pricing. The
 19 product management function in our organization
 20 has direct control of pricing responsibilities.
 21 We do liaise with a pricing team to help us set
 22 pricing, but the product management function in
 23 general sets pricing.
 24 **Q So you currently have pricing**
 25 **responsibilities then?**

16

1 A Correct.
 2 **Q What factors do you use to determine**
 3 **how to set prices?**
 4 A Number of factors. Cost of the
 5 product itself, what we believe the value of the
 6 product is to the market. We have usually a
 7 pricing team. We do some pricing analysis to
 8 understand what the correct pricing for that
 9 product is based on the goals of the product
 10 launch itself.
 11 **Q Do you keep track of other competitors**
 12 **in the marketplace as part of your**
 13 **responsibilities?**
 14 A Yes, we do.
 15 **Q When did you become vice-president of**
 16 **product management?**
 17 A To the best of my recollection, around
 18 2016 or '17. My memory isn't very clear on that.
 19 **Q And that is still your title today,**
 20 **correct?**
 21 A Correct.
 22 **Q Are you a member of any committees or**
 23 **working groups at Thermo?**
 24 A Can you be more specific, Jordan,
 25 about what you mean by "committees" or "working

<p style="text-align: right;">17</p> <p>1 groups"?</p> <p>2 Q Are there any teams that you are a</p> <p>3 part of that have regularly scheduled or even ad</p> <p>4 hoc meetings?</p> <p>5 A There are multiple teams for which I</p> <p>6 have regularly scheduled ad hoc meetings. I'll</p> <p>7 try to give you some examples.</p> <p>8 So we have our functional meetings</p> <p>9 with, for example, our marketing team. We have</p> <p>10 regular team meetings with other divisions to</p> <p>11 discuss whether they have interest or activity in</p> <p>12 the next-generation sequencing space. Most of</p> <p>13 these are internal to the Thermo Fisher. I</p> <p>14 rarely participate in external working groups. I</p> <p>15 couldn't recall any at this point.</p> <p>16 Q What internal divisions within Thermo</p> <p>17 would you talk to about their interest in NGS?</p> <p>18 A Human identification team, which is</p> <p>19 our forensic science business, our molecular</p> <p>20 biology division, food safety group, and our</p> <p>21 transplant diagnostic division. We also talk</p> <p>22 regularly to our teams in the genetic sciences</p> <p>23 division across the real-time capillary</p> <p>24 electrophoresis and microarray businesses.</p> <p>25 Q Do you currently have any other</p>	<p style="text-align: right;">19</p> <p>1 Q May I refer to next-generation</p> <p>2 sequencing as NGS for the remainder of the</p> <p>3 hearing?</p> <p>4 A Yes, you can.</p> <p>5 Q In general, what is the difference</p> <p>6 between NGS and the other sequencing technologies</p> <p>7 that Thermo has?</p> <p>8 A The major difference between</p> <p>9 next-generation sequencing and capillary</p> <p>10 electrophoresis, which I'm hoping I can refer to</p> <p>11 as CE from this point forward, is that</p> <p>12 next-generation sequencing is a so-called</p> <p>13 massively parallel sequencing operation.</p> <p>14 What do we mean by that?</p> <p>15 The first-generation technologies</p> <p>16 provide single reads of about 600 to 1,000 base</p> <p>17 pairs at a time. So one capillary, one lane.</p> <p>18 One capillary equals to one (audio distortion)</p> <p>19 whereas massively parallel sequencing systems can</p> <p>20 provide millions to hundreds of millions to</p> <p>21 billions of reads in parallel all simultaneously,</p> <p>22 however, they are typically shorter in the</p> <p>23 technologies that are predominant in the market.</p> <p>24 (Reporter clarification.)</p> <p>25 THE WITNESS: Let me try to repeat</p>
<p style="text-align: right;">18</p> <p>1 responsibilities related to your employment at</p> <p>2 Thermo that we have not discussed?</p> <p>3 A No. I think you've covered it.</p> <p>4 Q Moving on, I'd like to get to some</p> <p>5 questions about Thermo's sequencing and</p> <p>6 next-generation sequencing business.</p> <p>7 At a high level, describe Thermo's</p> <p>8 sequencing business.</p> <p>9 A Thermo Fisher's sequencing business</p> <p>10 comprises of a number of instrument systems,</p> <p>11 reagents, software, and assay components,</p> <p>12 primarily targeted at the oncology market with</p> <p>13 subsidiary market presence in the</p> <p>14 reproductive-health space and the research space,</p> <p>15 as well as some presence in our applied markets</p> <p>16 by which we would term those to be things like</p> <p>17 the human-identification market, the agribusiness</p> <p>18 market, the food-safety market.</p> <p>19 Q Does Thermo have sequencing</p> <p>20 technologies beyond next-generation sequencing?</p> <p>21 A Next-generation sequencing</p> <p>22 technologies in the form of the capillary</p> <p>23 electrophoresis sequencing business. This is</p> <p>24 what are referred to as kind of first-generation</p> <p>25 sequencing technology.</p>	<p style="text-align: right;">20</p> <p>1 that.</p> <p>2 So one capillary equals one lane which</p> <p>3 equals one read of about 600 base pairs. The</p> <p>4 difference between the CE sequence, capillary</p> <p>5 electrophoresis -- I'm going to shorthand CE for</p> <p>6 capillary electrophoresis -- is that</p> <p>7 next-generation sequencing provides massively</p> <p>8 parallel numbers of reads from millions to</p> <p>9 hundreds of millions to potentially billions of</p> <p>10 reads in parallel, although they are shorter</p> <p>11 typically in the predominant technology in the</p> <p>12 marketplace than the CE reads.</p> <p>13 MR. ANDREW: Was that all right,</p> <p>14 Tammy?</p> <p>15 COURT REPORTER: Yes.</p> <p>16 BY MR. ANDREW:</p> <p>17 Q You also mentioned that Thermo has a</p> <p>18 microarray business, correct?</p> <p>19 A Correct.</p> <p>20 Q At a high level, what is the</p> <p>21 difference between Thermo's NGS business and its</p> <p>22 microarray business?</p> <p>23 A The microarray technology provides for</p> <p>24 so-called hypothesis-based experiments primarily</p> <p>25 for gene expression, genotyping, and copy. By</p>

21	<p>1 that we mean, you have to know something about</p> <p>2 the sequences that you're trying to interrogate</p> <p>3 to place them onto the array to be detected;</p> <p>4 whereas, next-generation sequencing is a</p> <p>5 so-called hypothesis-free technology in which you</p> <p>6 do not have to understand the sequences that you</p> <p>7 are trying to interrogate. You just sequence</p> <p>8 them directly.</p> <p>9 Q Generally, are microarrays and NGS</p> <p>10 used for different types of applications?</p> <p>11 A There are some overlaps in the</p> <p>12 applications that they can perform, but there are</p> <p>13 some differences as well. I'll give you an</p> <p>14 example of the ones that are similar.</p> <p>15 So gene expression measurement by</p> <p>16 microarray, which is the predominant use case,</p> <p>17 can also be done by a sequencing where a</p> <p>18 technology called RNA-Seq where you're counting</p> <p>19 the individual reads to generate the similar</p> <p>20 expression data.</p> <p>21 Genotyping is also possible on</p> <p>22 next-generation sequencing as is copy number. So</p> <p>23 they share some applications in parallel, the</p> <p>24 primary difference being the depth and</p> <p>25 specificity of the answers that you can generate</p>	23	<p>1 we've ascribed -- there are a large number of</p> <p>2 smaller reagent competitors.</p> <p>3 Q Focusing on the instrument competitors</p> <p>4 for a moment, which of those competitors that you</p> <p>5 named do you consider to be Thermo's closest</p> <p>6 competitor?</p> <p>7 A Closest competitor is Illumina.</p> <p>8 Sorry. A lot of echo back to me. Closest</p> <p>9 competitor is Illumina.</p> <p>10 Q Why do you say that?</p> <p>11 A Illumina has a broadly similar</p> <p>12 technology in it's so-called termed short-read</p> <p>13 sequencing and has the most -- the largest</p> <p>14 presence in the marketplace in terms of platform</p> <p>15 and market share.</p> <p>16 Q You mentioned also Pacific Biosciences</p> <p>17 and Oxford Nanopore. Are those long-read</p> <p>18 sequencing companies?</p> <p>19 A Correct. They are both termed</p> <p>20 long-read sequencing technologies.</p> <p>21 Q Are platforms that utilize long-read</p> <p>22 sequencing currently used for clinical oncology</p> <p>23 applications?</p> <p>24 A In very little amount. I would say</p> <p>25 not -- it is not that predominant. It is not</p>
22	<p>1 by next-generation sequencing is much larger than</p> <p>2 by gene expression.</p> <p>3 Q How does the throughput of</p> <p>4 next-generation sequencing compare to</p> <p>5 microarrays?</p> <p>6 A That's one of the major</p> <p>7 differentiators. Particularly on the very high</p> <p>8 throughput NGS platforms, you can do multiple</p> <p>9 experiments in parallel, for example, on gene</p> <p>10 expression; whereas, a single array will give you</p> <p>11 an answer. There are technologies that would</p> <p>12 give you 96 or, you know, smaller, maybe up to</p> <p>13 384 expression answers at a time. But in</p> <p>14 principal, next-generation sequencing can have a</p> <p>15 much higher throughput.</p> <p>16 Q Focusing then on NGS, who are Thermo's</p> <p>17 primary competitors in NGS?</p> <p>18 A So our primary competitors are</p> <p>19 Illumina, Pacific Biosciences, Oxford Nanopore,</p> <p>20 BGI, NGI. And then we have competitors in the</p> <p>21 reagent space. Those are platform competitors I</p> <p>22 just mentioned.</p> <p>23 We also have competitors in the</p> <p>24 reagent space. They would be, for example,</p> <p>25 Agilent, Roche, ArcherDX, and a number of others</p>	24	<p>1 even their minority market. It's a very small</p> <p>2 usage.</p> <p>3 Q Why is that?</p> <p>4 A Fundamentally, you do not need long</p> <p>5 reads to access the oncology market. The</p> <p>6 predominant material used in the ED to sequence</p> <p>7 is formalin-fixed paraffin-embedded tissue and</p> <p>8 that material typically fragments the DNA to a</p> <p>9 range of 175 base pairs-ish but can be slightly</p> <p>10 longer. But it would be extremely inefficient to</p> <p>11 use very long reads compared to short-read</p> <p>12 technologies.</p> <p>13 Q How would the cost of using long-read</p> <p>14 technologies for clinical oncology applications</p> <p>15 compare to the cost of using short-read</p> <p>16 instruments?</p> <p>17 A It would tend to be much higher</p> <p>18 because you typically have smaller numbers of</p> <p>19 reads of longer reads in the long-read</p> <p>20 technologies. So the other read lengths might be</p> <p>21 2KB, 2,000 bases, to tens of kilobases in length,</p> <p>22 but they tend to be much fewer reads; whereas,</p> <p>23 the converse is true for short-read technology</p> <p>24 where you have many millions to billions of</p> <p>25 reads, but they are typically in the range of 200</p>

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1 to 400 base pairs, so your cost per read and
2 naturally your cost per gigabase of sequence
3 would tend to be much lower than for a long-read
4 technology.

5 **Q To be clear, when you said the cost
6 would be higher, you were referring to the cost
7 of long-read sequencing would be higher?**

8 A The cost of long-read sequencing would
9 be higher.

10 **Q For which applications does Thermo
11 compete with Pac Bio?**

12 A Primarily the only area we would
13 really overlap is in whole genome sequences for
14 smaller bacterial virus targets and then some
15 overlap in the human genetic disease arena.

16 **Q Are those clinical applications?**

17 A Yes, they can be. So for an example,
18 microbial barrier whole genome sequencing,
19 currently we are both engaged in sequencing
20 SARS-CoV genomes, which is a clinical application
21 in the sense that you need to derive sequences
22 from patients who have the disease to understand
23 what -- what variant -- what variants of concern
24 might be in those genomes.

25 **Q For which applications do you compete**

[REDACTED]

13 **Q And that figure is by revenue,
14 correct?**

15 A By revenue.

16 **Q How is Illumina's market share changed
17 over the past five years?**

18 A I would say it may have gone down a
19 little bit or very -- or stayed the same. There
20 have been additions from BGI, but they are over a
21 smaller magnitude. Qiagen had a small percentage
22 of share for a time, but the predominant effect
23 has probably been from the long-read technology
24 competitors of Oxford and Pacific Biosciences.

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1 **with Oxford Nanopore?**

2 A Basically the same as I just described
3 for Pacific Biosciences.

4 **Q Is BGI a competitor to Thermo in the
5 United States?**

6 A Not currently. Our understanding is
7 they're currently not selling much, if any,
8 platform capability within the U.S.

[REDACTED]

16 **Q And when you say "systems," you're
17 referring to NGS instruments?**

18 A Correct.

19 **Q Is the figure you just gave me a
20 global market share?**

21 A Correct.

[REDACTED]

[REDACTED]

16 **Q Why do you believe that is?**

17 A The technology is now widely spread
18 throughout the scientific and clinical
19 communities, and therefore -- and they were the
20 first player -- NGS player to establish a major
21 foothold in the market. So their technology is
22 now so widely available through academic and
23 research segments that most scientists coming up
24 are familiar with that technology and, therefore,
25 would continue to use that technology platform.

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1 Q Why would scientists continue to use a
2 technology platform that they are familiar with?

3 A So if you have generated research data
4 sets on a single platform, it's generally
5 preferable that you continue to use the same
6 platform for comparability over time, and
7 therefore, changing technologies becomes more
8 difficulty unless there are very compelling
9 reasons to do so.

10 Q To expand on that, why would it be
11 difficult to change technologies then?

12 A For comparability of data sets. You
13 want to ensure that your data from one technology
14 platform is as comparable as possible.
15 Introducing new technologies can lead to
16 difficulty in interpreting between the two data
17 sets.

18 Q I'd like to move on and talk about the
19 NGS instruments that Thermo sells today. What
20 are the NGS instruments that Thermo sells?

21 A We currently sell our PGM Dx platform
22 that is our IVD-approved version of our first
23 generation technology. We sell a proton platform
24 which is our second-generation technology but
25 primarily only to our China market. And we --

1 measurement that you used to describe throughput,
2 the reads per run?

3 A Sure.

4 So read, as I've described earlier in
5 the deposition, is a single contiguous length of
6 DNA sequence from, in our case, a chip. So each
7 well on a chip can generate a read, and we
8 typically generate those reads in the range of
9 200 to 400 base pairs per sequence. So we're
10 generating 60 to 80 million 200 to 400 base-pair
11 sequencers per run.

12 Q Are there any other metrics that you
13 believe are important in comparing NGS
14 instruments?

15 A So the other metrics that are
16 typically used are turnaround time and gigabases
17 of sequence. So turnaround time, how long does
18 it take to generate the sequence information, and
19 how much overall sequence information is
20 provided. The overall sequencing information and
21 gigabases is a combination of the number of reads
22 times the length of the read.

23 Q Why is turnaround time important?

24 A Turnaround time is important in some
25 market segments, in particularly the clinical

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1 the two predominant platforms we sell are the
2 GeneStudio series and the latest generation
3 platform, the Genexus system.

4 Q Collectively, does Thermo refer to
5 these as their Ion Torrent instruments?

6 A Correct. They go to market under the
7 brand Ion Torrent.

8 Q How are the Ion Torrent instruments
9 different from each other?

10 A The primary difference from each other
11 in throughput and level of automation for the
12 workflow that is required to operate them.

13 Q How do the instruments compare in
14 terms of throughput?

15 A So the PGM platform has a maximum of
16 five million reads per run. The proton platform
17 has a maximum read capability of 60 to 80 million
18 reads per run. The GeneStudio series platform
19 has a maximum of 100 to 130 million reads per
20 run. The Genexus system's current output range
21 is also in the 50 to 80 million read range, but
22 it is a fully automated workflow, including
23 laboratory preparation, as well as the clinical
24 application, and the sequencing steps.

25 Q Can you explain the unit of

1 market segment, particularly in oncology, as
2 there are turnaround time requirements to
3 generate data for answers from samples in the
4 oncology space.

5 So there are, for example, 10-day
6 turnaround time requirements to generate an
7 answer for the patient. Sequencing is one
8 component of a number of molecular tests that
9 would be done on a patient's tumor sample, so the
10 faster any individual component is derived, the
11 overall turnaround time to the patient is less.

[REDACTED]

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1 **Q How is the PMG Dx different than**
 2 **the -- I'm sorry. Let me start again.**
 3 **How is the PGM Dx different than the**
 4 **PGM platform?**
 5 A PGM Dx platform is the IVD-approved --
 6 U.S. IVD-approved and Europe IVD-approved version
 7 of the PGM platform. We no longer offer for sale
 8 the original PGM non-IVD-approved platform.
 9 **Q What does it mean to be IVD approved?**
 10 A In our case we have applied for and
 11 been issued a Class III premarket approval
 12 notification in combination with our Oncomine Dx
 13 target test, which is an oncology-based assay for
 14 companion diagnostic testing in oncology.
 15 Companion diagnostic testing means the answers
 16 that the system can give can directly influence
 17 patient therapies for particular markers. So if
 18 a variant is present for a particular marker and
 19 we have a confirming diagnosis claim associated
 20 with that, the physician can prescribe that
 21 particular therapy based on that result.
 22 **Q The PMA approval you just described is**
 23 **an approval granted by the U.S. FDA; is that**
 24 **correct?**
 25 A That is correct.

[REDACTED]

16 **Q Generally, what is required to obtain**
 17 **FDA approval for an NGS instrument?**
 18 A Is your question, Jordan, a Class III
 19 PMA approval or just any approval of the FDA?
 20 **Q The Class III PMA approval, please.**
 21 A So you have to register the system.
 22 It is not just the instrument. So a Class III
 23 approval includes the instrument, the software,
 24 the reagents, and the assay components. There is
 25 extensive analytical validation of the assay and

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[REDACTED]

22 **Q You said that PMA approval process**
 23 **takes about three years; is that correct?**
 24 A That's correct.
 [REDACTED]

1 the system together as well as guard banding.
 2 And that means you assess the detection, the
 3 sensitivity and specificity and detection
 4 capability of every variant, every mutation the
 5 panel is intended to assess, and then you perform
 6 a clinical validation on clinically relevant
 7 samples for the sample types you wish to make
 8 claims for. So in our case, that would be both
 9 formalin-fixed and paraffin-embedded tissue and

[REDACTED]

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[REDACTED]

22 **Q** You previously said the most recent
 23 **Thermo instrument to be commercialized was the**
 24 **Genexus; is that right?**
 25 **A** That's correct.

1 systems, so the learnings from the GeneStudio
 2 platform was implemented into the Genexus system.
 3 **Q How long would it take a new entrant**
 4 **to develop and commercialize an NGS instrument?**
 5 **A** That's a hard question to answer. In
 6 general, from what we have seen, most companies
 7 are spending three to five years to generate a
 8 new technology, but it's a very general answer.
 9 It depends on how difficult the underlying
 10 technology is.
 11 **Q And how much do you think a new**
 12 **entrant would need to spend in order to develop**
 13 **and commercialize an NGS instrument?**
 14 **A** It would be a very speculative answer,
 15 Jordan, but hundreds of millions of dollars.
 16 **Q Why do you believe a new entrant would**
 17 **require more -- more expenditures to develop an**
 18 **NGS instrument than Thermo?**
 19 **A** They fundamentally have to develop new
 20 technologies that are -- that would provide
 21 enough differentiation for them to believe they
 22 would gain significant market share. So
 23 typically building a new technology from scratch
 24 is more difficult and more expensive than
 25 iterating an existing technology.

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[REDACTED]

19 **Q** Did Thermo's prior experience
 20 **developing and commercializing NGS instruments**
 21 **help to speed up the development time for the**
 22 **Genexus?**
 23 **A** Yes, for sure. We build on the
 24 foundation of each instrument platform, prior
 25 generation, to craft the next generation of

1 **Q** Would it take a new entrant longer to
 2 **develop and commercialize an NGS instrument that**
 3 **would be competitive with Illumina's NGS**
 4 **instruments?**
 5 **A** Yes. I would -- I would say in
 6 general that is probably true because the -- the
 7 general output of the highest throughput
 8 instruments is much higher than the Thermo-based
 9 technology platform.
 10 **Q** You're talking about the output of the
 11 **Illumina instruments, correct?**
 12 **A** Correct.
 13 **Q** At a high level, how do Thermo's NGS
 14 **instruments compare with Illumina's NGS**
 15 **instruments?**
 16 **A** So we compare on a couple different
 17 metrics, a couple of which we talked about. So
 18 throughput in terms of reads per run and
 19 turnaround time and then overall automation of
 20 the workflow. In terms of throughput, our
 21 largest capacity chip provides for 100 to
 22 130 million reads per run; whereas, the
 23 Illumina's highest throughput instrument provides
 24 for a capability of 10 billion reads per run, so
 25 at least a couple of orders of magnitude higher

41	<p>1 output per run.</p> <p>2 However, that comes with a cost of</p> <p>3 turnaround time to the result. Typically that</p> <p>4 can be two to five days, depending on which</p> <p>5 instrument configuration; whereas, our sequencing</p> <p>6 turnaround time is typically on the order of a</p> <p>7 few hours.</p> <p>8 Q The 10 billion reads per run</p> <p>9 throughput that you just described, is that for</p> <p>10 Illumina's NovaSeq platform?</p> <p>11 A That's correct.</p> <p>12 Q Are there any other metrics across</p> <p>13 which you compare Thermo's NGS instruments with</p> <p>14 Illumina's?</p> <p>15 A Throughput turnaround time, workflow</p> <p>16 automation, and cost per read or cost per</p> <p>17 gigabases are the primary ways we compare.</p> <p>18 Q Based on those metrics, are there</p> <p>19 certain applications for which Illumina</p> <p>20 instruments were better suited than Thermo</p> <p>21 instruments?</p> <p>22 A Yes. So overall, the very high</p> <p>23 throughput instruments are much more suited to a</p> <p>24 number of different applications, including human</p> <p>25 whole genome sequencing and/or high throughput</p>	43	<p>1 However, it may not be the -- you</p> <p>2 know, the most economic way of doing it if you</p> <p>3 could aggregate all the samples centrally into a</p> <p>4 single facility. In general, it's a tradeoff</p> <p>5 between the two components between how fast you</p> <p>6 get the answer to the patient and how economic</p> <p>7 the answer is to the system.</p> <p>8 Q Okay. We've been going for a little</p> <p>9 over an hour. How about a 10-minute break?</p> <p>10 Would that work for you?</p> <p>11 A That would be great. Thanks.</p> <p>12 Q Okay. Let's go off the record then.</p> <p>13 (A brief recess was taken.)</p> <p>14 BY MR. ANDREW:</p> <p>15 Q A bit earlier we were talking about</p> <p>16 oncology applications. Which of Thermo's NGS</p> <p>17 instruments are currently used in oncology</p> <p>18 applications?</p> <p>19 A They all are to some extent. With the</p> <p>20 latest generation system, the Genexus, was really</p> <p>21 designed to be the most applicable to that</p> <p>22 application. But GeneStudio perhaps less so on</p> <p>23 the proton platform, but PGM Dx and somewhat PGM</p> <p>24 as well all have some usage in oncology</p> <p>25 applications.</p>
42	<p>1 exome sequencing, exome being the protein-coating</p> <p>2 part of the genome. They are also suited to high</p> <p>3 throughput centralized applications such as</p> <p>4 noninvasive prenatal testing and potentially</p> <p>5 another application in oncology that run highly</p> <p>6 centralized high-throughput applications.</p> <p>7 Q What do you mean by "highly</p> <p>8 centralized"?</p> <p>9 A So the way samples are aggregated into</p> <p>10 a central facility versus in a distributed</p> <p>11 setting, for example, in every hospital or</p> <p>12 smaller collection of smaller hospitals.</p> <p>13 Q Why are there certain applications</p> <p>14 that are highly centralized?</p> <p>15 A There are certain -- in general, if</p> <p>16 the economics and the workflow and the collection</p> <p>17 of samples is suited to a centralized facility,</p> <p>18 then typically that is an economically better way</p> <p>19 to run the samples. It may come at the cost of</p> <p>20 turnaround time of results to the patient. So in</p> <p>21 our view of the world, for example, the general</p> <p>22 therapy selection usage of next-generation</p> <p>23 sequencing is better suited to a distributed</p> <p>24 setting because that provides for the ability to</p> <p>25 get the answer to the patients quicker.</p>	44	<p>1 Q How is the Genexus most applicable to</p> <p>2 oncology applications?</p> <p>3 A It's most applicable because the</p> <p>4 primary requirements of the oncology routine</p> <p>5 testing market, by which we mean the pathology</p> <p>6 labs who are providing results to oncologists,</p> <p>7 have requirements for both rapid turnaround time</p> <p>8 and high levels of automation for the platform,</p> <p>9 both of which are the values that the -- the</p> <p>10 value propositions that Genexus provides. So we</p> <p>11 can provide an end-to-end system from fully</p> <p>12 automating a laboratory preparation to the</p> <p>13 clinical reporting in less than 24 hours per run.</p> <p>14 It also has the ability to run in</p> <p>15 smaller batch sizes and be economic, and that</p> <p>16 matches the rate at which samples typically come</p> <p>17 in to the pathology laboratory. So they're,</p> <p>18 obviously, coming in at varying amounts, a</p> <p>19 relatively smaller number per day, and the system</p> <p>20 is designed to work with- -- without affecting</p> <p>21 the economics of the result by a large amount.</p> <p>22 So turnaround time, economic while</p> <p>23 doing small batches, and very low amounts of</p> <p>24 hands-on time. It's about 10 minutes to set up</p> <p>25 the entire system.</p>

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1 **Q Describe the different oncology**
 2 **applications that Thermo NGS instruments are used**
 3 **for.**
 4 A So the primary application that our
 5 oncology systems are used for is therapy
 6 selection, and that is typically for patients who
 7 are in the latter stages of cancer, either
 8 Stage III or Stage IV metastatic settings where
 9 the therapy that is relevant to the patient has
 10 to be determined based on the mutations that are
 11 carried in the tumor itself, so either in a solid
 12 tumor setting or a hematological cancer setting.
 13 You need to make those therapy decisions.
 14 For late-stage patients, the
 15 turnaround time is critical. I'll give you an
 16 example. For late-stage lung cancer patients,
 17 their -- they may only have an average of
 18 16 weeks of life remaining, so there are some
 19 very critical turnaround-time decisions to be
 20 made about what the patients will be treated with
 21 for those settings.
 22 So primarily late-stage therapy
 23 decision, and we're also looking at recurrence
 24 monitoring, that is once the patient has been
 25 treated, what is the likelihood of recurrence of

46

1 that cancer in that setting. What we are not
 2 working on is the primarily early-stage cancer
 3 detection, the so-called Stage I and II settings.
 4 **Q Why are Thermo NGS instruments well**
 5 **sited for therapy-selection tests?**
 6 A Primarily for the reasons we just
 7 discussed, which is turnaround time is critical
 8 and you do not require a high volume or high
 9 amount of sequencing. You can, again, rate your
 10 answer with a relatively targeted panel that
 11 doesn't require exceptional amounts of sequencing
 12 and do it in a way that's matched to the arrival
 13 of the samples and within the cost boundaries
 14 that are typically seen in that setting.
 15 **Q What is a targeted panel?**
 16 A Targeted panel is one where you know a
 17 priority, the regions of the genome that you wish
 18 to interrogate where mutations are likely to be
 19 present.
 20 **Q And what types of tests are targeted**
 21 **panels typically used in?**
 22 A Oncology settings, but they are also
 23 used in human genetic disease research for
 24 inherited conditions as well. They can also be
 25 used in other settings such as human

47

1 identification to determine snips that might
 2 categorize eye color or hair color, for example.
 3 You could also use them to generate whole genome
 4 sequence for viruses and bacteria.
 5 And I gave an example of that, is we
 6 currently have a targeted panel that generates a
 7 whole genome sequence of SARS-CoV-2. We've also
 8 done that for a number of other virus targets as
 9 well. You can do -- you can also do it for
 10 detection of certain bacterial targets. For
 11 example, we have a bacteria panel that detects a
 12 number of different bacteria. So while targeted
 13 is often used to describe a way of contracting
 14 the region of the human genome that you are
 15 interested in, targeted panels can also do whole
 16 genome sequencing, which is a bit of a concept to
 17 grasp. But they can do whole genome sequencing
 18 for smaller -- smaller organisms.
 19 **Q In the oncology setting, how do you**
 20 **know where to focus your targeted panel?**
 21 A There are a number of research studies
 22 over the past 10, 20 years that have -- have
 23 identified particular gene targets of being
 24 so-called drivers of cancer if those mutations
 25 are present. The TCGA data set was an example of

48

1 that. It was a research study of tens of
 2 thousands of cancer exomes and microarray
 3 gene-expression experiments, and they have
 4 identified about 5- to 600 genes which are
 5 implicated as being predictive or being likely to
 6 be mutated in a cancer setting.
 7 So that list is readily available in
 8 the literature. There are often new entities
 9 that crop up, but in general, the total is
 10 considered to be between 5- and 600 genes.
 11 **Q Can Thermo NGS instruments detect**
 12 **methylation patterns?**
 13 A Yes, they can, primarily in the form
 14 of targeted methylation panels.
 [REDACTED]

49

[REDACTED]

4 BY MR. ANDREW:

5 **Q Does Thermo have bioinformatics**

6 **capabilities related to methylation?**

7 A Yes. We have some simple ways to --

8 to understand when methylation states occur. We

9 do not have complex analysis tools for

10 methylation states.

11 **Q What is a liquid biopsy test?**

12 A A liquid biopsy test is generally

13 considered to be a liquid sample, and in -- while

14 whole blood is a liquid sample, it is not

15 generally defined as a liquid biopsy. A liquid

16 biopsy is generally defined as a replacement for

17 a solid-tumor biopsy by taking a blood sample and

18 looking at the plasma-derived circulating

19 cell-free nucleic acid that comes from the cells

20 within the tumor breaking down and shedding their

21 DNA into the peripheral circulation.

22 **Q And what are liquid biopsy tests**

23 **typically used to determine?**

24 A They're used to determine -- in the

25 context of next-generation sequencing, there's

50

1 two general-usage cases. One is to detect

2 mutations within that DNA in the same ways you

3 would detect for a solid tumor or hematological

4 panel and also to determine methylation states of

5 the DNA itself.

6 **Q Are Thermo NGS instruments used for**

7 **liquid biopsy applications?**

8 A Yes, they are.

9 **Q Earlier you mentioned therapy**

10 **selection as well as early-stage cancer-screening**

11 **tests. Are you aware of companies developing**

12 **multi-cancer early-detection screening tests?**

13 A Yes. We are aware of a number of

14 companies in that space.

15 **Q And can I refer to these as MCED**

16 **tests?**

17 A You have to define MC -- oh, so

18 multi-cancer early detection, okay. Sure, yes.

19 I get the acronym. Yes, you can.

20 **Q Thank you. It makes it much easier.**

21 **Is this the type of test currently**

22 **being developed by GRAIL?**

23 A Yes. That's our understanding.

24 **Q How have you become aware of companies**

25 **developing these tests?**

51

1 A We've had some contact with some

2 companies in the space in the past. [REDACTED]

[REDACTED]

9 We're obviously well aware of GRAIL,

10 and we've been following Exact Sciences and other

11 groups in this area for a while now.

12 **Q Describe these MCED tests at a high**

13 **level.**

14 A The GRAIL and Freenome approaches, as

15 we understand them, are predicated on predicting

16 the methylation state -- status of the DNA to

17 understand if the early signs of cancer are

18 present in the patient's liquid biopsy sample.

19 **Q How are NGS instruments used with**

20 **these tests?**

21 A The NGS instruments are used to

22 sequence the DNA to determine the methylation

23 status of the individual markers in the DNA.

24 Those individual markers are some that

25 bioinformatically analyze the way you say a

signature, if you will, of pattern indicative of

52

1 the presence of early-stage cancer.

2 **Q Are Thermo NGS instruments currently**

3 **used for MCED tests?**

4 A No, generally not.

5 **Q Why not?**

6 A In general, because the -- the

7 implementation of such a test is likely favored

8 to a very high throughput system in a centralized

9 facility, and our systems are generally suited to

10 the implementation of the test in a distributed

11 setting with smaller amounts of patient samples.

12 **Q In order to be used for MCED tests,**

13 **what attributes does an NGS instrument need to**

14 **have?**

15 A In general, we would say at the high

16 throughput platform such that you could screen

17 through many thousands of patient samples per day

18 or per week or tens of thousands per week because

19 population screening for early cancer is likely

20 to be a very sample-intensive solution. So

21 higher throughput, centralized low-cost platform,

22 low cost per sample is likely to be the major

23 requirement for that setting.

24 **Q What do you mean by "population**

25 **sequencing"?**

53

1 A So screening is inherently a euphemism
2 for assessing the status in a significant
3 fraction of the population. So if you're
4 screening, for example, newborn screening
5 assesses the range of mutations that are present
6 in newborns to understand if they have inherited
7 conditions. That is a very large inherent
8 population relative to -- and for cancer,
9 obviously, you're screening a significant
10 fraction, they would hope, of the adult
11 population to assess whether they are at risk of
12 having a cancer.

13 Whereas, the systems that Ion Torrent
14 provides are generally much better suited to the
15 population of patients who's progressed to a
16 late-stage cancer setting, so the number of
17 patients is much smaller relative to the number
18 of patients you are screening in a
19 population-screening experiment or study.

20 Q Are MCED tests done using targeted
21 panels?

22 A It's our understanding they can be,
23 but there are -- there are other methods as well.
24 You can assess the whole genome at relatively
25 lower levels of import. We understand that both

54

1 methods are practiced.

2 Q Are larger panels required for MCED
3 tests than, for example, for their selection
4 test?

5 A I guess that isn't well understood by
6 us because we're not in that area of market. In
7 general, my opinion on that is there -- the
8 panels that we -- the panels that are being used
9 today for therapy selection can be much larger.

10 So we have a panel up to 500 genes.
11 Illumina has a panel up to 500 genes. In
12 principal, you may be able to use a panel much
13 smaller for targeting a number of methylation
14 states, but we are not -- we don't have a great
15 understanding of that in the market, as we have
16 no studies or any practical knowledge or use in
17 it.

18 Q Are Illumina's NGS instruments used
19 for MCED tests?

20 A Yes. It is our understanding they
21 are.

22 Q And do you believe that Illumina NGS
23 instruments are more suited for MCED tests than
24 Thermo NGS instruments?

25 A They're higher throughput systems, so

55

1 they are.

2 Q Which systems are you talking about?

3 A The HiSeq and NovaSeq platforms.

4 Q Does Thermo have any NGS instruments
5 that are comparable in throughput to the HiSeq or
6 NovaSeq?

7 A No, we do not.

13 Q Is the NextSeq lower throughput than
14 the HiSeq?

15 A Correct, up to about 1 billion reads
16 per run.

21 MR. ALEXANDER: Objection -- object to

24 BY MR. ANDREW:

25 Q And let me rephrase my question then.

56

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57

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1 generate equivalent number of reads.
 2 [Redacted]

1 [Redacted]

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[Redacted]

[Redacted]

19 **Q For MCED test developers, who are**
 20 **their other NGS options in the United States**
 21 **besides Illumina?**
 22 **A** There are only the current providers
 23 which are ourselves, Pacific Biosciences, and
 24 Oxford Nanopore. So the three technology
 25 platforms are really not suited to that kind of

15 (Pages 57 to 60)

Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

61

1 testing.

2 **Q You said Pacific Biosciences platform**

3 **is not suited to MCED tests?**

4 A Correct, and neither is Oxford

5 Nanopore.

6 **Q How likely do you think MCED test**

7 **developers are to switch to an NGS platform other**

8 **than Illumina?**

9 A It's not impossible, but it's very

10 difficult once you generated your data sets to

11 show that you can detect that. Typically those

12 data sets require many tens to hundreds of

13 thousands of patient samples to show that you can

14 detect it sensitively and specifically. And you

15 would have to do some level of equivalence

16 testing to show the new technology could

17 recapitulate the data you generated on that

18 original data set, which is not an insubstantial

19 amount of work in and of itself.

20 So while it's not impossible, it is

21 difficult and somewhat expensive proposition to

22 switch technology platforms.

23 **Q Is there any benefit for MCED test**

24 **developers that want to use Illumina NGS**

25 **platforms if other MCED test developers are also**

62

1 **using Illumina platforms?**

2 A That's hard to say, Jordan. I think

3 the only advantage would be, for example, if in

4 discussing with the regulatory authorities who

5 had seen one technology based on a particular

6 NGS, one MCED technology based on a particular

7 underlying NGS, and they would not have to

8 relearn the differences between the first

9 technology and whatever the second technology

10 was. But I'm not sure how much of an advantage

11 that would really be.

12 **Q Speaking about the MCED test**

13 **developers themselves, is there a first-mover**

14 **advantage in the MCED space?**

15 A Just like in every other technology

16 implementation, the first mover generally gains

17 the most market share.

18 **Q What do you think the benefit would be**

19 **of being the first MCED test to market?**

20 A You're likely to gain the highest

21 market share for that test and any other

22 subsequent tests that were done parallel in that

23 space.

24 **Q Are there any other benefits?**

25 A Other than likely generating the most

63

1 revenue, I can't think of one right now.

2 **Q Is it important for MCED tests to**

3 **obtain FDA approval?**

4 A It's not entirely clear to me what the

5 FDA approval pathway would be for screening

6 assays. I think it's probable that the FDA would

7 be involved, but we are not sure that you

8 fundamentally need to do that. A centralized

9 test can be run under a so-called CAP clear

10 guideline, the College of American Pathologists,

11 Clinical Laboratory Improvement Act. And

12 provided they have clinical utility and evidence

13 to generate that the test is relevant, specific,

14 and does improve patient, they may not need FDA

15 testing in the U.S. market. They could go direct

16 to insurers and get reimbursed without FDA

17 approval.

18 **Q Do you think FDA approval would help**

19 **MCED test developers obtain payer reimbursement?**

20 A It's generally considered to help

21 payer reimbursement, but it doesn't appear to be

22 required in every situation.

23 **Q If an MCED test developer were to seek**

24 **FDA approval, would it have to identify the NGS**

25 **instrument that the assay is run on?**

64

1 A I believe it would.

2 **Q So how difficult, then, would it be**

3 **for an MCED test developer to switch NGS**

4 **instruments after it received FDA approval on a**

5 **particular instrument?**

6 A It's a very hypothetical question, but

7 I'll give you my best answer. It is difficult

8 because you have to generate equivalence data to

9 show that the answers that you generate of the

10 second technology are exactly the same as the

11 first technology. And the FDA may require -- may

12 require a lot of data to generate that evidence.

13 So it is not -- it is not an exact answer. It

14 depends on what the FDA's view of the differences

15 in the technology -- the line of technology are.

16 **Q In order to get FDA approval for an**

17 **MCED test, would you need to first run clinical**

18 **trials?**

19 A Yes, almost certainly.

20 **Q How large would these clinical trials**

21 **need to be for an MCED test?**

22 A Our expectation is based on what we

23 hear from the companies in the space is that the

24 trials are very large, on the order of 100,000

25 patients.

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67

1 **Q How long do clinical trials of that**
 2 **size take to complete?**
 3 A Anywhere from I would guess two to
 4 five years, depending on what indication you are
 5 looking at and how many patients you can accrue.
 6 **Q Going back to my hypothetical about**
 7 **switching instruments post-FDA approval, if you**
 8 **had to produce equivalence data to the FDA, would**
 9 **you have to run a clinical trial of that size, or**
 10 **could you do something smaller?**
 11 A A lot depends on what the FDA's view
 12 on differences are. It's very hard to answer
 13 that without understanding what the FDA's
 14 position would be. The FDA may take a position
 15 that the technology is fundamentally different.
 16 You may need to repeat everything you did in your
 17 original trial.
 18 **Q I want to switch gears for a minute**
 19 **and finish up with a few different topics.**
 20 **What is Sanger sequencing?**
 21 A Sanger sequencing is the process of
 22 generating sequence information typically today
 23 using a capillary electrophoresis space
 24 sequencer. It's -- the underlying technology is
 25 typically known as terminator -- dye-terminator

1 the two strands. You anneal a small sequence of
 2 the Taq polymerase and then rebuild the second
 3 strand. So you can generate multiple copies and
 4 consider it photocopying DNA and generate as many
 5 copies in principal as you wish from that
 6 original template.
 7 **Q Is PCR a good alternative to NGS for**
 8 **MCED tests?**
 9 A For similar reasons, the same --
 10 entirely unlikely to be scalable or have enough
 11 data points generated in a reasonable amount of
 12 time, and therefore, the economics and the
 13 scalability of the answer is likely highly
 14 unsuited for that environment.
 15 **Q Would it cost a lot more to run MCED**
 16 **tests on PCR as opposed to NGS?**
 17 A Almost certainly.
 18 **Q Do you have an idea of how much more?**
 19 A No, but orders of magnitude is likely.
 20 **Q Aside from Sanger and PCR, are there**
 21 **any other technologies that you believe would be**
 22 **good alternatives to NGS for MCED tests?**
 23 A Theoretically microarray could
 24 potentially generate methylation-status data, I
 25 believe. But again, for similar reasons, it's

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68

1 database sequencing chemistry. So you have
 2 fluorescent bases which are attached individually
 3 to the growing sequence, and those fragments are
 4 read out in length order in the capillary. That
 5 fluorescent signal from each of the progressively
 6 shorter or longer bases is then stitched together
 7 as a single typically 600-base sequence fragment.
 8 **Q Is Sanger sequencing a good**
 9 **alternative to NGS for MCED tests?**
 10 A In our opinion, that would be highly
 11 unlikely. The amount of sequencing that you
 12 would be generating would not be nearly enough,
 13 and the overall cost in time per result would be
 14 not applicable.
 15 **Q Because it would just take too much**
 16 **time?**
 17 A It would take too much time, cost too
 18 much, and would not be scalable enough to deal
 19 with the very large number of samples that you
 20 would be trying to interrogate.
 21 **Q What is PCR?**
 22 A PCR is polymerase chain reaction.
 23 It's the process of making copies of a template
 24 DNA using the enzyme Taq polymerase. You take
 25 one copy of DNA, double strand DNA. You separate

1 unlikely that that would be the technology that
 2 you would implement in the routine setting for
 3 reasons of scale and economics as well.
 4 **Q Thermo has microarray technology; is**
 5 **that correct?**
 6 A That's correct.
 [REDACTED]

69

[REDACTED]

14 Q In other words, Thermo and Illumina
15 are playing in two different segments of the
16 oncology space?

17 A So the GRAIL Thermo -- the GRAIL
18 Illumina combination would be playing in a
19 different space than Thermo. So we are playing
20 in the late-stage cancer setting. The GRAIL
21 Illumina combination would be playing in the
22 early cancer. The Illumina does also play in the
23 therapy selection space and is one of our
24 competitors in that area.

25 Q But GRAIL is not a company focused on

70

1 therapy selection, correct?

2 A Correct.

[REDACTED]

[REDACTED]

6 Q Do you believe that Illumina's
7 acquisition of GRAIL will have an effect on
8 innovation in the MCED testing space?

9 A No, I don't believe so.

10 Q Okay. That's the last of my
11 questions. Why don't we take a short break,
12 maybe five minutes, Andy, and let me talk with my
13 colleague and just make sure there's nothing more
14 I have to ask, okay?

15 A Okay. No problem. Thank you.

16 Q Okay.
17 (A brief recess was taken.)

18 MR. ANDREW: That's all the questions
19 I have today, Andy. Thank you very much for your
20 time.

21 THE WITNESS: Thank you. I appreciate
22 it.

23 (Whereupon, the investigational hearing concluded
24 at 1:14 p.m.)
25

72

1 * * *

2 ACKNOWLEDGMENT OF DEPONENT

3
4 I, Andrew Felton, do hereby acknowledge I have
5 read and examined the foregoing pages of
6 testimony, and the same is a true, correct and
7 complete transcription of the testimony given by
8 me, and any changes and/or corrections, if any,
9 appear in the attached errata sheet signed by me.

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13 Date Andrew Felton
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73

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 2 I, Tammy S. Newton, the officer before
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 6 said proceedings were taken by me
 7 stenographically and thereafter reduced to
 8 typewriting under my supervision; and that I am
 9 neither counsel for, related to, nor employed by
 10 any of the parties to this case and have no
 11 interest, financial or otherwise, in its outcome.
 12 IN WITNESS WHEREOF, I have hereunto set
 13 my hand and affixed my notarial seal this 30th
 14 day of March, 2021.
 15 My commission expires:
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75

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74

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[76]

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3/23/2021

[77]

<p>business 12:15,17 12:24 15:5 17:19 18:6,8,9,23 20:18 20:21,22 68:20 69:3,9,11 businesses 17:24</p> <hr/> <p style="text-align: center;">C</p> <hr/> <p>C 4:1 California 8:19 called 21:18 calls 9:24 cancer 45:7,12,16 46:1,2 47:24 48:2 48:6 51:7,16 52:1 52:19 53:8,12,16 58:16 59:20 69:20 69:22 cancer-based 36:23 cancer-screening 50:10 CAP 63:9 capabilities 49:2,6 60:3 capability 26:8 30:17 36:4 40:24 48:20 70:14 capacity 40:21 capillary 12:14,18 17:23 18:22 19:9 19:17,18 20:2,4,6 65:23 66:4 carried 45:11 case 21:16 31:6 33:10 36:8 73:10 cases 50:1 categorize 47:2 caused 6:21 CE 19:11 20:4,5,12 cell-free 49:19 cells 49:19 central 42:10 centralized 42:3,6,8 42:14,17 52:8,21 63:8 centralized-facility 58:25</p>	<p>centrally 43:3 certain 41:19 42:13 42:15 47:10 certainly 64:19 67:17 CERTIFICATE 73:1 certify 73:4 chain 66:22 change 13:22 29:11 74:2,4,5,7,8,10,11 74:13,14,16,17,19 74:20,22 75:2,4,5 75:7,8,10,11,13,14 75:16,17,19,20,22 changed 27:3,16 changes 13:25 72:8 changing 29:7 60:16 Charles 4:17 chemistry 11:4,6 66:1 China 29:25 chip 31:6,7 40:21 56:7,25 circulating 49:18 circulation 49:21 circumstances 8:7 claim 33:19 36:14 claims 36:8 clarification 19:24 48:23 clarify 7:13 Class 33:11 35:18 35:20,22 36:12,15 36:18,22 37:19 clear 9:8 13:18 16:18 25:5 63:4,9 clinical 23:22 24:14 25:16,20 27:7 28:18 30:23 31:25 32:18,20 36:6 44:13 63:11,12 64:17,20 65:1,9 clinically 36:6 closely 32:20 closest 23:5,7,8 collaboration 51:5</p>	<p>58:2,5,8 59:1,2,6 collaborations 59:15 collateral 14:25 colleague 71:13 collection 42:12,16 Collectively 30:4 college 11:3 63:10 color 47:2,2 combination 31:21 33:12 69:18,21 come 28:12 42:19 44:16 71:1 comes 41:2 49:19 coming 28:23 44:18 commercialize 39:4 39:13 40:2 56:10 commercialized 37:6,23 38:3 commercializing 13:9 38:20 commission 1:1 2:3 2:5 4:24 6:3 73:15 committees 16:22 16:25 communicate 9:12 communication 9:4 9:16 communities 28:19 companies 23:18 39:6 50:11,14,24 51:2 59:12,14,16 64:23 companion 33:14,15 34:5,8 36:13 38:10 company 68:23 69:25 70:7 comparability 29:6 29:12 comparable 29:14 55:5,18 56:11 compare 22:4 24:15 30:13 37:9 40:14 40:16 41:13,17 compared 24:11 comparing 31:13 compelling 29:8</p>	<p>compete 25:11,25 competes 56:17 competitive 15:3,4 40:3 competitor 23:6,7,9 26:4 competitors 16:11 22:17,18,20,21,23 23:2,3,4 27:24 28:12 69:24 complete 7:22 65:2 72:7 complex 49:9 component 15:7 32:8,10,23,23 components 18:11 35:24 43:5 comprises 18:10 concept 47:16 56:5 56:5 concern 25:23 concluded 71:23 conditions 46:24 53:7 conducted 7:2 conducting 7:16 8:5 confidential 5:12 configuration 41:5 confirming 33:19 Connecticut 2:15 connection 9:7 consider 23:5 57:19 60:16 67:4 68:24 considered 48:10 49:13 63:20 68:19 contact 9:17 51:1 contained 38:17 context 49:25 contiguous 31:5 continue 28:25 29:1 29:5 continues 69:5 contracting 47:13 control 15:18,20 conversation 71:5 converse 24:23 copies 66:23 67:3,5</p>	<p>copy 20:25 21:22 66:25 corner 51:3 corporation 1:5,8 correct 6:6,7,9,13 6:14 8:10 9:10 10:8,14,15 16:1,8 16:20,21 20:18,19 23:19 26:18,21 27:14 30:6 33:24 33:25 34:23,24 37:25 40:11,12 41:11 55:15,20 57:25 61:4 68:5,6 70:1,2 72:6 73:5 corrections 72:8 cost 16:4 24:13,15 25:1,2,5,6,8 34:25 41:2,16,16 42:19 46:13 52:22 57:13 57:14 60:15 66:13 66:17 67:15 counsel 4:13 73:9 counting 21:18 couple 9:24 40:16 40:17,25 59:15 court 4:2 7:4,6 12:16,20 20:15 covered 18:3 craft 38:25 critical 45:15,19 46:7 crop 48:9 current 4:18,20 14:10 15:13,14 30:20 56:4 57:3 60:22 69:2 currently 8:9 9:8 15:24 17:25 23:22 25:19 26:6,7 27:25 29:21 35:5 37:10 38:7,16,18 43:17 47:6 50:21 52:2 56:14 58:21 59:11 60:5 68:7 70:15,16 customer 15:11 customers 15:10</p>
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Illumina, Inc. and Grail, Inc.

3/23/2021

[78]

<p>32:12</p> <hr/> <p style="text-align: center;">D</p> <hr/> <p>D 2:12 3:1 4:1 D.C 2:7 data 10:16,18,20 21:20 29:3,12,13 29:16 32:3 47:25 60:17 61:10,12,17 61:18 64:8,12 65:8 67:11,24 database 66:1 date 13:18 72:13 dates 14:19,20 day 44:19 52:17 73:14 days 41:4 deal 66:18 decide 60:8 70:7 decided 37:21 decision 45:23 decisions 36:19 45:13,19 define 50:17 defined 37:12 49:15 49:16 degree 11:4 degrees 11:7 depend 60:12 dependent 56:7 depending 41:4 65:4 depends 39:9 64:14 65:11 DEPONENT 2:11 72:2 deposition 31:5 74:1 75:1 depth 21:24 derive 25:21 derived 32:10 describe 11:2,11 18:7 28:3 31:1 45:1 47:13 51:11 56:3 58:7 described 26:2 31:4 32:22 33:22 41:9 68:15</p>	<p>designated 5:12 designed 43:21 44:20 detect 48:11,20,21 50:1,3 61:11,14 detected 21:3 detection 36:2,3 46:3 47:10 50:18 51:8 58:4 detects 47:11 determine 16:2 47:1 49:23,24 50:4 51:21 determined 45:10 develop 39:4,12,17 39:19 40:2 56:10 56:17,22 59:12 developed 34:7 50:22 56:20 developer 63:23 64:3 developers 57:23 59:8,25 60:9,19 61:7,24,25 62:13 63:19 70:17 developing 38:5,20 50:11,25 development 11:15 14:25 36:25 38:2,9 38:21 55:9,18,23 56:3,7,8 device 8:24 9:1 devices 34:4 diagnosis 33:19 diagnostic 17:21 33:14,15 34:5,8 36:14 difference 19:5,8 20:4,21 21:24 30:10 37:14 differences 21:13 62:8 64:14 65:12 different 21:10 30:9 33:1,3 36:20 40:16 41:24 45:1 47:12 58:14,18 65:15,19 69:12,15,19</p>	<p>differentiation 39:21 differentiator 37:14 differentiators 22:7 difficult 29:11 39:9 39:24 61:10,21 64:2,7 70:5 difficulty 29:8,16 direct 15:9,11,18,20 63:15 directly 21:8 33:16 58:17 director 12:23 13:6 discontinued 69:5 discuss 10:3 17:11 discussed 18:2 46:7 discussing 62:4 disease 25:15,22 46:23 disposal 9:5 distortion 19:18 48:22 distributed 42:10,23 52:10 division 10:11 17:20 17:21,23 divisions 17:10,16 68:10 DNA 12:6,11 24:8 31:6 49:21 50:2,5 51:15,21,22 58:13 66:24,25,25 67:4 documents 10:16,18 doing 43:2 44:23 58:13 68:10 dollars 39:15 dominant 28:5,8,11 double 66:25 Dr 4:15 Drive 8:18 drivers 47:24 duly 4:10 Dx 29:21 33:1,3,5,12 34:2 43:23 dye-terminator 65:25</p>	<p style="text-align: center;">E</p> <hr/> <p>E 3:1 4:1,1 e-mail 8:25 9:1 earlier 7:23 31:4 43:15 50:9 68:16 earliest 37:1 early 35:12 50:18 51:5,7,16 52:19 58:15 69:22 early-detection 50:12 early-stage 46:2 50:10 52:1 earn 11:9 earning 11:13 easier 7:10 50:20 easy 60:15 echo 23:8 economic 43:2,6 44:15,22 57:9 economically 42:18 economics 42:16 44:21 67:12 68:3 68:16 economist 2:20 5:9 ED 24:6 educational 10:25 11:2 effect 27:22 71:7 effort 34:20 either 45:7,11 electrophoresis 12:15,19 17:24 18:23 19:10 20:5,6 65:23 employed 10:13 73:9 employer 4:18 employment 18:1 end-to-end 44:11 engaged 25:19 ensure 29:13 enter 34:6 60:6,8 68:12 70:3,8,10 entering 68:8 entire 44:25</p>	<p>entirely 63:4 67:10 entities 48:8 entrant 39:3,12,16 40:1 environment 67:14 envision 37:14 enzyme 66:24 equals 19:18 20:2,3 equivalence 61:15 64:8 65:8 equivalent 57:1,8 errata 72:9 74:1 75:1 ESQUIRE 2:4,12 essentially 13:24 58:20 establish 28:20 estimate 14:15 35:2 37:5 euphemism 53:1 Europe 33:6 evaluate 68:21 evaluating 70:16 eventually 12:23 13:11 70:3 evidence 63:12 64:12 exact 14:19 26:25 51:9 64:13 exactly 64:10 EXAMINATION 4:13 examined 4:11 72:5 example 17:9 21:14 22:9,24 25:17 32:5 32:21 42:11,21 45:16 47:2,5,11,25 51:2 53:4 54:3 58:14 62:3 examples 17:7 exceptional 46:11 excuse 70:19 executive 11:15 existing 39:25 exit 69:2 exiting 68:19 exome 42:1,1</p>
---	--	---	--	---

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Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

[79]

<p>exomes 48:2 expand 29:10 expect 10:4 35:10 56:9 68:12 70:23 expectation 64:22 expects 60:9 expenditures 38:15 39:17 expensive 34:15 39:24 61:21 experience 11:11 38:19 experiment 53:19 experiments 20:24 22:9 48:3 expires 73:15 explain 7:1 30:25 explore 57:24 expression 20:25 21:15,20 22:2,10 22:13 extensive 35:25 extent 5:13 43:19 external 9:25 10:3 17:14 extracts 38:12 extremely 24:10 eye 47:2</p> <hr/> <p style="text-align: center;">F</p> <p>facility 12:7 42:10 42:17 43:4 52:9 factors 16:2,4 factory 12:7 familiar 28:24 29:2 68:9 far 8:13 fast 43:5 faster 32:10 favored 52:7 FDA 33:23 34:1,9 35:4,8,11,14,17,19 36:14 63:3,5,6,14 63:16,18,24 64:4 64:11,16 65:8,14 FDA's 64:14 65:11 65:13</p>	<p>Federal 1:1 2:3,5 4:24 6:2 Felton 3:4 4:9,15,17 5:6 72:4,13 74:25 75:25 fewer 24:22 field 12:1 figure 26:19,22 27:13 File 1:6 financial 73:11 fine 14:20 finish 65:19 firm 5:4 first 11:13 28:20 29:22 34:7 62:8,16 62:19 64:11,17 first-generation 18:24 19:15 first-mover 62:13 Fisher 2:10 4:19,21 5:6,11,17 17:13 Fisher's 18:9 five 27:3,6,17 28:8 30:16 39:7 41:4 65:4 71:12 fluorescent 66:2,5 focus 32:20 47:20 focused 69:25 Focusing 22:16 23:3 following 4:3 51:9 follows 4:12 food 17:20 32:25 food-safety 18:18 foothold 28:21 foregoing 72:5 73:3 73:4 forensic 17:19 foreseeable 56:12 60:1 form 9:3 18:22 48:13,15 55:22 formalin-fixed 24:7 36:9 formally 37:3 forward 19:11 foundation 38:24</p>	<p>foundational 60:18 four 13:17 14:6 fraction 53:3,10 fragment 66:7 fragments 24:8 58:13,18 66:3 frame 14:16 34:17 37:8 Francisco 51:4 Freenome 51:3,13 58:6,8,12,20 59:6 FTC 2:20 4:13 5:9 6:6 FTEs 57:15,17 full 4:16 8:16 fully 9:20 30:22 37:12 44:11 function 13:12,25 14:4,7,24 15:5,6 15:19,22 functional 17:8 fundamentally 24:4 39:19 63:8 65:15 future 56:12 60:1 71:1</p> <hr/> <p style="text-align: center;">G</p> <p>G 4:1 gain 27:7 39:22 62:20 gained 27:5 gains 62:16 Garret 10:9,10,11 gears 65:18 gene 20:25 21:15 22:2,9 47:23 gene-expression 48:3 general 15:23 19:5 32:14 39:6,8 40:6 40:7 42:15,21 43:4 48:9 52:6,15 54:7 general-usage 50:1 generally 21:9 29:4 35:16 49:12,15,16 52:4,9 53:14 57:19 62:16 63:20</p>	<p>generate 21:19,25 31:7,8,18 32:3,6 37:16 39:7 47:3 57:1,3,7 63:13 64:8,9,12 67:3,4 67:24 69:1 generated 10:21 29:3 58:9 60:17 61:10,17 67:11 generates 47:6 generating 31:10 57:6 62:25 65:22 66:12 generation 29:23 30:2 38:25,25 43:20 genes 48:4,10 54:10 54:11 GeneStudio 30:2,18 32:19 39:1 43:22 genetic 17:22 25:15 46:23 Genexus 30:3,20 32:19 34:12 35:6,8 35:10,14 36:12,17 37:24 38:2,6,11,22 39:2 43:20 44:1,10 genome 25:13,18 41:25 42:2 46:17 47:3,7,14,16,17 48:17,18,21 49:1 53:24 58:11 genomes 25:20,24 genotyping 20:25 21:21 gigabases 31:16,21 41:17 gigabase 25:2 give 10:4 17:7 21:13 22:10,12 33:16 45:15 64:7 given 72:7 global 26:20 go 30:6 43:12 63:15 goals 16:9 going 20:5 43:8 57:20 65:6</p>	<p>good 4:15 26:24 66:8 67:7,22 government 11:14 GRAIL 1:7 5:20,20 5:23 50:22 51:8,13 69:7,17,17,20,25 70:22 71:7 GRAIL's 70:23 granted 33:23 grasp 47:17 great 43:11 54:14 grounds 4:5 group 17:20 groups 16:23 17:1 17:14 51:10 growing 66:3 growth 69:1 guard 36:1 guess 54:5 65:3 guideline 63:10</p> <hr/> <p style="text-align: center;">H</p> <p>hair 47:2 Hampton 10:9,10 10:11 hand 73:13 hands-on 44:24 happened 58:7 happy 7:13 hard 39:5 62:2 65:12 Harkrider 2:13 5:5 Hartford 2:15 head 7:8 27:1 health 11:15 hear 7:12,17 12:21 64:23 hearing 1:17 4:4,4 5:1,18 6:6,17,22 7:2,16 8:5 9:23 10:19 19:3 71:23 help 15:21 38:21 63:18,20 hematological 45:12 50:3 hereunto 73:12 high 18:7 20:20 22:7</p>
---	--	---	--	--

Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

[80]

<p>27:12 40:13 41:22 41:25 42:2 44:8 46:8,8 51:11 52:8 52:15 60:15 high-throughput 42:6 higher 22:15 24:17 25:6,7,9 40:8,25 52:21 54:25 57:14 57:16 69:1 highest 40:7,23 62:20 highly 42:5,7,14 66:10 67:13 HiSeq 55:3,5,14,19 56:12 hoc 17:4,6 hope 53:10 hoping 19:10 hospital 42:11 hospitals 42:12 hour 43:9 hours 41:7 44:13 House 2:14 human 17:18 25:15 32:17,24 41:24 46:23,25 47:14 48:18 human-identificat... 18:17 hundreds 19:20 20:9 39:15 61:12 hypothesis-based 20:24 hypothesis-free 21:5 hypothetical 64:6 65:6</p> <hr/> <p style="text-align: center;">I</p> <p>idea 67:18 identification 17:18 32:24 47:1 identified 47:23 48:4 identify 63:24 II 46:3 III 33:11 35:18,20</p>	<p>35:22 36:12,15,18 36:22 37:19 45:8 Illumina 1:4 5:19,19 6:12 22:19 23:7,9 23:11 28:1,7,14 40:11 41:19 54:11 54:22 58:22 60:10 60:21 61:8,24 62:1 69:7,14,18,21,22 70:22 Illumina's 5:22 27:9 27:11,16 28:3 40:3 40:14,23 41:10,14 54:18 71:6 impact 69:11 implement 68:2 implementation 52:7,10 62:16 implemented 39:2 implicated 48:5 import 53:25 important 7:16 31:13,23,24 63:2 impossible 61:9,20 improve 63:14 68:25 Improvement 63:11 in-house 58:22 included 14:5 includes 35:23 including 13:10 15:13,14 26:13,14 30:22 41:24 incorrectly 7:20 indication 65:4 indicative 51:25 individual 21:19 32:10 48:22 51:22 51:23 individually 66:2 inefficient 24:10 infer 58:14 inferring 58:17 influence 33:16 information 31:18 31:19,20 65:22 inherent 53:7</p>	<p>inherently 53:1 70:6 inherited 46:24 53:6 innovation 71:8 instant 8:25 Institute 59:20 instructions 8:3 instrument 18:10 23:3 32:13 34:19 35:4,17,22,23 37:6 37:9,20,23 38:10 38:24 39:4,13,18 40:2,23 41:5 52:13 55:8,9,17 56:2,4,8 56:10,17 57:18 63:25 64:5 instruments 24:16 26:17 29:19,20 30:5,8,13 31:14 34:10 37:10 38:20 40:4,8,11,14,15 41:13,20,21,23 43:17 45:2 46:4 48:11 50:6 51:18 51:20 52:2 54:18 54:23,24 55:4 57:3 57:5,7,11,16,20 59:13 64:4 65:7 insubstantial 61:18 insurers 63:16 integrated 38:7 intelligence 15:3,5,7 intended 36:5 70:13 interest 17:11,17 73:11 interested 47:15 interfacing 15:10,12 internal 9:25 10:2 17:13,16 internally 56:23 Internet 9:7 interpreting 29:16 interrogate 21:2,7 46:18 66:20 introduce 5:2 Introducing 29:15 invest 69:5 investigational 1:17</p>	<p>5:1,18 6:6,17,22 71:23 investment 68:25 involved 63:7 Ion 11:20,20 12:25 13:2,5,10,19,23 14:5 30:5,7,8 48:19 49:2 53:13 issued 33:11 iterating 39:25 IV 45:8 IVD 33:9 IVD-approved 29:22 33:5,6,6 IVD-based 34:17</p> <hr/> <p style="text-align: center;">J</p> <p>jandrew@ftc.gov 2:8 John 2:20 5:8 11:5 join 13:2 Jordan 2:4 4:23 16:24 35:18 39:15 62:2 70:11</p> <hr/> <p style="text-align: center;">K</p> <p>keep 16:11 kicked 37:4,13 kilobases 24:21 kind 18:24 58:23 60:25 know 7:22,25 9:11 21:1 22:12 26:22 26:25 43:2 46:16 47:20 knowledge 6:15,18 54:16 70:18 known 65:25</p> <hr/> <p style="text-align: center;">L</p> <p>laboratories 59:18 59:19 laboratory 30:23 44:12,17 63:11 labs 44:6 lane 19:17 20:2 large 23:1 44:21</p>	<p>53:7 64:20,24 66:19 larger 22:1 54:2,9 largest 23:13 40:21 Late 35:12 late-stage 45:14,16 45:22 53:16 69:20 latest 30:2 43:20 launch 16:10 law 5:4 laws 5:13 lawyer 9:25,25 lead 29:15 leader 15:1 leading 28:14 learnings 39:1 left 11:19 legal 4:6 10:3 length 24:21 31:5,22 58:13 66:4 lengths 24:20 58:18 lesser 32:17 let's 43:12 57:11 level 18:7 20:20 30:11 40:13 48:21 51:12 61:15 levels 44:8 53:25 68:25 liaise 15:21 life 11:21 13:20,23 45:18 likelihood 45:25 line 9:15 64:15 69:4 74:2,5,8,11,14,17 74:20 75:2,5,8,11 75:14,17,20 liquid 36:10,21 49:11,12,13,14,15 49:15,22 50:7 51:17 58:10 list 48:7 literally 51:3 literature 48:8 little 23:24 27:5,19 43:8 69:11 Liverpool 11:5 location 8:17</p>
---	--	---	---	---

Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

[81]

long 13:14 24:4,11
31:17 38:1 39:3
65:1
long-read 23:17,20
23:21 24:13,19
25:3,7,8 27:23
longer 24:10,19 33:7
34:18 40:1 66:6
looking 37:2 45:23
49:18 65:5 68:7
lot 23:8 64:12 65:11
67:15
low 44:23 52:22
60:15 68:17
low-cost 52:21
low-coverage 58:11
lower 25:3 53:25
55:13
lung 36:23 45:16

M

magnitude 27:21
40:25 67:19
major 13:25 19:8
22:6 28:20 34:5
52:22
making 66:23
malexander@axi...
2:17
management 4:22
12:12,24 13:6,17
14:4,9 15:8,19,22
16:16
manager 12:10,14
mandated 36:14
March 1:13 73:14
Mark 2:12 5:3
marker 33:18
markers 33:17
51:22,23
market 10:20 15:5,7
16:6 18:12,13,17
18:18,18 19:23
23:15 24:1,5 26:9
26:10,12,20 27:2,4
27:8,9,11,16 28:4
28:6,8,13,15,21

29:25 30:6 31:25
32:1,21,22 34:5,8
34:18 37:11 39:22
44:5 54:6,15 62:17
62:19,21 63:15
marketing 14:5,8,11
14:13,23,24,25
15:8,15,17 17:9
marketplace 16:12
20:12 23:14
markets 18:15
32:24
Maryland 73:20
massively 19:13,19
20:7
matched 46:12
matches 44:16
material 24:6,8
matter 1:16
maximum 5:13
30:15,17,19 37:17
MC 50:17
McAdams 2:20 5:8
MCDONALD 5:8
MCED 50:15 51:11
52:3,12 53:20 54:2
54:19,23 57:23
59:8,12,25 60:6,8
60:9,19 61:3,6,23
61:25 62:6,12,14
62:19 63:2,19,23
64:3,17,21 66:9
67:8,15,22 68:8,13
70:4,10,17,24 71:8
mean 16:25 19:14
21:1 33:9 42:7
44:5 52:24
means 33:15 36:2
measurement 21:15
31:1
meetings 17:4,6,8
17:10
member 16:22
memory 13:17
14:19 16:18
mentioned 20:17
22:22 23:16 50:9

57:22
merger 5:22 6:12
messaging 8:25
metastatic 45:8
methodology 51:7
methods 53:23 54:1
methylation 48:12
48:14,16,18,18,25
49:1,6,8,10 50:4
51:15,21 54:13
58:4,15,16 59:16
methylation-status
67:24
methylnations 48:22
metrics 31:12,15
40:17 41:12,18
microarray 17:24
20:18,22,23 21:16
48:2 67:23 68:4,13
microarrays 21:9
22:5 68:8
microbial 25:18
million 30:16,17,19
30:21 31:10 35:3
35:15 38:9,17
40:22
millions 19:20,20
20:8,9 24:24 39:15
mind 7:24
minority 24:1
minute 65:18
minutes 44:24 57:22
71:12
mobile 58:24
molecular 17:19
32:8
moment 23:4
monitoring 45:24
Moore 11:5
morning 4:15
move 10:24 29:18
moved 12:11,25
32:18
mover 62:16
Moving 18:4
multi-cancer 50:12
50:18

multi-market 34:7
multiple 17:5 22:8
36:20 57:5 67:3
mutated 48:6
mutation 36:4
mutations 45:10
46:18 47:24 50:2
53:5

N

N 3:1 4:1
N.W 2:6
name 4:16,23
named 23:5
Nanopore 22:19
23:17 26:1 60:24
61:5
naturally 25:2
nearly 66:12
necessary 7:14
need 7:5,24 24:4
25:21 39:12 45:13
52:13 58:24 63:8
63:14 64:17,21
65:16
neither 61:4 73:9
new 29:15 37:6 39:3
39:8,11,16,19,23
40:1 48:8 61:16
newborn 53:4
newborns 53:6
Newton 73:2,18
next-generation
17:12 18:6,20,21
19:1,9,12 20:7
21:4,22 22:1,4,14
34:4 37:2 42:22
49:25
NextSeq 55:12,13
NGI 22:20
NGS 13:9 17:17
19:2,6 20:21 21:9
22:8,16,17 26:9,17
27:2,10 28:1,4,6,8
28:20 29:19,20
31:13 35:17 38:20
39:4,13,18 40:2,3

40:13,14 41:13
43:16 45:2 46:4
48:11 50:6 51:18
51:20 52:2,13
54:18,22,24 55:4
55:17 56:2,10 57:3
59:13 60:10,13,20
61:7,24 62:6,7
63:24 64:3 66:9
67:7,16,22 68:19
68:22 69:3,8
NGS-based 34:7
nod 7:8
non-IVD-approved
33:8
noninvasive 42:4
notarial 73:13
Notary 73:1,19
notification 33:12
NovaSeq 41:10 55:3
55:6,10,19 56:12
56:18 57:4,8,13
nucleic 38:12,13
49:19
number 16:4 18:10
21:22 22:25 23:1
26:25 27:25 31:21
32:8 37:15 38:8,18
41:24 44:19 47:8
47:12,21 48:25
50:13 53:16,17
54:13 57:1,15
66:19
numbers 20:8 24:18

O

O 4:1
oath 7:19
object 4:4 55:21
Objection 55:21
obtain 34:25 35:11
35:14,16 63:3,19
obtained 34:9
obtaining 36:22
obviously 44:18
51:8 53:9 58:22
occur 49:8

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Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

[82]

<p>offer 33:7 officer 73:2 oh 50:17 okay 6:25 9:3 10:24 43:8,12 50:18 70:20 71:10,14,15 71:16 once 45:24 60:16 61:10 oncologists 44:6 oncology 18:12 23:22 24:5,14 27:7 32:1,4 33:14 34:4 34:8 42:5 43:16,17 43:24 44:2,4 45:1 45:5 46:22 47:19 69:12,16 oncology-based 33:13 Oncomine 33:12 ones 21:14 Ontario 59:20 operate 30:12 57:15 57:17 operation 19:13 58:21 operational 8:15 opinion 54:7 66:10 opportunity 34:6 opposed 48:17 67:16 options 60:20 orally 7:6 order 36:13 39:12 41:6 52:12 64:16 64:24 66:4 orders 40:25 67:19 organically 70:13 organisms 47:18 organization 15:19 68:22 original 32:15 33:8 60:17 61:18 65:17 67:6 outcome 73:11 output 30:20 40:7 40:10 41:1 57:8</p>	<p>overall 26:10,12 27:4 31:19,20 32:11 40:19 41:22 66:13 overlap 25:13,15 overlaps 21:11 Oxford 11:6 22:19 23:17 26:1 27:24 60:24 61:4</p> <hr/> <p style="text-align: center;">P</p> <hr/> <p>P 4:1 p.m 71:24 Pac 25:11 Pacific 6:12 22:19 23:16 26:3 27:24 60:23 61:2 Page 3:3 74:2,5,8,11 74:14,17,20 75:2,5 75:8,11,14,17,20 pages 72:5 paid 58:9 pairs 19:17 20:3 25:1 31:9 pairs-ish 24:9 panel 36:5 46:10,15 46:16 47:6,11,20 49:1 50:4 54:10,11 54:12 panels 46:21 47:15 48:14,16 53:21 54:2,8,8 par 57:4 paraffin-embedded 24:7 36:9 parallel 19:13,19,21 20:8,10 21:23 22:9 62:22 part 16:12 17:3 42:2 participate 17:14 participating 5:1 particular 33:17,18 33:21 47:23 62:5,6 64:5 particularly 7:15 22:7 31:25 32:1 parties 73:10</p>	<p>partner 59:25 partnerships 57:24 58:1 70:23 party 4:3 Pathologists 63:10 pathology 44:5,17 pathway 56:13 63:5 patient 32:7,11 33:17 42:20 43:6 45:9,24 52:11,17 61:13 63:14 patient's 32:9 51:17 patients 25:22 42:25 45:6,14,16,20 53:15,17,18 64:25 65:5 pattern 51:25 patterns 48:12,19 payer 63:19,21 PCR 12:13 66:21,22 67:7,16,20 pending 8:2 Pennsylvania 2:6 people 57:21 peptide 11:6 12:5 perceived 60:13 percent 13:18 26:11 27:6,12 percentage 27:21 perform 21:12 36:5 peripheral 49:21 persons 58:17 PGM 29:21 30:15 32:15 33:3,4,5,7,8 34:2 43:23,23 Ph.D 11:5,9,13 phone 9:6,9,18,24 photocopying 67:4 physician 33:20 place 21:3 plan 36:16 37:19 plans 59:5 60:5 69:2 71:2 plasma-based 36:10 plasma-derived 49:18 platform 8:12,14</p>	<p>22:21 23:14 26:8 28:25 29:2,4,6,14 29:21,23 30:3,15 30:16,18 32:15 33:4,5,7,8 34:17 37:2 38:24 39:2 40:9 41:10 43:23 44:8 52:16,21 55:12 57:9,13 60:3 60:13 61:2,7 69:6 platforms 22:8 23:21 30:1 32:16 32:20 36:25 55:3 58:22 60:10,25 61:22,25 62:1 play 69:22 player 28:1,5,8,11 28:20,20 playing 69:12,15,18 69:19,21 please 4:15 5:2 7:4 35:20 PMA 33:22 34:20 34:22 35:1,19,20 36:12,18 37:19 PMG 33:1 point 7:19,24 17:15 19:11 37:4 59:1 69:10 71:4 points 67:11 polymerase 66:22 66:24 67:2 population 52:19,24 53:3,8,11,15 population-screen... 53:19 position 4:20 11:13 28:4 65:14,14 positioned 59:25 possible 21:21 29:14 post-FDA 65:7 potential 57:24 potentially 20:9 36:21 42:4 67:24 69:1 practical 54:16 practiced 54:1</p>	<p>predicated 51:14 predicting 51:14 predictive 48:5 predominant 19:23 20:11 21:16 23:25 24:6 27:22 30:1 preferable 29:5 preferred 58:24 premarket 33:11 prenatal 42:4 preparation 12:12 30:23 44:12 prepare 9:23 10:18 prescribe 33:20 presence 18:13,15 23:14 52:1 58:14 58:15 present 2:19 33:18 46:19 47:25 51:17 53:5 presently 8:17 president 10:12 pretty 8:14 10:23 previously 6:5 14:11 14:13 37:22 price 57:12 prices 16:3 pricing 15:16,18,20 15:21,22,23,24 16:7,7,8 primarily 12:5 18:12 20:24 25:12 29:25 45:22 46:2,6 48:13,15 primary 21:24 22:17,18 30:10 37:14 41:17 44:4 45:4 principal 22:14 54:12 67:5 prior 11:12 15:6 38:19,24 priority 46:17 probable 63:6 probably 14:17,18 27:5,23 37:7 40:6 problem 71:15</p>
---	---	--	---	--

Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

[83]

<p>proceeding 5:7 proceedings 73:3,5 73:6 process 34:11,15,22 65:21 66:23 produce 65:8 product 4:22 12:10 12:11,14,24 13:6 13:16 14:4,9 15:8 15:19,22 16:5,6,9 16:9,16 55:22 56:1 production 12:7 products 12:6,7 13:10 professional 10:25 11:11 program 34:12 programs 8:23 14:25 progressed 53:15 progressively 66:5 project 34:14 35:7 37:3,13 68:21 proposed 5:21,21,22 5:23 6:12 proposition 57:9 61:21 propositions 44:10 protein 12:6 protein-coating 42:1 proton 29:23 30:16 32:15 43:23 provide 5:13 19:16 19:20 39:20 44:11 provided 6:16,22 31:20 63:12 providers 60:22 provides 20:7,23 40:21,23 42:24 44:10 53:14 providing 44:6 Public 73:1,19 purification 38:11 pursuant 1:17 6:2</p> <hr/> <p style="text-align: center;">Q</p>	<p>Qiagen 27:21 question 7:12,20 8:1 26:24 35:18 39:5 55:25 64:6 questions 7:3,6,9,12 8:6 9:13 10:25 18:5 71:11,18 quicker 42:25 quite 71:5</p> <hr/> <p style="text-align: center;">R</p> <p>R 4:1 range 24:9,25 30:20 30:21 31:8 53:5 rapid 44:7 rarely 17:14 rate 44:16 46:9 rates 69:1 raw 38:12 reach 55:11 56:6 reached 57:23 59:9 reaction 66:22 read 20:3 24:20 25:1 30:17,21 31:4,7,22 41:16 66:4 72:5 readily 48:7 reads 19:16,21 20:8 20:10,12 21:19 24:5,11,19,19,22 24:25 30:16,18,19 31:2,8,21 37:15,18 40:18,22,24 41:8 55:15 56:6 57:1 reagent 22:21,24 23:2 reagents 13:11 18:11 26:15 35:24 real-time 12:13 17:23 realize 7:19 really 25:13 43:20 60:25 62:11 reason 9:15,19 34:13 74:4,7,10,13 74:16,19,22 75:4,7 75:10,13,16,19,22 reasonable 67:11</p>	<p>reasons 29:9 46:6 67:9,25 68:3,15 rebuild 67:2 recall 17:15 recapitulate 61:17 received 64:4 receives 36:17 recess 43:13 71:17 recollection 16:17 record 4:16 5:2 7:7 7:8,10 8:8 43:12 73:5 recorded 7:4 recurrence 45:23,25 reduced 73:7 refer 5:16,18,19,20 19:1,10 30:4 50:15 referred 18:24 referring 5:22 25:6 26:17 regarding 8:6 region 47:14 regions 46:17 register 35:21 regular 17:10 regularly 17:3,6,22 regulatory 62:4 reimbursed 63:16 reimbursement 63:19,21 related 6:11 14:23 15:3 18:1 49:6 73:9 relative 34:16 53:8 53:17 relatively 44:19 46:10 53:24 relearn 62:8 relevant 36:6 45:9 60:4 63:13 remain 28:10,14 remainder 19:2 remaining 45:18 remember 7:20 remind 7:18 remote 4:4 8:7 remotely 4:10 7:17</p>	<p>8:6 repeat 19:25 65:16 rephrase 7:13 55:25 replacement 49:16 reported 15:1 reporter 4:2 7:4,6 12:16,20 19:24 20:15 48:23 73:1 reporting 44:13 represents 5:5 reproductive-heal... 18:14 request 5:11 8:1 require 38:14 39:17 46:8,11 57:15,20 61:12 64:11,12 required 30:12 35:16 36:15 38:16 54:2 57:17 63:22 requirement 52:23 requirements 32:2,6 44:4,7 requires 34:14 research 18:14 28:23 29:3 32:17 32:23 34:19 46:23 47:21 48:1 58:2 59:20,21 responsibilities 12:3 13:7,25 14:12,14 14:22 15:2,16,20 15:25 16:13 18:1 Responsible 13:9 restart 59:5 result 33:21 41:3 44:21 66:13 results 42:20 44:6 58:19 revenue 26:10,14 27:13,15 63:1 review 10:18 Reviewed 10:20 revived 59:2 right 7:23 8:21 9:9 20:13 37:24 55:19 63:1 risk 53:11</p>	<p>rivals 70:23 RNA-Seq 21:18 Roche 22:25 role 11:19,23,24 12:4,8,12 13:5,8 13:14,15,22,24 14:1,2,3,8 15:8,13 15:14,15,17 roles 15:12 room 8:20 routine 44:4 68:2 rules 5:13 run 30:16,18,20 31:2,11 37:18 40:18,22,24 41:1,8 42:5,19 44:13,14 55:16 56:6 57:2,5 57:7 58:24 63:9,25 64:17 65:9 67:15 running 8:24 9:1 34:12</p> <hr/> <p style="text-align: center;">S</p> <p>S 4:1 73:2,18 s/Tammy 73:18 safety 11:15 17:20 32:25 sale 33:7 sample 12:12 32:9 36:7 49:13,14,17 51:17 52:22 57:14 58:11 sample-intensive 52:20 samples 32:3 36:7 36:10 42:9,17,19 43:3 44:16 46:13 52:11,17 58:10,10 61:13 66:19 San 51:4 Sanger 65:20,21 66:8 67:20 SARS-CoV 25:20 SARS-CoV-2 47:7 scalability 67:13 scalable 66:18 67:10 scale 56:24 68:3</p>
--	--	--	--	---

Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

[84]

<p>scheduled 17:3,6 science 17:19 sciences 17:22 51:9 scientific 2:10 4:19 4:21 5:6,17 28:18 scientist 12:2 scientists 28:23 29:1 scratch 39:23 screen 52:16 screening 50:12 52:19 53:1,4,4,9 53:18 63:5 seal 73:13 second 62:9 64:10 67:2 second-generation 29:24 see 56:13,24 seek 34:1 37:19 63:23 70:23 seeking 35:4,8 36:11 seen 39:6 46:14 62:5 segment 32:1 69:12 segments 28:23 31:25 32:21,22 69:15 selection 42:22 45:6 50:10 54:3,9 69:23 70:1 sell 29:21,23 30:1 selling 26:7 57:12 sells 29:19,20 senior 12:13 13:6 sense 25:21 sensitively 61:14 sensitivity 36:3 separate 66:25 separated 14:7 sequence 20:4 21:7 24:6 25:2 31:6,9 31:17,18,19 47:4,7 51:21 65:22 66:3,7 67:1 sequencer 38:7 65:24 sequencers 31:11 sequences 21:2,6</p>	<p>25:13,21 sequencing 17:12 18:5,6,8,9,19,20 18:21,23,25 19:2,6 19:9,12,13,19 20:7 21:4,17,22 22:1,4 22:14 23:13,18,20 23:22 25:7,8,18,19 30:24 31:20 32:7 34:4 36:24 41:5,25 42:1,23 46:9,11 47:16,17 49:25 52:25 65:20,21 66:1,8,11 series 30:2,18 serve 32:21 set 15:21 16:3 44:24 47:25 61:18 73:12 sets 15:23 29:4,12 29:17 60:17 61:10 61:12 setting 36:22,23 42:11,24 45:12,12 46:1,14 47:19 48:6 52:11,23 53:16 58:25 60:4,14 68:2 69:20 settings 45:8,21 46:3 46:22,25 59:17 shake 7:8 share 10:20 21:23 23:15 26:9,10,12 26:20 27:2,4,7,9 27:11,16,22 39:22 62:17,21 shareholder 28:15 shedding 49:20 sheet 72:9 74:1 75:1 short 71:5,11 short-read 23:12 24:11,15,23 shorter 19:22 20:10 66:6 shorthand 20:5 73:1 show 61:11,13,16 64:9 shown 10:17</p>	<p>signal 66:5 signature 51:25 74:24 75:24 signatures 59:16 signed 72:9 significant 39:22 53:2,9 significantly 60:14 60:15 signs 51:16 similar 21:14,19 23:11 26:25 32:14 55:9 67:9,25 simple 49:7 simultaneously 19:21 57:6 single 19:16 22:10 29:4 31:5 43:4 57:8,18 66:7 site 12:7 51:4 situation 14:10 63:22 size 65:2,9 sizes 44:15 slightly 24:9 small 24:1 27:21 44:23 58:5 59:15 67:1 smaller 22:12 23:2 24:18 25:14 27:21 42:12,12 44:15,19 47:18,18 48:25 52:11 53:17 54:13 65:10 snips 47:1 so-called 19:12 20:24 21:5 23:12 46:3 47:24 63:9 software 13:12 18:11 26:15 35:23 solid 36:20 45:11 50:3 solid-tumor 49:17 solution 52:20 somebody 56:20 somewhat 43:23 61:21</p>	<p>sorry 10:8 12:16 23:8 33:2 59:17 south 51:4 space 17:12 18:14 18:14 22:21,24 28:1 32:4 34:6 50:14 51:2 60:6,9 62:14,23 64:23 65:23 68:8,13,18 69:13,16,19,23 70:4,8,10,15,24 71:3,8 spaces 32:18 speak 7:5 speaking 10:2 62:12 specific 16:24 63:13 specifically 36:11 61:14 specificity 21:25 36:3 speculating 70:12 speculation 70:11 speculative 39:14 speed 38:21 spend 34:20 38:5 39:12 spending 35:14 39:7 spent 38:8 spinning 68:22 spread 28:17 Square 2:14 Stage 45:8,8 46:3 stages 37:1 45:7 start 11:20 33:2 70:19 started 12:10 starting 11:3,12 state 2:14 4:16 5:16 51:15 56:4 73:20 states 26:5,23 48:25 49:8,10 50:4 54:14 58:5,15,17 60:20 status 51:15,22 53:2 stayed 27:19 stenographer 4:5,11 stenographically 73:7</p>	<p>steps 30:24 stipulate 4:3 stitched 66:6 stopped 59:1 strand 66:25 67:3 strands 67:1 strategy 68:23,24 studies 47:21 54:16 study 48:1 53:19 subpoena 1:17 6:2 subsequent 62:22 subsequently 11:21 subsidiary 18:13 substantiation 15:6 sufficiently 56:25 suited 41:20,23 42:2 42:17,23 46:5 52:9 53:14 54:23 60:25 61:3 superior 10:8 supervision 73:8 support 12:1 supported 12:6 supporting 12:5 sure 7:17 31:3 38:23 50:18 62:10 63:7 70:21 71:13 swear 4:6 switch 60:10 61:7,22 64:3 65:18 switching 65:7 sworn 4:10 synthesis 12:6,11 system 30:3 33:16 34:12 35:6,21 36:1 37:12,16 38:10,11 39:2 43:7,20 44:11 44:19,25 49:3 52:8 58:24 system's 30:20 systems 12:12,25 13:3,10 18:10 19:19 26:14,16 34:13 39:1 45:5 48:19 52:9 53:13 54:25 55:2</p>
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3/23/2021

[85]

<p>T</p> <p>take 7:25 31:18 38:1 39:3 40:1 65:2,14 66:15,17,24 71:11</p> <p>taken 43:13 71:17 73:3,6</p> <p>takes 34:23 38:11</p> <p>talk 7:11 17:17,21 29:18 71:12</p> <p>talked 40:17</p> <p>talking 40:10 43:15 55:2 56:2</p> <p>Tammy 20:14 73:2</p> <p>Taq 66:24 67:2</p> <p>target 32:13 33:13 37:17</p> <p>targeted 18:12 46:10,15,16,20 47:6,12,15,20 48:14,15,25 53:20</p> <p>targeting 54:13</p> <p>targets 25:14 47:8 47:10,23 70:17</p> <p>targetted 32:16</p> <p>TCGA 47:25</p> <p>team 9:25 10:1 12:11 15:1,21 16:7 17:9,10,18 57:20</p> <p>teams 10:3 17:2,5 17:22</p> <p>technologies 11:21 13:20,23 18:20,22 19:6,15,23 22:11 23:20 24:12,14,20 29:7,11,15 39:20 67:21</p> <p>technology 18:25 20:11,23 21:5,18 23:12 24:23 25:4 27:23 28:12,17,21 28:24,25 29:2,13 29:23,24 37:3 39:8 39:10,23,25 40:9 51:6 56:8,14,21,25 58:3 60:18,24 61:16,22 62:5,6,9</p>	<p>62:9,15 64:10,11 64:15,15 65:15,24 68:1,4,13,17 69:6 70:14 71:1</p> <p>tell 8:13</p> <p>template 66:23 67:6</p> <p>tend 24:17,22 25:3</p> <p>tens 24:21 48:1 52:18 61:12</p> <p>term 18:16</p> <p>termed 23:12,19</p> <p>terminator 65:25</p> <p>terms 23:14 27:4 30:14 40:18,20</p> <p>test 33:13 49:11,12 50:21 52:7,10 54:4 57:23 59:8,12,25 60:9,19 61:6,23,25 62:12,19,21 63:9 63:13,19,23 64:3 64:17,21 70:17</p> <p>testified 4:11 6:5,20 7:1</p> <p>testify 9:20</p> <p>testimony 6:11,16 6:21 10:4 72:6,7</p> <p>testing 32:25 33:14 33:15 42:4 44:5 61:1,16 63:15 70:24 71:8</p> <p>tests 32:8 46:5,20 49:22 50:11,12,16 50:25 51:11,19 52:3,12 53:20 54:3 54:19,23 61:3 62:22 63:2 66:9 67:8,16,22</p> <p>Thank 5:14 50:20 71:15,19,21</p> <p>Thanks 43:11</p> <p>Theoretically 67:23</p> <p>therapies 33:17</p> <p>therapy 33:21 36:19 42:22 45:5,9,13,22 50:9 54:9 69:23 70:1</p> <p>therapy-selection</p>	<p>46:5</p> <p>Thermo 2:10 4:19 4:21 5:5,11,17,18 10:13 11:12 16:23 17:13,16 18:2,9,19 19:7 20:17 25:10 26:4 27:25 29:19 29:20 30:4 32:12 34:1,9 35:7,10,13 36:11,16,24 37:5 37:19,23 38:1,5 39:18 41:20 45:2 46:4 48:11 49:5 50:6 52:2 54:24 55:4 56:2,9,16 57:18,24 59:6,9,11 59:12,24 60:5,8,11 68:4,7,12,19,24 69:2,5,14,17,19 70:3,6,10,13,16,19 70:24</p> <p>Thermo's 18:5,7 20:21 22:16 23:5 26:9 27:2 37:10 38:19 40:13 41:13 43:16 55:8,17 57:2 60:13 69:8</p> <p>Thermo-based 40:8</p> <p>things 18:16</p> <p>think 18:3 39:11 55:22 60:12 61:6 62:2,18 63:1,6,18 69:10 70:6,25</p> <p>thousands 48:2 52:17,18 61:13</p> <p>three 13:15,17 14:14 28:13 34:23 38:4 39:7 60:24</p> <p>three-year 34:14</p> <p>throughput 22:3,8 22:15 30:11,14 31:1 40:7,18,20,23 41:9,15,23,25 42:3 48:20 49:2 52:8,16 52:21 54:25 55:5 55:10,13,18 56:11 56:18 57:3 58:23</p>	<p>60:15</p> <p>time 7:11 14:4,16,23 15:9 19:17 22:13 27:22 29:6 31:16 31:17,23,24 32:2,6 32:11 34:3,17,20 36:25 37:7,21 38:21 40:19 41:3,6 41:15 42:20 44:7 44:22,24 45:15 46:7 58:12 66:13 66:16,17 67:12 71:20</p> <p>times 31:22 57:14</p> <p>tissue 24:7 36:9</p> <p>title 16:19</p> <p>today 6:2 8:6 9:20 10:4 16:19 28:6 29:19 49:3 54:9 65:22 71:19</p> <p>today's 5:1 9:23 10:19</p> <p>tools 26:15 49:9</p> <p>top 27:1</p> <p>topics 65:19</p> <p>Torrent 11:20,20 12:25 13:3,5,10,19 13:23 14:6 30:5,7 30:8 48:19 49:2 53:13</p> <p>total 37:15 48:9</p> <p>track 16:11</p> <p>Trade 1:1 2:3,5 4:24 6:3</p> <p>tradeoff 43:4</p> <p>traditional 34:19</p> <p>transaction 5:21 70:4</p> <p>transcript 5:12 73:4</p> <p>transcription 72:7</p> <p>transferred 11:16</p> <p>transplant 17:21</p> <p>treated 45:20,25</p> <p>trial 65:9,17</p> <p>trials 64:18,20,24 65:1</p> <p>tries 9:12</p>	<p>true 24:23 40:6 72:6 73:5</p> <p>try 17:7 19:25</p> <p>trying 21:2,7 28:12 66:20</p> <p>tumor 32:9 36:20,20 45:11,12 49:20 50:3</p> <p>turnaround 31:16 31:17,23,24 32:2,6 32:11 40:19 41:3,6 41:15 42:20 44:7 44:22 45:15 46:7</p> <p>turnaround-time 45:19</p> <p>twice 57:12</p> <p>two 6:8 11:16 29:16 30:1 41:4 43:5 50:1 65:3 67:1 69:12,15</p> <p>type 50:21</p> <p>types 21:10 32:12 36:7,20 46:20</p> <p>typewriting 73:8</p> <p>typical 57:13</p> <p>typically 19:22 20:11 24:8,18,25 31:8,16 39:23 41:3 41:6 42:18 44:16 45:6 46:14,21 49:23 61:11 65:22 65:25 66:7</p>
<p>U</p>				
<p>U.S 11:19 12:9 26:8 33:6,23 63:15</p> <p>UK 11:14,17,18,25</p> <p>Undergrad 11:4</p> <p>underlying 39:9 56:25 58:4 62:7 65:24</p> <p>understand 6:1 7:5 7:11,15 8:3 16:8 21:6 25:22 49:8 51:14,16 53:6,25 58:2</p> <p>understanding 26:6</p>				

Felton

Illumina, Inc. and Grail, Inc.

3/23/2021

[86]

50:23 51:6 53:22 54:15,20 58:12,19 65:13 68:11 understood 54:5 undertaking 34:15 34:20 unit 30:25 United 26:5,23 60:20 University 11:5,6 unsuited 67:14 upper 55:12 usage 24:2 42:22 43:24 use 16:2 21:16 24:11 28:25 29:1,5 36:17 47:3 54:12,16 60:11,16 61:24 useful 34:18 68:23 usually 16:6 utility 63:12 utilize 23:21 utilizing 56:14	want 7:17,18 29:13 61:24 65:18 wanted 34:6 70:3 Washington 2:7 way 9:16 42:9,18 43:2 46:12 47:13 51:24 56:22,24 57:2 ways 41:17 49:7 50:2 we're 8:5 31:9 32:16 37:16 45:23 51:8 54:6 we've 23:1 32:19 43:8 47:7 51:1,9 week 52:18,18 weeks 45:18 went 11:18 weren't 58:16 WHEREOF 73:12 widely 28:17,22 wish 36:7 46:17 67:5 wished 70:8 with- 44:20 witness 3:3 4:6 12:18,22 19:25 48:24 71:21 73:12 words 69:14 work 5:24 43:10 44:20 61:19 69:4 worked 11:14 workflow 30:12,22 40:20 41:15 42:16 working 8:12 11:12 16:23,25 17:14 46:2 59:11,14 world 42:21 worries 12:22 wouldn't 58:1	27:3,6,17 28:8,13 34:23 38:4 39:7 47:22 65:4 68:20 <hr/> Z <hr/> Zoom 1:14 8:9 9:9 <hr/> 0 <hr/> 06103 2:15 <hr/> 1 <hr/> 1 27:5 55:15 1,000 19:16 1/2 38:4 1:14 71:24 10 26:11 40:24 41:8 44:24 47:22 10-day 32:5 10-minute 43:9 100 13:18 30:19 35:3,15 40:21 57:7 57:11,20 100,000 64:24 11:05 1:18 130 30:19 40:22 16 14:18 45:18 17 16:18 175 24:9 19 14:18 1992 11:10 1994 11:17 1997 11:19 <hr/> 2 <hr/> 2 27:6,25 2,000 24:21 20 47:22 57:20 200 24:25 31:9,10 200,000 57:12 201-0144 1:6 2010 11:20,23 13:4 2015 14:18 2016 16:18 2018 14:18 2019 10:21 2020 35:9 2021 1:13 73:14	2023 35:12 37:7 2024 35:12 37:7 20580 2:7 23 1:13 24 44:13 275-8130 2:16 2886 8:18 2KB 24:21 <hr/> 3 <hr/> 3 38:4 3/05/2022 73:16 30 57:21 30th 73:13 384 22:13 <hr/> 4 <hr/> 4 3:5 40 38:9,17 400 25:1 31:9,10 <hr/> 5 <hr/> 5- 48:4,10 50 30:21 500 54:10,11 <hr/> 6 <hr/> 60 30:17 31:10 600 2:6 19:16 20:3 48:4,10 600-base 66:7 <hr/> 7 <hr/> 75- 35:2 <hr/> 8 <hr/> 80 27:12 30:17,21 31:10 860 2:16 <hr/> 9 <hr/> 90 2:14 96 22:12
<hr/> V <hr/> validation 35:25 36:6 value 16:5 44:10 60:13 values 44:9 variant 25:23 33:18 36:4 variants 25:23 varying 44:18 Veltrop 2:13 5:5 version 29:22 33:6 versus 42:10 vice-president 4:22 14:3,8,9 16:15 view 42:21 64:14 65:11 virus 25:14 47:8 viruses 47:4 volume 46:8 VP 13:16 <hr/> W <hr/>	<hr/> X <hr/> X 3:1 <hr/> Y <hr/> Yeah 14:21 58:9 years 6:8 11:16 13:16,17 14:6,6,14		

PUBLIC VERSION

EXHIBIT B-16
PX7097 / RX3823

***PARTIAL IN CAMERA
TREATMENT REQUESTED***



Deposition of:
Andrew C. Felton , Ph.D.

June 2, 2021

In the Matter of:
**llumina, Inc. and GRAIL, Inc. (In the
Matter of)**

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Page 1

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UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES

In the Matter of

ILLUMINA, INC., a corporation,

and Docket No. 9401

GRAIL, INC., a corporation.

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REMOTE VIDEOCONFERENCE DEPOSITION of
ANDREW C. FELTON, Ph.D.
Wednesday, June 2, 2021
San Francisco, California

Reporter: Michael D. O'Connor, RMR, CRC, CRR

Job No. 4596003

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Page 2	Page 4
<p>1 2 3 4 CONFIDENTIAL 5 6 7 Wednesday, June 2, 2021 8 8:09 PDT 9 10 11 12 REMOTE VIDEOCONFERENCE DEPOSITION 13 of ANDREW C. FELTON, Ph.D., held remotely in 14 San Francisco, California, pursuant to 15 notice, before Michael D. O'Connor, RMR, 16 CRC, CRR, and Notary Public 17 18 19 20 21 22 23 24 25</p>	<p>1 A P P E A R A N C E S (Cont'd): 2 3 ATTORNEYS FOR GRAIL, INC.: 4 (Attending remotely) 5 LATHAM & WATKINS LLP 6 555 Eleventh Street, N.W. 7 Suite 1000 8 Washington, D.C. 20004 9 (202) 637-2200 10 BY: ANNA RATHBUN, ESQ. 11 anna.rathbun@lw.com 12 ALEXANDRA VAN DINE, ESQ. 13 alexandra.vandine@lw.com 14 MICHAEL G. EGGE, ESQ. 15 michael.egge@lw.com 16 17 18 ATTORNEY FOR ILLUMINA INC.: 19 (Attending remotely) 20 HUTH REYNOLDS LLP 21 41 Cannon Court 22 Huntington, New York 11743 23 (212) 731-9333 24 BY: KARL HUTH, ESQ. 25 huth@huthreynolds.com</p>
Page 3	Page 5
<p>1 A P P E A R A N C E S: 2 3 ATTORNEYS FOR FEDERAL TRADE COMMISSION: 4 (Attending remotely) 5 FEDERAL TRADE COMMISSION 6 BUREAU OF COMPETITION 7 400 Seventh Street, S.W. 8 Washington, D.C. 20024 9 (202) 326-2688 10 BY: JORDAN S. ANDREW, ESQ. 11 jandrew@ftc.gov 12 DAVID GONEN, ESQ. 13 dgonen@ftc.gov 14 15 16 17 18 19 20 21 22 23 24 25</p>	<p>1 A P P E A R A N C E S (Cont'd): 2 3 ATTORNEYS FOR THE WITNESS: 4 AXINN VELTROP & HARKRIDER LLP 5 (Attending remotely) 6 114 West 47th Street 7 New York, New York 10036 8 (212) 728-2200 9 BY: JOHN D. HARKRIDER, ESQ. 10 jharkrider@axinn.com 11 QUINTEN STEWART, Summer Associate 12 13 14 ALSO PRESENT (attending remotely): 15 Paul Rafferty, Concierge 16 Alexis Ortiz, Videographer 17 18 19 20 21 22 23 24 25</p>

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Page 6	<p>1 I N D E X</p> <p>2 Deposition of: Page</p> <p>3 ANDREW C. FELTON, Ph.D.</p> <p>4 By Mr. Andrew</p> <p>5 By Ms. Rathbun</p> <p>6</p> <p>7</p> <p>8 E X H I B I T S</p> <p>9 No. Page</p> <p>10 Exhibit 1 E-mail chain, Bates</p> <p>11 Thermo-Grail_01662776 to</p> <p>12 Thermo-Grail_01662778</p> <p>13 Exhibit 2 Document entitled "Prevalence</p> <p>14 of ctDNA in early</p> <p>15 screen-detected breast cancers</p> <p>16 using highly sensitive and</p> <p>17 specific dual monlecular baroded</p> <p>18 personalised mutation assayss"</p> <p>19 Exhibit 3 Document entitled "Clinical</p> <p>20 Next-Generation Sequencing</p> <p>21 Division STRAP 2020," Bates</p> <p>22 Thermo-Grail_01155694 to</p> <p>23 Thermo-Grail_01155850</p> <p>24</p> <p>25</p>	Page 8	<p>1 E X H I B I T S, Con't</p> <p>2 No. Page</p> <p>3 Exhibit 7070 Andrew Felon transcript of</p> <p>4 March 23, 2021</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
Page 7	<p>1 E X H I B I T S, Con't</p> <p>2 No. Page</p> <p>3 Exhibit 4 Document entitled "A Look</p> <p>4 Into the Future, March 2019,"</p> <p>5 Bates Thermo-Grail_00183972 to</p> <p>6 Thermo-Grail_00184001</p> <p>7 Exhibit 5 Document entitled</p> <p>8 "CSD - Strategy and Bus Dev</p> <p>9 Review," Bates</p> <p>10 Thermo-Grail_00036643 to</p> <p>11 Thermo-Grail_00036678</p> <p>12 Exhibit 6 Document entitled</p> <p>13 "Lead with Purpose, Ultima</p> <p>14 OEM Supply Agreement & ISP</p> <p>15 Scale-Up," Bates</p> <p>16 Thermo-Grail_01090369 to</p> <p>17 Thermo-Grail_01090377</p> <p>18 Exhibit 7 Document entitled</p> <p>19 "ThermoFisher Scientific</p> <p>20 Partnering Strategy; March</p> <p>21 2020," Bates</p> <p>22 Thermo-Grail_01090369</p> <p>23 Exhibit 8 E-Mail chain, Bates</p> <p>24 Thermo-Grail_00265386 to</p> <p>25 Thermo-Grail_00265389</p>	Page 9	<p>1 P R O C E E D I N G S</p> <p>2</p> <p>3 THE VIDEOGRAPHER: Good morning.</p> <p>4 We are going on the record at 8:09 a.m.</p> <p>5 on June 2, 2021.</p> <p>6 Please note that the microphones</p> <p>7 are sensitive and may pick up</p> <p>8 whispering, private conversations, and</p> <p>9 cellular interference. Please turn off</p> <p>10 all cellphones or place them away from</p> <p>11 the microphones as they can interfere</p> <p>12 with the deposition audio.</p> <p>13 Audio and video recording will</p> <p>14 continue to take place unless all</p> <p>15 parties agree to go off the record.</p> <p>16 This is media unit one of the</p> <p>17 video-recorded deposition of Andrew C</p> <p>18 Felton, Ph.D., taken by counsel for</p> <p>19 Plaintiff in the matter of Federal Trade</p> <p>20 Commission versus Illumina, Inc., et</p> <p>21 al., filed in the United States District</p> <p>22 Court, Southern District of California,</p> <p>23 Case Number 321-cv-00800(CAB)(BGS).</p> <p>24 This deposition is being recorded</p> <p>25 remotely via Virtual Veritext</p>

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<p style="text-align: right;">Page 10</p> <p>1 technologies, with the witness located 2 in San Francisco, California. 3 My name is Alexis Oriz from the 4 Veritext Legal Solutions and I'm the 5 videographer. The court reporter is 6 Michael O'Connor, from the firm Veritext 7 Legal Solutions. 8 I'm not related to any party in 9 this action, nor am I financially 10 interested in the outcome. 11 Counsel and all present in the 12 room and everyone attending remotely 13 will now state their appearances and 14 affiliations for the record. If there 15 are any objections to proceeding, please 16 state them at the time of your 17 appearance, beginning with the noticing 18 attorney. 19 MR. ANDREW: Hi. This is Jordan 20 Andrew. I represent the Federal Trade 21 Commission. 22 MR. GONEN: This is David Gonen. 23 I'm also with the Federal Trade 24 Commission. 25 MS. RATHBUN: This is Anna Rathbun</p>	<p style="text-align: right;">Page 12</p> <p>1 Q. What is your current position at 2 Thermo Fisher Scientific? 3 A. Vice president product management, 4 platforms and research. 5 Q. Thank you. My name is Jordan 6 Andrew and I'm an attorney at the Federal Trade 7 Commission. Unless I state otherwise, today I 8 will refer to Thermo Fisher Scientific as 9 "Thermo." I will refer to Illumina, Inc. as 10 "Illumina." And I'll refer to GRAIL, Inc. as 11 "GRAIL." 12 And when I refer to the "proposed 13 transaction," "proposed acquisition" or 14 "proposed merger," I'm referring to Illumina's 15 proposed acquisition of GRAIL. 16 Does that work for you? 17 A. That's fine. 18 Q. Do you understand that you are 19 testifying here today pursuant to a subpoena? 20 A. Yes, I do. 21 Q. I'd like to briefly go over how 22 this hearing is going to be conducted. All of 23 my questions and your answers are recorded by 24 the court reporter. Please understand that you 25 need to speak up and answer my questions orally</p>
<p style="text-align: right;">Page 11</p> <p>1 from Latham & Watkins on behalf of 2 Defendant, GRAIL, and I'm joined by my 3 colleague, Alexandra Van Dine. 4 MR. HUTH: This is Karl Huth of 5 Huth Reynolds LLP on behalf of 6 Defendant, Illumina, Inc. 7 MR. HARKRIDER: Hi. This is John 8 Harkrider from Axinn representing Thermo 9 Fisher. 10 THE WITNESS: This is Andy Felton, 11 Thermo Fisher Scientific. 12 * * * 13 14 ANDREW C. FELTON, Ph.D., 15 having been duly sworn by the Notary Public, 16 was examined and testified as follows: 17 EXAMINATION 18 BY MR. ANDREW: 19 Q. Good morning, Andy. 20 A. Good morning. 21 Q. Please state your full name for 22 the record. 23 A. Andrew Charles Felton. 24 Q. Who is your current employer? 25 A. Thermo Fisher Scientific.</p>	<p style="text-align: right;">Page 13</p> <p>1 so that the court reporter can record your 2 answers. 3 He won't be able to record a nod 4 or shake of your head. 5 To make sure that the questions 6 and answers are easy to record, we should do 7 our best not to both speak at the same time. 8 If you don't understand one of my 9 questions or you can't hear one of my 10 questions, I will be happy to clarify it, 11 rephrase it, or do whatever is necessary so 12 that you and I understand each other. 13 This is particularly important, 14 because we're conducting the hearing remotely, 15 and I want to be sure that you can hear me. 16 I want to remind you that you're 17 under oath. If at any point you realize that 18 you've answered a question incorrectly, or you 19 remember something else that would make your 20 answer more complete, just let me know and you 21 can add to your earlier answer right then while 22 it's on your mind. 23 If you need a break at any point, 24 just let me know, and we can take one. I only 25 ask that you don't request a break with a</p>

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<p style="text-align: right;">Page 14</p> <p>1 question pending.</p> <p>2 Do you understand everything that</p> <p>3 I've just told you?</p> <p>4 A. Yes, I do.</p> <p>5 Q. Since we're conducting this</p> <p>6 deposition remotely, I have a few questions</p> <p>7 regarding the circumstances of your remote</p> <p>8 appearance that I'd like to get on the record.</p> <p>9 Is your Zoom platform currently</p> <p>10 working technically?</p> <p>11 A. Yes, it is.</p> <p>12 Q. Do you have the Exhibit Share</p> <p>13 platform set up and running?</p> <p>14 A. Yes, I do.</p> <p>15 Q. What's the full address of the</p> <p>16 location where you're appearing today?</p> <p>17 A. 180 Oyster Point Boulevard, South</p> <p>18 San Francisco, California.</p> <p>19 Q. Is there anyone else currently in</p> <p>20 the room with you?</p> <p>21 A. No, there is not.</p> <p>22 Q. Do you have any other programs or</p> <p>23 applications running on your device, like a</p> <p>24 chat platform?</p> <p>25 A. No. Just let me check. No.</p>	<p style="text-align: right;">Page 16</p> <p>1 otherwise, you can answer the question.</p> <p>2 A. I reviewed my transcript from the</p> <p>3 prior testimony.</p> <p>4 Q. Other than discussions with your</p> <p>5 in-house attorneys or outside counsel, did you</p> <p>6 discuss the testimony that you expect to give</p> <p>7 today with anyone else?</p> <p>8 A. No.</p> <p>9 Q. You provided testimony to the FTC</p> <p>10 in an investigational hearing on March 23rd of</p> <p>11 this year; is that correct?</p> <p>12 A. Correct.</p> <p>13 Q. Okay. If you look at the Exhibit</p> <p>14 Share application, I'd like to show you an</p> <p>15 exhibit marked PX7070.</p> <p>16 (Document marked as Felton</p> <p>17 Exhibit PX7070 for identification)</p> <p>18 Q. It should be in the Marked Exhibit</p> <p>19 folder now.</p> <p>20 A. I see it.</p> <p>21 Q. Please take a moment to review</p> <p>22 PX7070, and let me know when you're ready.</p> <p>23 A. I'm ready.</p> <p>24 Q. Do you recognize PX7070?</p> <p>25 A. Yes, I do.</p>
<p style="text-align: right;">Page 15</p> <p>1 Q. And do you understand that you are</p> <p>2 not to communicate with anyone else during the</p> <p>3 deposition?</p> <p>4 A. I do.</p> <p>5 Q. Will you let me know if anyone</p> <p>6 tries to communicate with you while I'm asking</p> <p>7 you questions?</p> <p>8 A. Yes, I will.</p> <p>9 Q. Is there any reason why you would</p> <p>10 not be able to testify fully and accurately</p> <p>11 today?</p> <p>12 A. No, there is not.</p> <p>13 Q. What, if anything, did you do to</p> <p>14 prepare for today's hearing?</p> <p>15 A. I had two calls with our</p> <p>16 attorneys, one yesterday and one approximately</p> <p>17 a week ago.</p> <p>18 Q. Did you review any documents in</p> <p>19 preparation for this hearing?</p> <p>20 A. Review --</p> <p>21 MR. HARKRIDER: Just let me</p> <p>22 interject for a second. I'm just going</p> <p>23 to instruct the witness not to answer to</p> <p>24 the extent it reveals any</p> <p>25 client-attorney communications. But,</p>	<p style="text-align: right;">Page 17</p> <p>1 Q. What do you recognize it to be?</p> <p>2 A. My testimony from the prior</p> <p>3 meeting on 3/23/21.</p> <p>4 Q. So this does appear to be a copy</p> <p>5 of the investigational hearing transcript that</p> <p>6 you had with the Federal Trade Commission?</p> <p>7 A. Correct.</p> <p>8 Q. And you said you had a chance to</p> <p>9 review this transcript prior to this hearing?</p> <p>10 A. I did.</p> <p>11 Q. To the best of your knowledge, was</p> <p>12 everything that you testified about in the</p> <p>13 investigational hearing, a transcript in</p> <p>14 PX7070, accurate at the time of your testimony?</p> <p>15 A. Yes, it was accurate at the time</p> <p>16 of my testimony.</p> <p>17 Q. And to the best of your knowledge,</p> <p>18 is everything that you testified about in this</p> <p>19 transcript PX7070 still accurate today?</p> <p>20 A. Yes, it's still accurate today.</p> <p>21 Q. Okay. I'd like to go through some</p> <p>22 specific excerpts from the transcript now. If</p> <p>23 you wouldn't mind scrolling to Page 30 of</p> <p>24 PX7070, and just let me know when you're there.</p> <p>25 MS. RATHBUN: Jordan, do you mean</p>

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<p style="text-align: right;">Page 18</p> <p>1 the manuscript Page 30 or the PDF Page 2 30? 3 MR. ANDREW: That's a good 4 question. I'm referring to the 5 manuscript Page 30. So it would be Page 6 30 in the upper right-hand corner of the 7 page, of the page with the four pages on 8 it. 9 A. Yes, the four blocks in the top 10 right-hand marker. Yes. I have that. 11 Q. Right. So, in this case, Page 30 12 is actually in the bottom left-hand corner of 13 the fuller page. 14 A. Correct. 15 Q. Okay. I'd like to direct your 16 attention to Page 30, line 8 of the transcript, 17 to the question that begins: 18 "How are the Ion Torrent 19 instruments different from each other?" 20 Do you see that? 21 A. I do see that. 22 Q. Please review from the beginning 23 of this question to the end of the answer at 24 Page 30, line 24, and let me know when you're 25 ready.</p>	<p style="text-align: right;">Page 20</p> <p>1 MR. HUTH: Join in the objection. 2 Q. All right. So I'll reask my 3 question, Dr. Felton. 4 Have you had a chance to review 5 the portion of the transcript that begins 6 Page 30, line 8 and ends Page 30, line 24? 7 A. Yes, I have. 8 Q. Were your answers in this portion 9 of the transcript accurate at the time you 10 provided testimony? 11 MS. RATHBUN: Same objection. 12 A. Yes, they were. 13 Q. And are your answers in this 14 portion of the transcript still accurate today? 15 MS. RATHBUN: Same objection. 16 A. Yes, they are. 17 Q. Is the GeneStudio Thermo's highest 18 throughput sequencer? 19 MS. RATHBUN: Objection to form 20 and foundation. 21 A. Yes, it is. 22 Q. For applications requiring high 23 throughput sequencing, would Thermo generally 24 use the GeneStudio? 25 A. Yes, for high throughput</p>
<p style="text-align: right;">Page 19</p> <p>1 A. I'm ready. 2 Q. Have you had a chance to review 3 this portion of the transcript? 4 A. Yes, I have. 5 Q. Were your answers in this portion 6 of the transcript accurate at the time you 7 provided testimony? 8 MS. RATHBUN: Objection to form 9 and foundation. I'm also going to 10 object to the extent the FTC plans to 11 just read in parts of the 12 investigational hearing into the 13 deposition. In this case, Defendants 14 weren't able to attend the 15 investigational hearings and were unable 16 to make any objections to questions on 17 that record. 18 So, you know, we should have an 19 opportunity to make objections to any 20 questions that appear on the 21 investigational hearing transcript, and 22 so we'll reserve our right to object to 23 all of those to the extent they're just 24 read into the record instead of reasking 25 the question today.</p>	<p style="text-align: right;">Page 21</p> <p>1 sequencing, we would generally recommend the 2 GeneStudio platform. 3 Q. Okay. Now I'd like to direct your 4 attention to Page 35 of the manuscript. 5 A. Okay. 6 Q. And the question at Page 35, 7 line 4, through the answer on Page 35, line 15. 8 If you could just review that portion of the 9 transcript, and let me know when you're ready. 10 A. Yes. 11 Q. Have you had a chance to review 12 that portion of the transcript? 13 A. I have. 14 Q. Was the testimony that you 15 provided at the time accurate? 16 MS. RATHBUN: Objection to form. 17 Same objection as before. 18 A. Yes, it was. 19 Q. And is that portion of the 20 transcript still accurate today? 21 MS. RATHBUN: Same objection. 22 A. Yes, it is. 23 [REDACTED] 24 [REDACTED] 25 [REDACTED]</p>

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Page 22

1 MS. RATHBUN: Object to form.
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 6 MS. RATHBUN: Objection to form.
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 14 Q. Thank you. Now I'd like to direct
 15 your attention to Page 36 of the transcript,
 16 and the question that begins on Page 36,
 17 line 24.
 18 Can you please review from there
 19 through Page 37, line 21, and let me know when
 20 you're ready.
 21 A. Yes, I'm ready.
 22 Q. Have you had a chance to review
 23 this portion of the transcript?
 24 A. I have.
 25 Q. Was the testimony that you

Page 23

1 provided accurate at the time of the hearing?
 2 MS. RATHBUN: Object to form.
 3 Same objection as before.
 4 A. Yes, it was.
 5 Q. And is that testimony still
 6 accurate today?
 7 MS. RATHBUN: Same objections.
 8 A. Yes, it's still accurate today.
 [REDACTED]
 [REDACTED]
 [REDACTED]
 12 MS. RATHBUN: Object to form.
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 23 Q. Okay. Then I'd like to direct
 24 your attention to Page 40. If you could please
 25 review the portion of the transcript that

Page 24

1 begins at Page 40, line 13, and runs through
 2 Page 41, line 7, and let me know when you're
 3 ready.
 4 A. I've read the indicated area.
 5 Q. Okay. Have you had a chance to
 6 review this portion of the transcript?
 7 A. Yes, I have.
 8 Q. Was the testimony that you
 9 provided accurate at the time of the hearing?
 10 MS. RATHBUN: Objection. Same
 11 objections as before.
 12 A. Yes, it was.
 13 Q. And is that testimony still
 14 accurate today?
 15 MS. RATHBUN: Same objection.
 16 A. Yes, it is.
 17 Q. In this portion of the transcript,
 18 when you referenced Illumina's -- I'm sorry,
 19 let me start again.
 20 In this portion of the transcript
 21 when you referenced Illumina's highest
 22 throughput instrument, which instrument were
 23 you referring to?
 24 MS. RATHBUN: Objection to form.
 25 A. The NovaSeq 6000 platform.

Page 25

1 Q. Do you know whether it's possible
 2 to run two flow cells at once on the NovaSeq
 3 6000 platform?
 4 A. I do not.
 5 Q. And is it your understanding that
 6 NovaSeq can produce up to 10 billion reads per
 7 run?
 8 A. Correct. 10 billion single-ended
 9 reads. So the metric for comparison is
 10 single-ended reads, not paired ended.
 11 Q. Do you know how many paired-ended
 12 reads the NovaSeq can -- how many reads per
 13 run?
 14 A. Up to 20 billion paired reads.
 15 Q. In the statistics that you provide
 16 in this portion of the transcript, are you
 17 referring to single-ended reads or paired-end
 18 reads?
 19 A. I'm referring to single-ended
 20 reads.
 21 Q. Okay. Thank you.
 22 And is the 10 billion reads that
 23 you referred to for the NovaSeq, is that per
 24 run or per flow cell?
 25 A. I'm not clear on that point.

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Page 26

1 Originally I had believed it was per run.
 2 Q. Okay. That's fine.
 3 If you could then turn your
 4 attention to Page 52 of the transcript, and to
 5 the question that begins on Page 52, line 2,
 6 through Page 52, line 11. If you could just
 7 review that portion of the transcript, and let
 8 me know when you're ready.
 9 A. I am ready.
 10 Q. Have you had a chance to review
 11 that portion of the transcript?
 12 A. I have.
 13 Q. And is the testimony in that
 14 portion of the transcript, was that accurate at
 15 the time of the hearing?
 16 MS. RATHBUN: Same objections.
 17 MR. HARKRIDER: Object to form.
 18 A. It was.
 19 Q. And is that testimony still
 20 accurate today?
 21 MS. RATHBUN: Same objection.
 22 MR. HARKRIDER: Object to form.
 23 A. It is.
 24 Q. You mentioned that Thermo systems
 25 are generally suited to settings with smaller

Page 27

1 amount of patient samples; is that correct?
 2 MS. RATHBUN: Misstates testimony.
 3 Objection to form. Same objections
 4 about the transcript, the IH transcript.
 5 A. I'm sorry, Jordan, can you please
 6 repeat the question for me?
 7 [REDACTED]
 8 [REDACTED]
 9 [REDACTED]
 10 MS. RATHBUN: Object to form.
 11 [REDACTED]
 12 [REDACTED]
 13 [REDACTED]
 14 [REDACTED]
 15 [REDACTED]
 16 [REDACTED]
 17 [REDACTED]
 18 [REDACTED]
 19 [REDACTED]
 20 Q. What is your understanding of the
 21 number of patient samples that would be
 22 required to be sequenced for multi-cancer early
 23 detection tests?
 24 MS. RATHBUN: Objection to form
 25 and foundation.

Page 28

1 A. Our understanding of that test
 2 environment is it's likely to require a very
 3 large number of patient samples to be
 4 sequenced, as you are doing what is called
 5 population-based screening.
 6 So the test itself requires or is
 7 likely to require -- test environment is likely
 8 to require a large number of patient samples to
 9 be sequenced at any one time.
 10 Q. Do you expect that multi-cancer
 11 early detection tests will primarily be run
 12 centralized facilities for the foreseeable
 13 future?
 14 MS. RATHBUN: Object to form.
 15 A. Yes. It's our understanding that
 16 they are likely to be run in centralized
 17 environments in the near future.
 18 Q. And why do you believe that?
 19 A. Aggregating the number of patients
 20 and the kind of test that the multi-cancer
 21 early detection is generally would require a
 22 large number of patients to be sequenced
 23 simultaneously.
 24 So aggregating patients in a
 25 centralized environment is likely to be the

Page 29

1 most efficient way to operate that test.
 2 [REDACTED]
 3 [REDACTED]
 4 [REDACTED]
 5 [REDACTED]
 6 MS. RATHBUN: Objection to form.
 7 Foundation.
 8 [REDACTED]
 9 [REDACTED]
 10 [REDACTED]
 11 Q. Okay. Then if I could direct your
 12 attention to Page 55 of the transcript.
 13 Specifically Page 55, line 25. If you could
 14 just review Page 55, line 25 through Page 57,
 15 line 1, and let me know when you're ready.
 16 A. Yes, I've read that.
 17 Q. And you've had a chance to review
 18 this portion of the transcript?
 19 A. Yes, I have.
 20 Q. Was the testimony in the
 21 transcript accurate at the time of the hearing?
 22 MS. RATHBUN: Same objection as
 23 before.
 24 A. Yes, it was.
 25 Q. And is that testimony still

CONFIDENTIAL

Page 34

1 Q. Even though the GeneStudio has a
 2 shorter run time than the NovaSeq, would you
 3 still have to run multiple GeneStudios
 4 simultaneously to generate output equivalent to
 5 a single NovaSeq?
 6 MR. HARKRIDER: Objection to form.
 7 MS. RATHBUN: Objection.
 8 A. Yes, that's correct, you would
 9 have to run multiple units simultaneously to
 10 generate the equivalent output in the same time
 11 period.
 12 Q. And is your best estimate for the
 13 number of GeneStudios that would have to be run
 14 simultaneously to produce the same output as a
 15 single NovaSeq, is it still about 100?
 16 MS. RATHBUN: Object to form.
 17 A. That was the estimate I gave, yes.
 18 Q. And is that the estimate that you
 19 still believe is accurate today?
 20 A. If I could just do some math.
 21 Yes.
 22 Q. How did you calculate that?
 23 A. 100 million reads multiplied by
 24 100 instruments.
 25 Q. And so the 100 million reads is

Page 35

1 referring to the number of reads on the
 2 GeneStudio; is that right?
 3 A. Correct.
 4 [REDACTED]
 5 [REDACTED]
 6 [REDACTED]
 7 MS. RATHBUN: Object to form.
 8 Misstates the testimony.
 9 [REDACTED]
 10 [REDACTED]
 11 [REDACTED]
 12 [REDACTED]
 13 [REDACTED]
 14 [REDACTED]
 15 [REDACTED]
 16 [REDACTED]
 17 [REDACTED]
 18 [REDACTED]
 19 [REDACTED]
 20 [REDACTED]
 21 [REDACTED]
 22 Q. Okay. Thanks.
 23 If I could then have you turn to
 24 Page 59, line 24. And if you could review Page
 25 59, line 24 through Page 60, line 7, and let me

Page 36

1 know when you're ready.
 2 A. Yes, I've read that.
 3 Q. Have you had a chance to review
 4 that portion of the transcript?
 5 A. Yes, I have.
 6 Q. Was that testimony accurate at the
 7 time of the hearing?
 8 MS. RATHBUN: Same objection.
 9 A. Yes, it was.
 10 Q. And is that testimony still
 11 accurate today?
 12 MS. RATHBUN: Same objection.
 13 A. Yes, it is.
 14 [REDACTED]
 15 [REDACTED]
 16 [REDACTED]
 17 [REDACTED]
 18 [REDACTED]
 19 [REDACTED]
 20 MS. RATHBUN: Objection to form.
 21 Misstates testimony. And same
 22 objections regarding the IH transcript.
 23 [REDACTED]
 24 [REDACTED]
 25 [REDACTED]

Page 37

1 [REDACTED]
 2 [REDACTED]
 3 MR. HARKRIDER: Objection to form.
 4 [REDACTED]
 5 [REDACTED]
 6 Q. Okay. Thank you.
 7 Then if you could turn to Page 67,
 8 line 7. If you could please review Page 67,
 9 line 7 through Page 68, line 3, and let me know
 10 when you're ready.
 11 A. Yes, I'm ready.
 12 Q. Have you had a chance to review
 13 that portion of the transcript?
 14 A. Yes, I have.
 15 Q. Was the testimony from this
 16 portion of the transcript accurate at the time
 17 of the hearing?
 18 A. Yes, it was.
 19 Q. And is that testimony still
 20 accurate today?
 21 MS. RATHBUN: Objection to form.
 22 Same objections.
 23 A. Yes, it is.
 24 Q. Is PCR well suited for
 25 multi-cancer early detection tests?

CONFIDENTIAL

<p style="text-align: right;">Page 38</p> <p>1 MS. RATHBUN: Objection to form 2 and foundation. 3 A. Generally, we would consider the 4 answer to be no, for reasons of economics. 5 Q. What are the reasons of economics 6 you're referring to? 7 A. Not able to generate sufficiently 8 large number of data points at scale to make 9 the test economic. 10 Q. Are there any other reasons why 11 you believe PCR is not well suited for 12 multi-cancer early detection tests? 13 A. That's the primary reason. There 14 are other reasons that the equipment, scale, 15 there are some other workflow-based reasons 16 that would make it more challenging to 17 implement a PCR-based work flow. The primary 18 one would be scale and economics. 19 Q. How are the number of data points 20 generated by PCR compared to the number of data 21 points generated by NGS? 22 A. So PCR, the implementation I'm 23 considering when we discussed PCR is either the 24 detection of single nucleotide variants or 25 other methylation states, and generally they</p>	<p style="text-align: right;">Page 40</p> <p>1 biopsy? 2 A. In general, no. There is a 3 version of PCR called digital PCR, which is 4 more suitable. But general PCR is not 5 considered to be widely used in that space, I 6 would say. 7 Q. Why is that? 8 A. Again, for reasons of, you know, 9 the number of data points that you require and 10 the scale at which you can generate those data 11 points. So throughput. 12 Q. Would digital PCR be well suited 13 for multi-cancer early detection test 14 application? 15 MS. RATHBUN: Objection to form 16 and foundation. 17 A. Generally at this time, it's not 18 considered to be very useful. I don't have a 19 wide grasp of all use cases of that technology. 20 But my understanding of the market is it's not 21 widely used in that area. 22 Q. Are microarrays well suited for 23 multi-cancer early detection tests? 24 MS. RATHBUN: Objection to form 25 and foundation.</p>
<p style="text-align: right;">Page 39</p> <p>1 have the ability to do very low numbers of 2 those per unit amount of time or unit reaction. 3 So it would be extremely challenging to scale 4 that technology given the number of data points 5 that are likely to be required for a 6 multi-cancer early detection. 7 Q. Is PCR lower throughput than NGS? 8 MS. RATHBUN: Object to form. 9 A. Correct. Lower throughput. 10 Q. Is PCR generally used to detect 11 unknown variants? 12 MS. RATHBUN: Object to form. 13 A. Generally not. 14 Q. Why not? 15 A. It requires the design of a 16 primer, and therefore, a known sequence 17 a priori to understand which variants you're 18 detecting. 19 Q. What type of applications are PCR 20 best suited for? 21 A. Best suited for small amounts of 22 genotype. So discriminating single nucleotide 23 polymorphisms or small numbers of gene 24 expression measurements. 25 Q. Is PCR well suited for liquid</p>	<p style="text-align: right;">Page 41</p> <p>1 A. Generally, no, is our view. 2 Q. Why is that? 3 A. Although they have the right 4 number of data points and can generate a large 5 number of data points, their throughput is 6 relatively low compared to the highest 7 throughput gene sequencing platforms. 8 Q. So microarrays have a lower 9 throughput than NGS? 10 MS. RATHBUN: Objection to form. 11 A. In general, yes. 12 Q. What types of applications are 13 microarrays best suited for? 14 A. Gene expression measurement and 15 genotyping are considered the primary 16 applications. 17 Q. Okay. If I could then direct your 18 attention to Page 70, line 22. And if you 19 could please review Page 70, line 22 through 20 Page 71, line 5, and let me know when you're 21 ready. 22 A. Sorry, which line? 23 Q. So that would be Page 70, line 22 24 to Page 71, line 5. 25 A. I'm ready.</p>

CONFIDENTIAL

Page 42

1 Q. Okay. Have you had a chance to
 2 review this portion of the transcript?
 3 A. Yes, I have.
 4 Q. Was the testimony accurate at the
 5 time of the hearing?
 6 MS. RATHBUN: Objection.
 7 A. Yes, it was.
 8 Q. And is that testimony still
 9 accurate today?
 10 MS. RATHBUN: Same objections.
 11 A. Yes, it is.
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 16 MS. RATHBUN: Objection to form.
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 22 MS. RATHBUN: Objection to form.
 [REDACTED]
 [REDACTED]
 [REDACTED]

Page 45

[REDACTED]
 2 Q. Okay.
 3 MR. ANDREW: I'd like to take a
 4 short break. We have been going for
 5 about an hour now. Could we just have
 6 ten minutes; would that be all right,
 7 Dr. Felton?
 8 THE WITNESS: Yes, that's great.
 9 Thank you.
 10 MR. ANDREW: Off the record.
 11 THE VIDEOGRAPHER: Does everyone
 12 consent to going off the record or does
 13 anyone object to going off the record?
 14 MS. RATHBUN: No.
 15 MR. HARKRIDER: No objection.
 16 THE VIDEOGRAPHER: This marks the
 17 end of media number one. The time is
 18 9:02 a m. We're off the record.
 19 (Recess taken at 9:02 a m. and
 20 reconvening at 9:15 a m.)
 21 THE VIDEOGRAPHER: This marks the
 22 beginning of media number two. The time
 23 is 9:15 a m. We are on the record.
 24 BY MR. ANDREW:
 25 Q. Thank you, Andy. That's all the

Page 44

1 questions I have for right now. I'm going to
 2 reserve the rest of my time.
 3 MS. RATHBUN: Great. All right.
 4 EXAMINATION
 5 BY MS. RATHBUN:
 6 Q. Dr. Felton, thanks again for being
 7 here today. My name is Anna Rathbun. As I
 8 mentioned earlier, I'm from Latham & Watkins
 9 and I represent GRAIL in this litigation.
 10 A. Nice to meet you.
 11 Q. Nice to meet you as well. So all
 12 of the rules that Mr. Andrew went through at
 13 the beginning apply to my questions as well.
 14 Is that all right with you?
 15 A. Yes, it's all right.
 16 Q. Okay. Dr. Felton, can you please
 17 describe Thermo Fisher's sequencing business
 18 for us at a high level?
 19 A. The sequencing business consists
 20 of platforms, reagents, software, and
 21 application tools that comprise what we call
 22 the Ion Torrent brand. And primarily that
 23 consists of the platforms that we described
 24 earlier in the testimony, the Genexus platform,
 25 the GeneStudio platform, and the PGM platform.

Page 45

1 Q. Does Thermo Fisher also have
 2 Ion Proton system?
 3 A. Yes, we do.
 4 Q. Thermo Fisher also has non-NGS
 5 technologies that it develops; isn't that
 6 right?
 7 A. That is correct.
 8 Q. Microarray technologies is one of
 9 those technologies; is that right?
 10 A. That is correct.
 11 Q. Can you explain, just for the
 12 record, the difference between microarray
 13 technologies and next-generation sequencing
 14 technologies?
 15 A. Yes. Let me state that I'm not in
 16 the microarray business, and thus, part of the
 17 business that we are in does not have any
 18 technical development relationship with the
 19 microarray business.
 20 But at a high level, microarrays
 21 have a series of DNA primers attached to a
 22 surface which it can be used to interrogate
 23 single-nucleotide variants or measure gene
 24 expression across typically thousands to tens
 25 of thousands to millions of markers at a time.

CONFIDENTIAL

Page 46

1 Q. Thank you. Are you familiar with
 2 the term "liquid biopsy test"?

3 A. Yes, I am.

4 Q. What is a liquid biopsy test?

5 A. Generally considered to be a
 6 biological sample in a liquid form. So that's
 7 either a blood sample, a blood plasma sample,
 8 or a cerebrospinal fluid sample; a liquid
 9 sample as opposed to a solid sample, like a
 10 tissue biopsy.

11 Q. And liquid biopsy tests are one
 12 application of NGS technology; is that right?

13 A. They are.

14 Q. And when Thermo is referencing
 15 liquid biopsy that involve blood, does it refer
 16 to them at heme tests?

17 A. Generally we differentiate between
 18 heme and liquid biopsy. Heme refers to whole
 19 blood testing for blood-borne cancers.
 20 Whereas, liquid biopsies generally refer to for
 21 plasma-based testing for the presence of solid
 22 tumors.

23 Q. And Thermo Fisher's sequencing
 24 instruments can be used for liquid biopsy
 25 applications?

Page 47

1 A. Correct.

2 Q. And Thermo Fisher's sequencing
 3 instruments can be used for heme applications,
 4 correct?

5 A. Correct.

6 Q. Thermo Fisher's sequencers can be
 7 used to determine methylation patterns in
 8 circulating self-read DNA, correct?

9 A. So we can interrogate the
 10 methylation status, the methylation status of
 11 self-read DNA; that's correct.

12 Q. Now, Dr. Felton, previously today
 13 you used the term MCED or multi-cancer early
 14 detection. Do you remember that?

15 A. Yes, I do.

16 Q. And what do you understand
 17 multi-cancer early detection tests, or MCED, to
 18 mean?

19 A. Generally our understanding of
 20 that is that it's a test designed to assess the
 21 presence of a cancer at an early stage,
 22 measured on a standard Stage 1 to 4 -- so it
 23 would be Stages 1 and 2 -- circulating in a
 24 patient's body, and it would be regardless of
 25 the tumor of origin status. So that's the

Page 48

1 multi-cancer part of the multi-cancer early
 2 detection.

3 Q. Can you explain the "regardless of
 4 the tumor of origin status" part? What do you
 5 mean by that?

6 A. Whether it's a lung or a liver or
 7 another kind of solid organ cancer.

8 Q. Is it your understanding that a
 9 multi-cancer early detection test detects the
 10 tissue of origin for the cancer tumor?

11 MR. ANDREW: Object to form.

12 A. I don't know to that level of
 13 detail.

14 Q. To your knowledge, which companies
 15 are currently developing MCED tests?

16 A. To my knowledge, GRAIL, Freenome,
 17 Exact Sciences.

18 Q. So when you used the term "MCED
 19 tests," are you referring to those companies'
 20 tests as you understand them?

21 MR. ANDREW: Object to form.

22 A. Yes, in general.

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

3 MR. ANDREW: Objection. Compound.

■ [REDACTED]

5 Q. But Thermo Fisher sells reagents,
 6 primers, and other sequencing consumables, to
 7 clinical oncology test developers?

8 MR. ANDREW: Objection. Compound.

9 A. Yes. Thermo Fisher Scientific has
 10 a general reagent business and sells primers,
 11 reagents, and other materials, to all
 12 scientific developers, including early cancer
 13 detection.

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

19 Q. Do you know whether those
 20 companies make other clinical oncology tests as
 21 well?

22 MR. ANDREW: Objection.

23 A. No. Exact Sciences makes other
 24 clinical oncology tests. I do not know about
 25 GRAIL or Freenome.

CONFIDENTIAL

<p style="text-align: right;">Page 50</p> <p>1 Q. What other clinical oncology tests 2 does Exact Sciences make? 3 A. They have some oncology tests 4 through their acquisition of Genomic Health, 5 and they also have early detection via fecal 6 blood testing. 7 Q. Are you familiar with MRD tests? 8 A. I'm familiar with the acronym MRD, 9 if by that you mean measurable or residual 10 disease. 11 Q. Yes, what's a measurable residual 12 disease test? 13 A. Measurable residual disease test 14 measures the presence of residual mutations in 15 the circulating blood or plasma. 16 Q. Who are the -- sorry, strike that. 17 Which companies have MRD tests, to 18 your knowledge? 19 A. The ones that I'm aware of are 20 Natera. That's the one I can think of off the 21 top of my head. 22 Q. Are you familiar with therapy 23 selection tests? 24 A. Yes, I am. 25 Q. What are therapy selection tests?</p>	<p style="text-align: right;">Page 52</p> <p>1 FDA-approved MRD test there? 2 A. No. I was just referring to any 3 MRD test. 4 Q. Okay. What's the importance of 5 having FDA approval for Thermo Fisher's therapy 6 selection tests? 7 A. FDA approval actually directly 8 links the therapy from the pharmaceutical 9 company to the patient testing, and allows the 10 direct usage of the test for that environment, 11 as well as the marketing of the assay for that 12 usage. 13 Q. How does it affect the marketing 14 of the assay for that usage? 15 MR. ANDREW: Objection. Form. 16 A. If it is not FDA approved for that 17 usage, you cannot discuss the use of that test 18 in a patient environment or as a direct therapy 19 selection tool by regulatory rule. 20 [REDACTED] 21 [REDACTED] 22 [REDACTED] 23 [REDACTED]. 24 Q. So I assume that -- well, strike 25 that. I shouldn't assume.</p>
<p style="text-align: right;">Page 51</p> <p>1 A. Therapy selection tests are 2 designed to guide the implementation of patient 3 therapies, in particular for cancer. So the 4 mutations discovered in the test are directly 5 related to the pharmaceutical therapy which is 6 to be delivered to the patient. 7 Q. Which companies have therapy 8 selection tests? 9 A. Ourselves and Illumina have the 10 approved therapy selection tests. So FDA 11 approved tests. 12 Q. Do other companies have therapy 13 selection tests that are not FDA approved? 14 A. There are a number of tests that 15 are implemented as laboratory developed, 16 self-validated under CAP CLIA regulation in the 17 U.S. and the equivalence in Europe and around 18 the world. There are many. 19 Q. About how many, do you think there 20 are? 21 A. At least greater than ten. 22 Q. And going back to our discussion 23 about MRD tests earlier, and you mentioned 24 Natera as a company that had MRD tests. 25 Were you referring to an</p>	<p style="text-align: right;">Page 53</p> <p>1 Does Thermo Fisher use its own 2 sequencers for its therapy selection tests? 3 A. Yes, it does. 4 Q. And could developers of MRD tests 5 use Thermo Fisher's sequencers for those tests? 6 MR. ANDREW: Object to form. 7 A. By "those sequencers," are you 8 referring to the FDA-approved platform? 9 Q. No. Could developers of MRD tests 10 use any of Thermo Fisher's sequencers for those 11 tests? 12 MR. ANDREW: Object to form. 13 A. Yes, technically they could. 14 Q. Now, going back to the 15 multi-cancer early detection test developers, 16 are you aware that some MCED test developers 17 use other technologies in addition to NGS 18 sequencing for their tests? 19 MR. ANDREW: Object to form. 20 Calls for speculation. 21 A. I'm aware that other technologies 22 are used in that environment. 23 Q. And which technologies are you 24 aware of that are used in the MCED test 25 environment?</p>

CONFIDENTIAL

<p style="text-align: right;">Page 54</p> <p>1 A. The one that I'm aware of, 2 particularly around the Freenome test, which 3 uses I believe a protein-based marker testing, 4 but I do not know any details. 5 Q. Sitting here today, would you 6 agree that we don't know which company's test, 7 GRAIL, Exact Sciences or Freenome's tests, will 8 be the most successful multi-cancer early 9 detection test? 10 MR. ANDREW: Objection. Leading. 11 Compound. Calls for speculation. 12 A. It's certainly true that we do not 13 know who will be the most successful test. 14 Q. And we don't know if there's some 15 other tests in development right now that will 16 be even more successful than those three tests; 17 isn't that right? 18 MR. ANDREW: Objection. Leading. 19 Calls for speculation. 20 A. That I would agree that that is 21 speculation. We do not know. 22 Q. We don't know which test, MCED 23 test, will be preferred by doctors, do we? 24 MR. ANDREW: Objection. Leading, 25 speculative.</p>	<p style="text-align: right;">Page 56</p> <p>1 list, will continue to ask him questions 2 in the way that we think appropriate for 3 an adverse witness. 4 MR. ANDREW: Okay. However, I 5 will point out that neither Illumina nor 6 GRAIL has established that Thermo or 7 Dr. Felton is an adverse witness. 8 MS. RATHBUN: We can agree to 9 disagree on that. 10 BY MS. RATHBUN: 11 Q. So, Dr. Felton, we don't know now 12 which approach to detecting cancer early will 13 be the best approach in terms of whether it's 14 through an NGS-based technology or a 15 protein-based technology or some other type of 16 technology; isn't that right? 17 MR. ANDREW: Objection. Leading. 18 Compound. 19 A. I do not know which is the best 20 technology that will come to commercial 21 success, correct. 22 Q. Okay. 23 MS. RATHBUN: I would like to ask 24 the technician to please mark as Felton 25 Exhibit 1 what is Tab 3 in exhibit</p>
<p style="text-align: right;">Page 55</p> <p>1 A. We do not. 2 Q. We don't know which tests, MCED 3 tests, will be preferred by patients, do we? 4 MR. ANDREW: Objection. Leading. 5 Calls for speculation. 6 A. Again, speculatively, but we don't 7 know. 8 MS. RATHBUN: Just to address the 9 leading objection. So, Mr. Andrew, it's 10 my understanding Mr. Felton is on the 11 FTC's witness list for the proceeding; 12 is that correct? 13 MR. ANDREW: Mr. Felton appeared 14 on the FTC's preliminary witness list. 15 He's a third party. 16 MS. RATHBUN: Does the FTC 17 consider or plan to call Mr. Felton at 18 the proceeding? 19 MR. ANDREW: We have made -- I 20 wouldn't be able to tell you that right 21 now. 22 MS. RATHBUN: Okay. Well, 23 obviously you can continue to make 24 whatever objections you like, but we, 25 given Mr. Felton is on the FTC's witness</p>	<p style="text-align: right;">Page 57</p> <p>1 share, please. 2 (Document marked as Felton 3 Exhibit 1 for identification) 4 Q. Dr. Felton, do you see what's been 5 marked as Felton Exhibit 1? 6 A. Yes, I see Exhibit 0001, Tab 3. 7 Q. Perfect. 8 MS. RATHBUN: For the record, this 9 is a document Bates stamped 10 Thermo-GRAIL_01662776. 11 Q. Dr. Felton, do you recognize this 12 document? 13 A. Yes, I do. 14 Q. What is this document? 15 A. It's an e-mail between myself and 16 my supervisor, Garret Hampton. 17 Q. Could you take a look at the 18 bottom of the first page of Exhibit 1, your 19 e-mail dated October 27, 2020, at 8:28 a.m. 20 Do you see that? 21 A. 8:28 or 8:38? 22 Q. I'm looking at the 8:28. It's 23 right on the bottom of the page. 24 A. Yes. 25 Q. In that e-mail, first full</p>

CONFIDENTIAL

Page 58

1 paragraph, that first sentence you write:
 2 "With early screening data
 3 frequently showing retrospective
 4 results, or prospective case controlled
 5 studies including known cancer patients,
 6 we believe large prospective
 7 multi-center registrational trials are
 8 ultimately needed in early detection."
 9 Do you see that?
 10 A. Yes, I do.
 11 Q. What did you mean by that?
 12 A. So I didn't write that sentence.
 13 That was a copy from another source.
 14 Q. I see. Do you agree with that
 15 sentence?
 16 A. Yes.
 17 Q. And why do you agree with that
 18 sentence?
 19 A. Multi-cancer early detection
 20 population screening levels is likely to
 21 require large clinical trials to generate both
 22 the clinical utility and clinical validity and
 23 evidence to support widespread usage.
 24 Q. And is it, in your view -- has any
 25 multi-cancer early detection test obtained the

Page 59

1 validity and evidence to support widespread
 2 usage to date?
 3 MR. ANDREW: Objection. Form.
 4 A. I actually do not know in detail
 5 whether anyone achieved that status at this
 6 time.
 7 Q. Do you know how long prospective
 8 multi-center registrational trials typically
 9 last?
 10 MR. ANDREW: Objection.
 11 Speculation.
 12 A. No.
 13 Q. Do you know how expensive
 14 prospective multi-center registrational trials
 15 are?
 16 MR. ANDREW: Objection.
 17 A. Not in detail, no.
 18 Q. Do you know if any MCED test
 19 developers have conducted prospective
 20 multi-center registrational trials?
 21 A. I do not.
 22 Q. Now, scrolling up from your e-mail
 23 that we just looked at, Garret Hampton responds
 24 on the chain. Who is Garret Hampton?
 25 A. Garret Hampton is the division

Page 60

1 president of the clinical sequencing division.
 2 Q. What are the responsibilities of
 3 the clinical sequencing division? What does
 4 that division do?
 5 A. Clinical sequencing division is
 6 responsible for the development and
 7 commercialization of products for
 8 next-generation sequencing under the Ion
 9 Torrent brand.
 10 [REDACTED]
 11 [REDACTED]
 12 [REDACTED]
 13 [REDACTED]
 14 [REDACTED]
 15 [REDACTED]
 16 Do you see that?
 17 A. I'm sorry, is that the top of the
 18 e-mail or the bottom?
 19 Q. It's just the very last clause, I
 20 think.
 21 A. Yes, I see that.
 22 [REDACTED]
 23 [REDACTED]
 24 MR. ANDREW: Objection. Form.
 25 [REDACTED]

1 [REDACTED]
 2 [REDACTED]
 3 [REDACTED]
 4 [REDACTED]
 5 [REDACTED]
 6 [REDACTED]
 7 [REDACTED]
 8 [REDACTED]
 9 [REDACTED]
 10 [REDACTED]
 11 [REDACTED]
 12 [REDACTED]
 13 [REDACTED]
 14 [REDACTED]
 15 Do you see that?
 16 A. Yes, I see that.
 17 Q. Why did you decide -- strike that.
 18 [REDACTED]
 19 [REDACTED]
 20 [REDACTED]
 21 MR. ANDREW: Object to form.
 22 [REDACTED]
 23 [REDACTED]
 24 [REDACTED]
 25 [REDACTED]

CONFIDENTIAL

Page 62

7 MR. ANDREW: Object to form.

17 MR. ANDREW: Object to form.

21 Q. The multi-cancer early detection space is an evolving space, isn't it?

22 A. Yes, I'm sure it is.

24 Q. Do you expect that companies developing multi-cancer early detection tests

Page 63

1 are constantly innovating those tests?

2 MR. ANDREW: Object to form.

3 A. Innovation is generally considered

4 to be a part of all scientific technologies, so

5 yes.

6 Q. Can Thermo's NGS sequencing

7 platforms sequence 22 genes at 58 amplicons?

8 MR. ANDREW: Object to form.

9 A. Can you clarify the question,

10 please, Anna? I'm not sure I understand it.

11 Q. Yeah. I'm just trying to

12 understand if a test developer needed to

13 interrogate 22 genes at 58 amplicons, whether

14 they would be able to do it on a Thermo Fisher

15 sequencer?

16 MR. ANDREW: Object to form.

17 Q. I may not be saying it correctly

18 as a non-scientist.

19 A. That's okay. Do you mean 22 genes

20 and 58 amplicons or 22 genes with 58 amplicons?

21 Q. Let's take both, because I'm not

22 quite sure what I mean, honestly.

23 So can Thermo Fisher's sequencing

24 platforms sequence 22 genes and 58 amplicons?

25 MR. ANDREW: Object to form.

Page 64

1 A. Yes. That would be possible.

2 Q. Can Thermo Fisher's sequencers

3 sequence 22 genes with 58 amplicons?

4 MR. ANDREW: Object to form.

5 A. That is highly unlikely.

6 Q. Can Thermo Fisher's sequencing

7 platforms sequence 16 genes and 61 amplicons?

8 MR. ANDREW: Object to form.

9 A. Yes, it could.

10 MS. RATHBUN: Can we please mark

11 as Exhibit 2 -- well, actually, let me

12 hold off on that for now. I'll come

13 back to that.

14 Q. Can Thermo Fisher's NGS platforms

15 perform a DNA methylation analysis?

16 A. Yes, it can.

17 Q. Can Thermo NGS platforms perform

18 aneuploidy analysis?

19 A. Yes, it can.

20 Q. Did I pronounce that correctly?

21 A. You did.

22 Q. Okay. Good. Thank you.

23 Can Thermo Fisher's NGS platforms

24 do fragmentation analysis?

25 A. Yes, they can.

Page 65

1 MS. RATHBUN: Can we mark as

2 Felton Exhibit 2 Tab 4, please.

3 (Document marked as Felton

4 Exhibit 2 for identification)

5 Q. Dr. Felton, do you see that?

6 A. Yes, I do.

7 Q. Dr. Felton, have you seen this

8 document, exhibit -- marked as Exhibit 2

9 before?

10 A. I don't recall it.

11 Q. If you'd look at the bottom of the

12 first page, do you see it was published in 2021

13 on behalf of the European Society For Medical

14 Oncology?

15 A. Yes, I see that.

16 Q. And do you see that this article

17 or letter to the editor is titled "Prevalence

18 to ctDNA in early screen-detected breast

19 cancers using highly sensitive and specific

20 dual molecular barcoded personalized mutation

21 assays"; do you see that?

22 A. Yes, I see that.

23 Q. Did what is ctDNA?

24 A. ctDNA is circulating tumor-derived

25 DNA.

CONFIDENTIAL

Page 66

1 Q. If you look in the middle of the
 2 first paragraph, there's a sentence that
 3 begins, "We used a newly developed sequencing
 4 technology."
 5 Do you see that?
 6 A. I see that.
 7 Q. I will just read the full
 8 sentence.
 9 "We used a newly developed
 10 sequencing technology (Ion AmpliSeq HD;
 11 Thermo Fisher Scientific, Waltham,
 12 Massachusetts) that uses dual unique
 13 molecular identifiers or barcodes to
 14 cluster 'families' of the same molecule
 15 ctDNA detection."
 16 Do you see that?
 17 A. I see it.
 18 Q. What is Ion AmpliSeq?
 19 A. AmpliSeq is a highly multiplied
 20 PCR approach to measure specific targets within
 21 the human genome.
 22 Q. So if you look at the last
 23 paragraph on the first page of Exhibit 2, it
 24 says:
 25 "In conclusion, ctDNA was detected

Page 67

1 in both stage 1 and stage 2
 2 screen-detected BC using the
 3 personalized highly sensitive and
 4 specific assays. This approach was more
 5 successful than other studies looking at
 6 early-stage disease with plasma
 7 markers."
 8 A. Yes, I see that.
 9 Q. And then it goes on to say:
 10 "To our knowledge, this is the
 11 first report detailing ctDNA detection
 12 in a true BC screening setting using any
 13 ctDNA technology."
 14 Do you see that?
 15 A. I see that.
 16 Q. So Exhibit 2 indicates that
 17 Thermo's Ion AmpliSeq HD can be used in early
 18 screen detection of breast cancers, correct?
 19 MR. ANDREW: Objection. The
 20 witness has said he's not familiar with
 21 the document, nor did he write it.
 22 Lacks foundation.
 23 A. The authors of the article state
 24 that.
 25 Q. And so -- strike that.

Page 68

1 Dr. Felton, would you agree that
 2 Thermo Fisher's sequencer -- strike that.
 3 [REDACTED]
 4 [REDACTED]
 5 [REDACTED]
 6 [REDACTED]
 7 MR. ANDREW: Objection.
 8 [REDACTED]
 9 [REDACTED]
 10 [REDACTED]
 11 [REDACTED]
 12 [REDACTED]
 13 [REDACTED]
 14 [REDACTED]
 15 [REDACTED]
 16 [REDACTED]
 17 [REDACTED]
 18 MR. ANDREW: Object to form.
 19 Speculation.
 20 [REDACTED]
 21 [REDACTED]
 22 Q. But from what we've discussed
 23 already about Thermo Fisher's sequencers being
 24 able to detect methylation patterns, from being
 25 able to perform fragmentation analysis, an

Page 69

1 aneuploidy analysis, Thermo Fisher's sequencers
 2 are capable of conducting all of those
 3 analyses, correct?
 4 MR. ANDREW: Objection. Form.
 5 A. Thermo Fisher's systems are
 6 capable of conducting those analysis. Whether
 7 they are economic or scalable enough is a
 8 different question.
 9 Q. Could Thermo Fisher's sequencers
 10 be economic or scalable enough if an MCED test
 11 developer was choosing to pursue a
 12 decentralized strategy as opposed to a
 13 centralized strategy?
 14 MR. ANDREW: Objection. Compound.
 15 Calls for speculation.
 16 A. It's possible that would choose to
 17 be the case, but we don't believe the market is
 18 going to evolve that way in the near-term.
 19 Q. Do you know how the market will
 20 evolve in the long term?
 21 A. No, we do not.
 22 MS. RATHBUN: Let's please mark as
 23 Felton Exhibit 3 Tab 5.
 24 (Document marked as Felton
 25 Exhibit 3 for identification)

CONFIDENTIAL

Page 70

1 Q. So this exhibit, Felton No. 3, is
 2 Bates stamped Thermo-GRAIL_01155694.
 3 Do you see that?
 4 A. Yes, I do.
 5 Q. Do you recognize this document?
 6 A. Yes, I do.
 7 Q. What is this document?
 8 A. It's a clinical next-generation
 9 sequencing division strategic planning outline
 10 from October of 2020.
 11 Q. And it uses the term "STRAP" on
 12 the first page. What does "STRAP" mean?
 13 A. STRAP is strategic planner.
 14 Q. Were you involved in creating this
 15 presentation?
 16 A. Yes, I was.
 17 Q. Let's go to slide 4 that ends in
 18 Bates stamp 01155697. Let me know when you're
 19 there.
 20 A. Yes.

[REDACTED]

Page 72

1 Do you see that?
 2 A. Yes, I see that.

[REDACTED]

8 Q. Would MCED tests fit within Thermo
 9 Fisher's definition of clinical oncology?
 10 A. MCED would fit in the definition
 11 of clinical oncology, yes.

[REDACTED]

15 A. Yes, I see that.

[REDACTED]

22 Do you see that?
 23 A. Yes, I see that.

[REDACTED]

Page 71

1 Do you see that?
 2 A. Yes.
 3 Q. What is clinical oncology?
 4 A. Clinical oncology in our
 5 definition is the routine use of
 6 next-generation sequencing to generate patient
 7 results as opposed to research results.

[REDACTED]

12 MR. ANDREW: Object to form.

[REDACTED]

[REDACTED]

13 MR. ANDREW: Object to form.

[REDACTED]

CONFIDENTIAL

Page 74

5 Do you see that?

6 A. Yes, I do.

15 MR. ANDREW: Object to form.

Page 76

1 Do you see that?

2 A. Yes, I do.

6 MR. ANDREW: Object to form.

15 Do you see that?

16 A. I do.

Page 75

1 MR. ANDREW: Object to form.

17 Q. If we could turn to slide 7. The first section of this slide 7 in Exhibit 3 says "Business Performance and Outlook."

18 Do you see that?

19 A. Yes, I do.

20 Q. The first bullet there says:

Page 77

1 Do you see that?

2 A. Yes, I do.

13 Do you see that?

14 A. Yes, I do.

15 Q. Can you explain that bullet to me?

16 What does this mean?

17 A. The customer segments that we have been successful in have been in the routine clinical oncology setting, and therefore, we have been acquiring and retaining more customers in that segment rather than in the research segment, because the platforms we have are better suited to that market segment than a purely research-based segment.

24 Q. The bullet underneath that says:

CONFIDENTIAL

Page 78

1 "Recently launched Genexus
 2 platform is the next step in this
 3 journey and on roadmap to become leader
 4 in IVD Oncology."
 5 Do you see that?
 6 A. Yes, I do.
 7 Q. What is IVD oncology?
 8 A. IVD oncology refers to regulated
 9 tests that are approved by regulatory bodies
 10 around the world. So the U.S. FDA; EU,
 11 European Union; China; Japan. In vitro
 12 diagnostic is the acronym.

15 MR. ANDREW: Object to form.

17 Q. Now let's turn to page -- let's
 18 turn to slide 11, please.
 19 Do you see slide 11, Bates ending
 20 in 704, entitled "Summary of Key Trends"?
 21 A. Yes, I do.
 22 Q. And on the left-hand side there's
 23 a column, and I'd like you to take a look at
 24 the row that says "Technology/Innovation."
 25 A. Okay.

Page 79

6 Do you see that?
 7 A. Yes, I do.
 8 Q. Over in the right-hand column it
 9 says "Business Response."
 10 Do you see that?
 11 A. Yes, I do.

18 A. Yes, I do.

22 MR. ANDREW: Object to form.

Page 80

1 Q. Dr. Felton, does Thermo Fisher
 2 believe that today -- sorry.
 3 Sitting here today, does Thermo
 4 Fisher believe that the market for multi-cancer
 5 early detection tests will be larger than all
 6 other clinical oncology tests combined?
 7 MR. ANDREW: Objection. Calls for
 8 speculation.
 9 A. We do not know that. We speculate
 10 it's going to be a large market, but we don't
 11 know that it's going to overtake all other
 12 markets.

19 MR. ANDREW: Objection. Calls for
 20 speculation. Leading.

8 MR. ANDREW: Objection. Leading.
 9 Calls for speculation.

15 Q. Is Thermo Fisher concerned that --
 16 well, strike that.
 17 Let's look at slide 25, Bates
 18 number ending in 718.
 19 Do you see slide 25?
 20 A. Yes, I do.
 21 Q. And this slide is called "Expand
 22 to Applied: Where We Should Play (sic)."
 23 Do you see that?
 24 A. Yes, I do.
 25 Q. Can you explain this slide to me?

CONFIDENTIAL

Page 86

1 A. Yes, I do.
 [REDACTED]

6 A. Yes, I do.
 [REDACTED]

24 MR. ANDREW: Objection. Form.
 [REDACTED]

Page 88

[REDACTED]

7 MR. ANDREW: Objection. Leading.
 [REDACTED]

12 Q. Let's look at Page 64. Scroll
 13 down and I'll give you the Bates. The Bates
 14 ending in 759.
 15 Do you see that slide, Dr. Felton?
 16 A. Yes.
 17 Q. And this slide is titled "NGS
 18 Market Growth By Competitor (2015-2019)."
 19 Did I read that correctly?
 20 A. Yes, I see that.
 21 Q. And if you look on the right-hand
 22 side of this slide, it says, "Share Gain
 23 (Loss)."
 24 Do you see that?
 25 A. Yes, I do.

[REDACTED]

10 Do you see that?
 11 A. Yes, I do.
 [REDACTED]

14 MR. ANDREW: Objection. Form.
 [REDACTED]

25 MR. ANDREW: Objection. Leading.

Page 89

[REDACTED]

8 MS. RATHBUN: All right. I think
 9 this is a good time to take a break.
 10 MR. HARKRIDER: Do you know how
 11 much longer you're going to be going
 12 after lunch?
 13 MS. RATHBUN: I think I might have
 14 an hour. Probably not so much, but I'd
 15 like to leave myself that.
 16 MR. HARKRIDER: Okay, great. So
 17 why don't we come back at --
 18 THE VIDEOGRAPHER: Do you folks
 19 want to go off the record?
 20 MR. HARKRIDER: Yes. Sure. Will
 21 2:15 give you enough time, Andy, or do
 22 you need until 2:30?
 23 THE WITNESS: Yes.
 24 MR. HARKRIDER: Okay. Great. Why
 25 don't we come back at 2:15 if that works

CONFIDENTIAL

Page 90

1 for everyone.
 2 THE WITNESS: That's 11:15
 3 California time, right?
 4 MR. HARKRIDER: 2:15 is 11:15,
 5 right.
 6 THE VIDEOGRAPHER: Does anybody
 7 object to going off the record now?
 8 MR. ANDREW: No.
 9 MS. RATHBUN: No.
 10 THE VIDEOGRAPHER: This is the end
 11 of media number two. The time is 10:28
 12 a m. We are off the record.
 13 (Luncheon recess taken at 10:28
 14 a m.)
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25

Page 91

1 AFTERNOON SESSION
 2 (Whereupon proceedings resumed at
 3 11:16 a m.; appearances same as noted)
 4 THE VIDEOGRAPHER: This marks the
 5 beginning of media number three. The
 6 time is 11:16 a.m. We are on the
 7 record.
 8 BY MS. RATHBUN:
 9 Q. Thank you. Dr. Felton, welcome
 10 back.
 11 [REDACTED]
 12 [REDACTED]
 13 [REDACTED]
 14 [REDACTED]
 15 [REDACTED]
 16 [REDACTED]
 17 [REDACTED]
 18 [REDACTED]
 19 [REDACTED]
 20 [REDACTED]
 21 [REDACTED]
 22 [REDACTED]
 23 MR. ANDREW: Objection to form.
 24 [REDACTED]
 25 [REDACTED]

Page 92

1 Q. Why has Thermo Fisher been able to
 2 increase its market share in the clinical
 3 oncology segment?
 4 MR. ANDREW: Objection. Form.
 5 A. Our belief is that we have
 6 developed systems, software and reagents that
 7 are applicable for routine use. Each case is
 8 in clinical oncology, and we have, therefore,
 9 attracted and retained customers at a higher
 10 rate.
 11 Q. What do you mean "applicable for
 12 routine use"?
 13 A. Routine use we define as
 14 patient-based reporting of routine testing
 15 results, primarily for those in the therapy
 16 selection space.
 17 Q. Why do you think Thermo Fisher has
 18 been better than Illumina at attracting and
 19 retaining customers at a higher rate in the
 20 clinical oncology segment?
 21 MR. ANDREW: Objection.
 22 Mischaracterizes the testimony.
 23 A. So we believe that we have been
 24 successful in that space given the features
 25 that we have developed, both in the assays and

Page 93

1 requiring small amounts or minimal amounts of
 2 sample, the turnaround time to the result, and
 3 the simple work flows that we employ.
 4 Q. What types of features has
 5 Thermo Fisher developed that have made it
 6 successful in the clinical oncology space?
 7 A. There are a number of things
 8 related to the platform itself. So the
 9 platforms have minimal hands-on time.
 10 So, in particular, the library
 11 prep part of the NGS workflow has a low
 12 hands-on time and can be easily augmented. The
 13 systems themselves hands-on time is low, and we
 14 also automate the process of generating results
 15 for the users in that clinical oncology routine
 16 pathology setting.
 17 [REDACTED]
 18 [REDACTED]
 19 [REDACTED]
 20 [REDACTED]
 21 MR. ANDREW: Objection. Form.
 22 [REDACTED]
 23 [REDACTED]
 24 [REDACTED]
 25 [REDACTED]

CONFIDENTIAL

<p style="text-align: right;">Page 94</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>8 MR. ANDREW: Objection to form.</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>13 Q. Are there any other companies 14 developing sequencers who are trying to come 15 onto the market currently?</p> <p>16 MR. ANDREW: Objection. Form.</p> <p>17 A. We are aware of a number of 18 companies who are trying to develop sequencing 19 platforms in the market, yes.</p> <p>20 Q. Which companies are those?</p> <p>21 A. I think I've got three examples. 22 Omniome, Ultima and Apton BioSystems.</p> <p>23 Q. And how long -- sorry, let me 24 start over.</p> <p>25 When do you anticipate Omniome's</p>	<p style="text-align: right;">Page 96</p> <p>1 speculation.</p> <p>2 A. I don't know.</p> <p>3 Q. Would it be within the next one to 4 three years?</p> <p>5 MR. ANDREW: Same objection.</p> <p>6 A. Same answer. Likely, but we don't 7 know in detail.</p> <p>8 Q. Do you view Omniome, Ultima and 9 Apton as potential competitors to Thermo Fisher 10 in the NGS instrument market?</p> <p>11 MR. ANDREW: Objection. Compound.</p> <p>12 A. Yes, should they be successful in 13 commercializing a platform, they would be a 14 competitor.</p> <p>15 Q. All three of them would be 16 competitors if they're successful in 17 commercializing; is that right?</p> <p>18 A. Correct.</p> <p>19 Q. Do you view Omniome, Ultima and 20 Apton as potential competitors to Illumina in 21 the NGS instrument market?</p> <p>22 MR. ANDREW: Objection. Compound.</p> <p>23 A. Yes, provided they would go to 24 commercial release, then we would view them as 25 being competitors.</p>
<p style="text-align: right;">Page 95</p> <p>1 platform will enter the market?</p> <p>2 MR. ANDREW: Objection. Calls for 3 speculation.</p> <p>4 A. I don't know the answer to that 5 question.</p> <p>6 Q. Do you think it will be over the 7 next one, two, three years?</p> <p>8 MR. ANDREW: Objection. Calls for 9 speculation.</p> <p>10 A. My guess would be likely in the 11 next three years, but I don't know in detail.</p> <p>12 Q. What about Ultima's platform, when 13 do you believe they will come to market?</p> <p>14 MR. ANDREW: Objection. Calls for 15 speculation.</p> <p>16 A. I don't know the answer to that 17 one.</p> <p>18 Q. Do you believe it will be within 19 the next one to three years?</p> <p>20 MR. ANDREW: Same objection.</p> <p>21 A. Again, likely, but unknown to us.</p> <p>22 Q. What about Apton, how long before 23 Apton's platform enters if market, do you 24 think?</p> <p>25 MR. ANDREW: Objection. Calls for</p>	<p style="text-align: right;">Page 97</p> <p>1 Q. In your view, is a company only a 2 competitor after it achieves a commercial 3 release of a product?</p> <p>4 MR. ANDREW: Objection. Form.</p> <p>5 A. That's a difficult one to answer. 6 They can still be a competitor without anything 7 on the market. But from a commercial sense, 8 they're not really competing unless they have a 9 product to sell.</p> <p>10 Q. Okay.</p> <p>11 MS. RATHBUN: Can we please mark 12 as Exhibit 4 Tab 7.</p> <p>13 (Document marked as Felton 14 Exhibit 4 for identification)</p> <p>15 A. Yes, I see it.</p> <p>16 Q. For the record, this is Bates 17 stamped Thermo-GRAIL_00183972.</p> <p>18 Dr. Felton, do you recognize this 19 document?</p> <p>20 A. I'd like to take a minute to look 21 through it, please.</p> <p>22 Q. Sure. Go ahead.</p> <p>23 A. I recognize some of it. I don't 24 recall the whole document.</p> <p>25 Q. Do you know if you had any part in</p>

CONFIDENTIAL

<p style="text-align: right;">Page 98</p> <p>1 creating this document?</p> <p>2 A. There are some pieces that I know</p> <p>3 I created.</p> <p>4 Q. Okay. Which pieces did you</p> <p>5 create, just generally?</p> <p>6 A. The slide, Page 6 and 7, I know,</p> <p>7 were created by me.</p> <p>8 Q. Take a look at slide 8 ending in</p> <p>9 Bates 979.</p> <p>10 A. Yes, I see that.</p> <p>11 Q. Can you explain to me what the</p> <p>12 slide shows?</p> <p>13 A. It shows the NGS sequencing market</p> <p>14 really divided into two distinct spaces, one</p> <p>15 being focused on so-called targeted sequencing</p> <p>16 that deals with small and mid-sized gene panels.</p> <p>17 And then the second part of the market focused</p> <p>18 on large gene panels, whole genome sequencing,</p> <p>19 whole exome sequencing and the like, currently</p> <p>20 dominated by Illumina and BGI with some other</p> <p>21 players potentially coming to the market.</p> <p>22 Q. So what is a targeted panel?</p> <p>23 A. A targeted panel is an assay</p> <p>24 designed to interrogate a restricted set of</p> <p>25 genes or a portion of the genome.</p>	<p style="text-align: right;">Page 100</p> <p>1 it wanted to focus on, it could target those</p> <p>2 genes in its panel, correct?</p> <p>3 MR. ANDREW: Objection.</p> <p>4 A. That is correct.</p> <p>5 Q. So if multi-cancer early detection</p> <p>6 test developers used more targeted panels, then</p> <p>7 they could fall within the sequencers on the</p> <p>8 left-hand side of this slide; is that right?</p> <p>9 MR. ANDREW: Objection. Form.</p> <p>10 A. So technically if they had</p> <p>11 interrogated a small region of the genome, yes,</p> <p>12 they could use the sequencers on that side to</p> <p>13 determine that answer. That still would not</p> <p>14 potentially make it an economic or viable</p> <p>15 solution, depending on how many patient samples</p> <p>16 need to be interrogated at one time.</p> <p>17 Q. And so, if fewer patient samples</p> <p>18 needed to be interrogated at one time for an</p> <p>19 MCED test, would that make it more likely that</p> <p>20 an MCED test developer or -- sorry, let me</p> <p>21 start that again.</p> <p>22 If fewer patient samples needed to</p> <p>23 be interrogated at one time for an MCED test,</p> <p>24 would that make it more likely that</p> <p>25 Thermo Fisher sequencers could be used to run</p>
<p style="text-align: right;">Page 99</p> <p>1 Q. And targeted panels can be used in</p> <p>2 clinical oncology applications, correct?</p> <p>3 A. Correct.</p> <p>4 Q. So, for example, a company</p> <p>5 developing multi-cancer early detection test</p> <p>6 knew which set of genes or portion of the</p> <p>7 genome it wanted to interrogate, it could use a</p> <p>8 targeted panel for that, couldn't it?</p> <p>9 MR. ANDREW: Objection. Calls for</p> <p>10 speculation.</p> <p>11 A. If the answer could be defined</p> <p>12 within a targeted portion of the genome, then,</p> <p>13 yes, that's true.</p> <p>14 Q. Would you agree that as test</p> <p>15 developers learn more about which markers in</p> <p>16 the blood are most relevant for multi-cancer</p> <p>17 early detection tests, they can move towards</p> <p>18 targeted panels?</p> <p>19 MR. ANDREW: Objection to form.</p> <p>20 A. Not having a great deal of</p> <p>21 knowledge of how that market defines what a</p> <p>22 large panel is, I don't know the answer to</p> <p>23 that.</p> <p>24 Q. But if the multi-cancer early</p> <p>25 detection test, again, knew which set of genes</p>	<p style="text-align: right;">Page 101</p> <p>1 the MCED tests?</p> <p>2 MR. ANDREW: Objection. Calls for</p> <p>3 speculation.</p> <p>4 A. Speculating that it would be able</p> <p>5 to use a small number of patient samples, that</p> <p>6 is technically possible, but that's not the way</p> <p>7 we believe the market will evolve.</p> <p>8 Q. Do you think that it will be</p> <p>9 important for MCED test developers to</p> <p>10 eventually decentralize their tests and make</p> <p>11 them closer to the patients?</p> <p>12 MR. ANDREW: Objection. Form.</p> <p>13 A. We do not know the answer to that.</p> <p>14 Q. Do you think that would be a good</p> <p>15 thing?</p> <p>16 MR. ANDREW: Objection. Form.</p> <p>17 A. Cancer tests closer to the patient</p> <p>18 are generally a good thing. That is our view</p> <p>19 on all types of cancer testing in the market.</p> <p>20 Q. But right now it's too early to</p> <p>21 know which way the market will develop; is that</p> <p>22 right?</p> <p>23 A. That is correct.</p> <p>24 Q. Now, we have been talking about</p> <p>25 high throughput sequencers and how high</p>

CONFIDENTIAL

Page 102

1 throughput sequencers may or may not be more
 2 appropriate for running tests that have more
 3 patients, correct?
 4 A. Yes, we have been talking about
 5 that.
 6 Q. If you could turn to slide 3 on
 7 Exhibit 4 in Bates ending 974.
 8 A. Sorry, apologies. Slide 3?
 9 Q. Yeah, slide 3 --
 10 A. Page 3?
 11 Q. 3, yeah. The title is
 12 "Competitors market share by technology: NGS
 13 research & clinical."
 14 Do you see that?
 15 A. Yes, I see that.
 16 Q. Now, if you look on the right-hand
 17 side, the bottom corner, it Says "key factors
 18 moderating growth include."
 19 Do you see that?
 20 A. Yes.
 21 Q. And the first bullet there says:
 22 "Excess capacity on the existing
 23 installed base with approximately 1/3 of
 24 labs running their instruments at only
 25 20 to 50 percent full capacity (mostly

Page 103

1 for Illumina)."
 2 Do you see that?
 3 A. Yes, I see that.
 4 [REDACTED]
 5 [REDACTED]
 6 [REDACTED]
 7 [REDACTED]
 8 MR. ANDREW: Objection. Form.
 9 [REDACTED]
 10 [REDACTED]
 11 [REDACTED]
 12 Q. Why is that a factor moderating
 13 the growth of -- let me strike that.
 14 Is that a factor that moderates
 15 the growth of Illumina's market share?
 16 MR. ANDREW: Objection. Form.
 17 A. It would be a factor that would
 18 moderate any company's growth share, because
 19 presumably it's directly linked to utilization
 20 of the platform. When the platform is
 21 100 percent utilized, you then need to purchase
 22 more platforms.
 23 [REDACTED]
 24 [REDACTED]
 25 [REDACTED]

Page 104

1 [REDACTED]
 2 MR. ANDREW: Objection to form.
 3 [REDACTED]
 4 [REDACTED]
 5 [REDACTED]
 6 [REDACTED]
 7 Q. Is it important for
 8 Thermo Fisher's commercial strategy that its
 9 platforms are sort of right sized for its
 10 customers?
 11 MR. ANDREW: Objection to form.
 12 A. Can you clarify that question for
 13 me? I just want to make sure I understand it.
 14 Q. Sure. Well, is it economically
 15 efficient for a customer using Illumina's
 16 sequencers to be running those sequencers at
 17 50 percent capacity?
 18 MR. ANDREW: Objection. Form.
 19 A. So the capacity utilization
 20 question is a function of both the actual
 21 number of samples or the assays that the
 22 customer has, and the manpower they have to run
 23 the system, depending on how many times they
 24 can turn it over during a given period of time.
 25 So its dependent on both elements,

Page 105

1 whether it's the staff are available to run it
 2 multiple times per unit time and the capacity
 3 can be filled up.
 4 [REDACTED]
 5 [REDACTED]
 6 [REDACTED]
 7 [REDACTED]
 8 [REDACTED]
 9 MR. ANDREW: Objection. Form.
 10 [REDACTED]
 11 [REDACTED]
 12 [REDACTED]
 13 [REDACTED]
 14 [REDACTED]
 15 [REDACTED]
 16 Q. And Thermo Fisher also has a range
 17 of platforms with different outputs; is that
 18 right?
 19 A. That is true, but the range of
 20 outputs is much less than the range of
 21 Illumina's outputs.
 22 [REDACTED]
 23 [REDACTED]
 24 [REDACTED]
 25 [REDACTED]

CONFIDENTIAL

Page 106

[REDACTED]

10 Q. Okay.

11 MS. RATHBUN: Could we mark as

12 Exhibit 5 Tab 8, please.

13 (Document marked as Felton

14 Exhibit 5 for identification)

15 Q. Do you see Exhibit 5?

16 A. Yes, I do.

17 Q. This is Bates stamped

18 Thermo-GRAIL_00036643, and it is a presentation

19 titled "CSD - Strategy and Bus Dev Review"

20 dated March 20, 2020; is that right?

21 A. That is correct.

22 Q. Are you familiar with this

23 document?

24 A. Yes, I am.

25 Q. Did you help create this document?

Page 107

1 A. No, I didn't.

2 Q. How are you familiar with this

3 document?

4 A. From review of the document with

5 the authors.

6 Q. I'd like to turn to Page 20. Let

7 me get there and I'll give you the Bates

8 number. The Bates ending in 662.

9 A. Yes, I see the page.

10 Q. And this slide is called "NGS

11 Platform Companies: Closed and Late Stage

12 Deals," correct?

13 A. Yes, it is.

14 Q. Can you describe this slide for

15 me?

[REDACTED]

Page 108

[REDACTED]

Page 109

3 Q. Let's look at Page 24, which ends

4 in Bates 666.

5 A. Yes, I see it.

[REDACTED]

CONFIDENTIAL

Page 110

8 Q. How are ISPs used in the NGS sequencing workflow?

9

10 A. Ionosphere particles, the ISPs, are used to attach DNA fragments that are subject to clonal magnification and then sequencing.

11

12 Q. I'd like to direct your attention to slide 28.

13

14 A. Yes, I see that.

15

16 Q. The title, just for the court reporter, this is 670 is the Bates number.

17

18

22 Is that right?

23 A. That's correct.

7 Do you see that?"

8 A. Yes, I see it.

Page 112

1 Q. If you could scroll back up to the Page 26, and that's the page ending in 668.

2

3 A. Yes, I see that.

6 Do you see that?

7 A. Mm-hmm.

12 Q. And do you see in the sort of second paragraph there it says:

13 "NGS system with goal of high S/N (to enable higher accuracy, lower cost)."

14

15 A. Yes.

16

17 Q. What does "S/N" mean?

18

19 A. Signal-to-noise ratio.

20

21 Q. Why does a high signal-to-noise ratio enable higher accuracy and lower cost?

22

23 A. Accuracy is a function of noise in the sequencing signal. So lower noise means higher accuracy, and therefore, less sequencing to get the same quality of sequencing read.

24

25

Page 113

4 Do you see that?

5 A. Yes, I see that.

13 MS. RATHBUN: All right. Let's mark as Exhibit 6, Tab 9, please. (Document marked as Felton Exhibit 6 for identification)

14

15

16

17 Q. I have it. Do you have it?

18

19 A. Yes.

20 Q. This is Bates stamped

24 Do you see that?

25 A. Yes, I do.

CONFIDENTIAL

Page 118

4 MR. ANDREW: Objection to form.

22 Do you see that?

23 A. Yes, I do.

Page 120

1 A. Yes, I do.

16 Q. And since the transaction between
17 GRAIL and Illumina was announced, have
18 companies developing NGS instruments received
19 funding?

20 MR. ANDREW: Objection. Form.

21 A. Is your question have any NGS
22 development instruments companies received
23 funding?

24 Q. Since the acquisition was
25 announced, yes.

Page 121

2 MR. ANDREW: Objection to form.

11 Do you see that?

12 A. Yes, I do.

17 MR. ANDREW: Objection. Form.

25 Do you see that?

1 A. Yes, they have.

2 Q. Which companies have received
3 funding since the transaction was announced?

4 A. I don't know in detail, but I
5 assume that it's true that funding has been
6 going to companies.

7 Q. Why do you assume that it's true
8 that funding has been going to companies
9 developing NGS platforms?

10 A. Our belief is that the market
11 views the technology landscape is still being
12 in development, and therefore, there's still
13 opportunity for investment and new
14 technologies.

15 Q. Are you aware of the company
16 GenapSys?

17 A. Yes, I am.

18 Q. And GenapSys is developing an NGS
19 platform; is that right?

20 MR. ANDREW: Objection. Form.

21 A. They are developing an NGS
22 platform, yes.

23 Q. Are you aware that last week
24 GenapSys raised \$70 million in its Series D
25 financing round?

CONFIDENTIAL

Page 122

1 MR. ANDREW: Objection. Form.
 2 A. No, I actually wasn't. I was on
 3 vacation last week, so I missed that.
 4 Q. Lucky you. Now you know.
 5 Are you aware of a company called
 6 Singular Genomics?
 7 A. Yes, I'm aware of that.
 8 Q. And Singular Genomics is also
 9 developing an NGS platform; is that right?
 10 A. I believe so.
 11 Q. And this week Singular Genomics
 12 raised over a quarter-of-a-billion dollars in
 13 its IPO; is that right?
 14 MR. ANDREW: Objection to form.
 15 A. I was not aware of that.
 16 Q. Now, based on your experience,
 17 investors invest when they think a product will
 18 become valuable, right?
 19 MR. ANDREW: Objection. Form.
 20 A. I would speculate investors invest
 21 in things that they can get a return on their
 22 money for, yes.
 23 Q. Thermo Fisher has obtained
 24 premarket access approval for its PMG Dx
 25 platform, right?

Page 123

1 A. That would be PGM Dx platform.
 2 Q. PGM, thank you.
 3 If I used PMA as a shorthand for
 4 premarket access approval, do you understand
 5 what I mean?
 6 A. Yes. If by that you mean Class 3
 7 FDA premarket approval, yes.
 8 Q. And Thermo Fisher developed the
 9 first NGS-based multi-market companion
 10 diagnostic test for the oncology market,
 11 correct?
 12 MR. ANDREW: Objection to form.
 13 A. Thermo Fisher developed the first
 14 FDA-approved multi-market companion diagnostic
 15 for the NGS market, correct.
 16 Q. But there are no MCED tests that
 17 have received PMA approval, correct?
 18 A. Not to my knowledge.
 19 Q. And it's not entirely clear to you
 20 what the FDA approval path would be for MCED
 21 tests, is it?
 22 MR. ANDREW: Objection. Leading.
 23 Foundation.
 24 A. So we are not aware of what FDA's
 25 view is on the approval process for

Page 124

1 multi-cancer early detection-based tests.
 2 Q. Are you aware if the FDA has any
 3 approval process for multi-cancer early
 4 detection-based tests?
 5 MR. ANDREW: Objection.
 6 Speculation.
 7 A. Actually, no, I'm not.
 8 [REDACTED]
 9 [REDACTED]
 10 [REDACTED]
 11 [REDACTED]
 12 [REDACTED]
 13 [REDACTED]
 14 [REDACTED]
 15 [REDACTED]
 16 [REDACTED]
 17 [REDACTED]
 18 Q. Dr. Felton, are you familiar with
 19 Strata Oncology?
 20 A. Yes, I am.
 21 Q. And what's Strata Oncology?
 22 A. Strata Oncology is a small, I
 23 guess you would class them as a clinical
 24 reference lab, who executes oncology testing in
 25 a centralized facility.

Page 125

1 Q. What type of oncology tests does
 2 Strata Oncology have?
 3 A. They primarily utilize a 300 to
 4 500 gene panel for solid tumor testing.
 5 [REDACTED]
 6 [REDACTED]
 7 [REDACTED]
 8 [REDACTED]
 9 MS. RATHBUN: Can we please mark
 10 as Exhibit 8 Tab 8. Let me make sure.
 11 We might have already marked Tab 8.
 12 Okay. Sorry.
 13 Q. Can you look at Exhibit 5, please.
 14 Slide 12, which is the Bates ending in 654.
 15 [REDACTED]
 16 [REDACTED]
 17 Do you see that?
 18 A. Yes, I do.
 19 [REDACTED]
 20 [REDACTED]
 21 [REDACTED]
 22 [REDACTED]
 23 Q. Turning to the next slide,
 24 [REDACTED]
 25 [REDACTED]

CONFIDENTIAL

Page 126

2 [REDACTED]

3 Do you see that?

4 A. Yes.

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 Do you see that?

15 A. Yes.

16 Q. What is "CPI"?

17 A. I actually don't know what the

18 acronym stands for, but the intent is the

19 current inflation rate.

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 MR. ANDREW: Objection. Form.

24 [REDACTED]

Page 128

1 [REDACTED]

2 [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 MR. ANDREW: Objection. Form.

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]

24 [REDACTED]

1 [REDACTED]

2 [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]

24 [REDACTED]

25 MR. ANDREW: Objection. Form.

Page 129

1 [REDACTED]

2 [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 MR. ANDREW: Objection. Form.

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 Do you see that?

22 A. I do.

23 [REDACTED]

24 [REDACTED]

25 [REDACTED]

CONFIDENTIAL

Page 134

[REDACTED]

4 Do you see that?

5 A. Yes, I do.

[REDACTED]

Page 136

[REDACTED]

13 Do you see that?

14 A. Yes, I do.

[REDACTED]

Page 135

[REDACTED]

13 MR. ANDREW: Objection. Form.

[REDACTED]

[REDACTED]

21 Do you see that?

22 A. Yes, I do.

[REDACTED]

CONFIDENTIAL

Page 138

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

10 Do you see that?

11 A. Yes, I do.

[REDACTED]

[REDACTED]

[REDACTED]

16 MR. ANDREW: Objection. Form.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Page 140

1 Q. Dr. Felton, do you recognize this

2 e-mail chain?

3 A. I don't specifically remember it.

4 Yes, I've got knowledge of the

5 recipients of the e-mail, but I just don't

6 remember it in great detail.

7 Q. Okay. Well, let's look at the

8 second to last page first. There's an e-mail

9 from David Schodin, dated March 31, 2018, to

10 Harvey, Kevin.

11 Kevin Harvey rather. Sorry. Who

12 is Kevin Harvey?

13 A. I actually don't recall.

14 Q. Do you see he has a Thermo Fisher

15 e-mail address?

16 A. Yes, I do.

17 Q. Do you know who David Schodin is?

18 A. I don't know that either. I don't

19 know.

20 Q. Do you see on the cc line he has a

21 Natera e-mail address?

22 A. Yes, I do.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

4 MR. ANDREW: Objection. Form.

[REDACTED]

[REDACTED]

7 MS. RATHBUN: We have been going

8 for a little bit over an hour, but I

9 just have one more section to go. Do

10 you want to take a quick break now or

11 maybe we can take a break after I'm

12 done?

13 THE WITNESS: I can keep going.

14 MS. RATHBUN: Okay. Great. Is

15 that all right with everybody else?

16 BY MS. RATHBUN:

17 Q. All right. So I'd like to mark as

18 Exhibit 8, Tab 15, please.

19 (Document marked as Felton

20 Exhibit 8 for identification)

21 Q. Let me know when you have it,

22 Dr. Felton.

23 A. Yes. I have it now.

24 MS. RATHBUN: This is an e-mail

25 Bates stamped Thermo-GRAIL_00265386.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

10 MR. ANDREW: Objection. Form.

11 A. That's correct.

12 Q. Then scrolling up to the next

13 e-mail in time, it's from Abhay Kumar to you on

14 April 6, 2018.

15 Do you see that one?

16 A. Yes, I do.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

CONFIDENTIAL

Page 142

2 [REDACTED]
 MR. ANDREW: Objection.
 3 Foundation.
 4 A. Sorry, Anna, can you please repeat
 5 that?
 [REDACTED]
 [REDACTED]
 [REDACTED]
 11 MR. ANDREW: Objection. Lacks
 12 foundation. Calls for speculation.
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]

Page 144

5 Q. Dr. Felton, you don't think that
 6 Illumina's acquisition of GRAIL will impact
 7 innovation in the MCEd testing space, do you?
 8 MR. ANDREW: Objection. Form.
 9 A. We believe that we continue
 10 innovation in the MCEd testing space.
 11 Q. Why is that?
 12 A. It's a large potential market, and
 13 there are a number of players who wish to enter
 14 it.
 15 Q. And so, those players will
 16 continue to innovate in order to enter the
 17 market in economical ways, correct?
 18 MR. ANDREW: Objection. Form.
 19 A. We assume they would have to
 20 innovate to enter in an economical way.
 21 Q. You do not believe that the
 22 transaction between Illumina and GRAIL will
 23 make it harder for Thermo Fisher to enter the
 24 MCEd space, correct?
 25 MR. ANDREW: Objection. Form.

Page 145

3 MR. ANDREW: Objection. Form.
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 12 MR. ANDREW: Objection. Form.
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 20 Q. Thermo Fisher would be open to
 21 entering into discussions about how test
 22 developers could reconfigure their assays to
 23 run on Thermo Fisher's platforms, correct?
 24 MR. ANDREW: Objection. Leading.
 25 Calls for speculation.

1 A. No, I don't believe it would make
 2 it any harder or easier for us.
 3 MS. RATHBUN: All right. I think
 4 we can go off the record.
 5 THE VIDEOGRAPHER: Does anybody
 6 object to going off the record? This
 7 marks the end of media number three.
 8 The time is 12:38 p.m. We are off the
 9 record.
 10 (Recess taken at 12:38 p.m. and
 11 reconvening at 1:01 p.m.)
 12 THE VIDEOGRAPHER: This marks the
 13 beginning of media number four. The
 14 time is 1:01 p.m. We're on the record.
 15 EXAMINATION
 16 BY MR. ANDREW:
 17 Q. Hello again, Dr. Felton. I just
 18 had some more questions to ask you.
 19 If you could please, I'd like to
 20 refer you back to Exhibit 1 that GRAIL's
 21 counsel introduced.
 22 A. Yes, I have it up.
 23 Q. So this is an e-mail, and I
 24 believe you were asked some questions about the
 25 e-mail exchange between you and Ira Herbst and

CONFIDENTIAL

Page 146

1 Garret Hampton, among others; is that right?
 2 A. That's correct.
 3 Q. So if you look at Page 1 of
 4 Exhibit 1, and that's Bates numbers ending 776.
 5 About midway down the page, there's an e-mail
 6 from Garret Hampton to you that was sent at
 7 8:35 a.m. on Tuesday, October 27th.
 8 Do you see that?
 9 A. Yes.
 10 Q. In that e-mail, Garret Hampton
 11 writes, the third sentence reads:
 12 "Regardless, seems like early
 13 detection will be centralized for quite
 14 a long time."
 15 What's your understanding of
 16 what Garret Hampton meant by that?
 17 A. My understanding of that was he
 18 was referring to the early detection market is
 19 likely to use a centralized testing model as
 20 opposed to a decentralized testing model for a
 21 long period of time to come.
 22 Q. And do you agree with that
 23 statement?
 24 A. Yes, I agree with that statement.
 25 Q. For how long do you think early

Page 147

1 detection is likely to use a centralized model?
 2 MS. RATHBUN: Objection to form.
 3 Calls for speculation.
 4 A. In our opinion, at least the next
 5 probably five years.
 6 Q. And why is that?
 7 A. The platforms that most of the
 8 centralized test developers are utilizing are
 9 better suited to a centralized test market, and
 10 the marketing conditions are such that it's
 11 more advantageous for them to operate in a
 12 centralized testing environment.
 13 Q. Why do you think it will take five
 14 years for that to change?
 15 MS. RATHBUN: Objection to form.
 16 Calls for speculation.
 17 A. Our guess would be that it's going
 18 to take time for the various technologies to
 19 come to the market and for it to evolve to a
 20 point where it's suitable for deployment at a
 21 decentralized setting.
 22 Q. And would a multi-cancer early
 23 detection test require FDA approval to be
 24 deployed in a decentralized setting?
 25 MS. RATHBUN: Objection to form.

Page 148

1 Calls for speculation.
 2 A. Our assumption is that it would,
 3 just like any other cancer testing,
 4 decentralized would require FDA approval of
 5 some kind. Although we don't know exactly what
 6 that would look like.
 7 Q. And just to be clear, when Garret
 8 Hampton uses "early detection" in this e-mail,
 9 your understanding is that he's referring to
 10 multi-cancer early detection; is that right?
 11 MS. RATHBUN: Objection. Calls
 12 for speculation. Lack of foundation.
 13 A. Yes. My assumption is he's
 14 referring to early cancer detection,
 15 multi-cancer early detection.
 16 Q. And that's what you're referring
 17 to now as well, right?
 18 A. Yes. Correct.
 [Redacted]

[Redacted]

17 MS. RATHBUN: Object to form.
 [Redacted]

23 MS. RATHBUN: Objection to form
 24 and mischaracterizes the testimony.
 [Redacted]

CONFIDENTIAL

Page 150

3 Q. Okay. And then your -- oh, I'm
4 sorry, just to clarify. I think you said
5 earlier that Garret Hampton is your supervisor;
6 is that right?
7 MS. RATHBUN: Object to form.
8 A. That's correct.
9 Q. And so do you report directly to
10 Garret Hampton?
11 A. I do.
12 Q. What is his title?
13 A. Division president/clinical
14 sequencing division.
15 Q. In the e-mail above in which you
16 respond to Garret Hampton, and that's from 8:38
17 a.m. that same day, it reads:
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 MS. RATHBUN: Objection to form.

Page 151

9 Q. Okay. Thanks. You can set
10 Exhibit 1 aside.
11 Now I wanted to go back and look
12 at Exhibit 3 that was introduced by counsel for
13 GRAIL. So if you could just open that up,
14 please.
15 A. Yes, it's open.
16 Q. So if you could just scroll down
17 to slide 25, please.
18 A. Yes, I have that.
19 Q. Okay. Do you see slide 25?
20 For the court reporter, that's
21 Bates numbers ending 718.
22 So before I refer specifically to
23 the slide, I believe you were asked some
24 questions earlier about Thermo's plans to
25 expand its offerings in the clinical oncology

Page 152

1 testing segment; is that right?
2 A. Yes, I was.
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 MS. RATHBUN: Object to form.
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 MS. RATHBUN: Object to form.
23 [REDACTED]
24 [REDACTED]
25 [REDACTED]

Page 153

1 Q. What is heme oncology?
2 A. Heme oncology is the development
3 of tests for hematological cancers, including
4 leukemias and lymphomas.
5 Q. If I could then refer you to
6 slide 25 in Exhibit 3, below the chart there is
7 some language in bold which reads:
8 "We are playing in segments that
9 are aligned with our sequencing
10 capabilities."
11 Do you see that?
12 A. Yes, I do.
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 MS. RATHBUN: Object to form.
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED]

CONFIDENTIAL

Page 154

6 MS. RATHBUN: Objection to the
7 form. Foundation.
10 aside.
11 I have some questions now related
12 to the sequencing platforms that you were asked
13 about earlier. I believe you mentioned five
14 different sequencing platforms that are
15 currently in development; Omniome, Element,
16 Apton, Ultima and GenapSys. Is that the list?
17 A. I think those are the ones we
18 discussed, yes.
19 Q. I'd like to go through each of
20 them in turn. I can start with Ultima.
21 Are you familiar with Ultima's
22 current development status?
23 A. No, not in detail.
24 Q. Do you know Ultima's projected
25 timeline for a commercial launch of its

Page 155

1 sequencing platform?
2 A. No, we do not. I do not.
3 Q. Do you know whether Ultima has
4 placed any prototype instruments with potential
5 customers?
6 A. I do not.
7 Q. Do you know whether Ultima is
8 hitting its technical development milestones
9 currently?
10 A. I do not. We can only infer from
11 their purchase of materials from us, but we do
12 not know in detail.
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 Q. Do you know whether Ultima has run
23 into any technical hurdles in development of
24 its NGS platform?
25 A. I can assume there are always

Page 156

1 technical hurdles in the developing of a
2 sequencing platform. I don't know of specific
3 hurdles that they have encountered.
4 Q. To date, do you know what accuracy
5 Ultima has been able to achieve on its NGS
6 platform?
7 A. I don't.
8 Q. And are you aware of the reads per
9 run that Ultima has been able to achieve on its
10 NGS platform?
11 A. No. I'm aware that they have a
12 500 gigabase, I believe, target, but I don't
13 know how many reads they are anticipating.
14 Q. Do you know whether they have been
15 able to hit that target or not?
16 A. I do not.
17 Q. Okay. So the next company that
18 you mentioned or that you spoke about with
19 GRAIL's counsel is Omniome. Are you familiar
20 with Omniome's current development status?
21 A. I'm more familiar than I am with
22 Ultima.
23 Q. What can you tell me about
24 Omniome's current development status?
25 MS. RATHBUN: Objection to form.

Page 157

1 A. I believe they are targeting in
2 the approximately two-year timeframe to come to
3 market commercialized, and that they
4 potentially have some early collaborations with
5 customers on the ground.
6 Q. And so is that two years from now?
7 MS. RATHBUN: Objection to form.
8 A. Yes. Approximately.
9 Q. For Omniome, do you know if they
10 have placed any prototype instruments with
11 potential customers?
12 A. I don't know for sure. I believe
13 they may have some collaborations, but I don't
14 know if that involves placing of instruments
15 with customers or not.
16 Q. Do you know whether Omniome is
17 hitting its technical development milestones?
18 A. I do not.
19 Q. Do you know whether Omniome has
20 run into any technical hurdles in development
21 of its instrument?
22 A. Again, the same answer, Jordan. I
23 assume all technical developments of this
24 nature include hurdles that have to be
25 overcome. I don't know specifically which ones

CONFIDENTIAL

Page 158

1 that Omniome has encountered that were
2 significantly challenging to them.
3 Q. Do you know whether Ultima has
4 encountered any delays in its development
5 timeline?
6 A. I believe they have, but I don't
7 know in detail.
8 Q. What makes you say that you
9 believe that they have?
10 A. They have had some significant
11 changes in management over the last year or so,
12 which makes us believe that they're probably
13 not hitting their timelines.
14 Q. Are you aware of whether they
15 actually revised their timeline?
16 MS. RATHBUN: Objection.
17 A. I am not.

[REDACTED]

[REDACTED]

5 Q. Okay. The next company that I
6 wanted to run through these questions for is
7 Element.
8 Are you familiar with Element's
9 current development status?
10 A. No, I'm not.
11 Q. Do you know Element's projected
12 timeline for commercial launch of its
13 sequencing platform?
14 A. No, I do not.
15 Q. And do you know whether Element
16 has placed any prototype instruments with
17 potential customers?
18 A. I do not.
19 Q. Do you know whether Element has
20 been able to hit its technical development
21 milestones?
22 A. I don't.
23 Q. Do you know of any specific
24 technical difficulties that Element has had in
25 development of its instrument?

Page 160

1 A. No, I do not.
2 Q. Do you know what accuracy Element
3 has been able to achieve to date on its
4 instrument?
5 A. No, I do not.
6 Q. And do you know any of the
7 technical specifications related to Element's
8 NGS platform?
9 A. No, I don't recollect any of them.
10 Q. Okay. Next is Aptum or Apton.
11 I'm sorry. Is it A-p-t-o-n?
12 A. Yes. Apton.

[REDACTED]

[REDACTED]

11 Q. Do you know any of the technical
12 specifications related to Apton's NGS
13 sequencing platform?
14 A. Not in detail, no.
15 Q. Do you know whether Apton has
16 encountered any delays in its development
17 timeline?
18 A. I'm sure they have, but I don't
19 know what they are in detail.
20 Q. And do you know what accuracy
21 Apton has been able to achieve on its NGS
22 platform?
23 A. No.
24 Q. Okay. Then I believe the last
25 company is GenapSys. Are you familiar with

CONFIDENTIAL

<p style="text-align: right;">Page 162</p> <p>1 GenapSys' current development status?</p> <p>2 A. Yes. GenapSys is a commercialized</p> <p>3 platform.</p> <p>4 Q. Okay. Do you know the technical</p> <p>5 specifications on GenapSys' platform?</p> <p>6 A. Yes. They have talked about a</p> <p>7 1 million, if I recollect correctly, a</p> <p>8 1 million, 16 million read chip, potentially up</p> <p>9 to, if I recollect correctly, something like a</p> <p>10 48 million read chip that is all we've publicly</p> <p>11 heard about.</p> <p>12 Q. Is the GenapSys platform an NGS</p> <p>13 platform?</p> <p>14 A. Yes, it is.</p> <p>15 Q. Sorry, I see that we might be</p> <p>16 running into the time that you need to jump to</p> <p>17 your call. So maybe we can take that break</p> <p>18 now.</p> <p>19 A. That would be great. Thank you</p> <p>20 very much.</p> <p>21 THE VIDEOGRAPHER: Does anyone</p> <p>22 object to going off the record?</p> <p>23 Okay. This marks the end of media</p> <p>24 number four. The time is 1:26 p.m. We</p> <p>25 are off the record.</p>	<p style="text-align: right;">Page 164</p> <p>1 roadmap discussion, so I'm not clear who</p> <p>2 developed the slide. It's one of our software</p> <p>3 team leads.</p> <p>4 Q. Did you review this slide?</p> <p>5 A. Yes.</p> <p>6 Q. The columns from left to right</p> <p>7 show the different types of assays or tests</p> <p>8 that Thermo does; is that right?</p> <p>9 MS. RATHBUN: Objection. Form.</p> <p>10 A. I'm sorry, Jordan, by columns you</p> <p>11 mean?</p> <p>12 Q. Let me rephrase it. At the top of</p> <p>13 the chart there are various columns. One is</p> <p>14 labeled "Solid Tumor," the next is "Liquid</p> <p>15 Biopsy, Small and Mid Size Panels."</p> <p>16 Do you see that?</p> <p>17 A. I apologize. I was looking at the</p> <p>18 wrong slide. That's why I was confused. So I</p> <p>19 am now on slide 7. This slide I did create. I</p> <p>20 apologize.</p> <p>21 Q. Okay. I thought you had said that</p> <p>22 previously.</p> <p>23 Can you tell me what this slide</p> <p>24 shows, please?</p> <p>25 A. This slide attempts to show</p>
<p style="text-align: right;">Page 163</p> <p>1 (Recess taken at 1:26 p.m. and</p> <p>2 reconvening at 2:02 p.m.)</p> <p>3 THE VIDEOGRAPHER: This marks the</p> <p>4 beginning of media number five. The</p> <p>5 time is 2:02 p.m. We are on the record.</p> <p>6 BY MR. ANDREW:</p> <p>7 Q. Okay. Dr. Felton, I just have a</p> <p>8 few more questions for you. If you could</p> <p>9 please bring up Exhibit 4 that was introduced</p> <p>10 by GRAIL's counsel, and go to slide 7. That's</p> <p>11 Bates numbers ending 978.</p> <p>12 A. Yes, I have that.</p> <p>13 Q. You created this slide; is that</p> <p>14 correct?</p> <p>15 A. No, I didn't personally create</p> <p>16 this slide.</p> <p>17 Q. Okay. Do you know what this</p> <p>18 supplied shows?</p> <p>19 A. Yes. It attempts to show the</p> <p>20 difference between targeted sequencing and</p> <p>21 whole genome or large panel sequencing, and the</p> <p>22 company is involved in each segment.</p> <p>23 Q. Do you know who did create the</p> <p>24 slide?</p> <p>25 A. I believe this was for software</p>	<p style="text-align: right;">Page 165</p> <p>1 different segments of the conical oncology</p> <p>2 market space and the kinds of assays that might</p> <p>3 be run on oncology on each of the different</p> <p>4 columns, and on the Y axis is the number of</p> <p>5 reads a particular assay requires in that</p> <p>6 space. And there are some examples of assays</p> <p>7 within the body of the chart itself.</p> <p>8 Q. Okay. So the different columns</p> <p>9 are basically different segments; is that</p> <p>10 right?</p> <p>11 A. Different types of tests, which</p> <p>12 somewhat equate to market segments, but not</p> <p>13 entirely.</p> <p>14 Q. And do the number of reads</p> <p>15 required generally go up as you move left to</p> <p>16 right in this chart?</p> <p>17 A. Yes. Generally they move up as</p> <p>18 you go from left to right.</p> <p>19 Q. And then there are a few dotted</p> <p>20 horizontal lines on the chart. Can you tell me</p> <p>21 what those represent?</p> <p>22 A. Yes. There are a few dotted</p> <p>23 lines, and they represent the limits of the</p> <p>24 technology that we have on the Ion platform is</p> <p>25 one of them. There are also the limits as we</p>

CONFIDENTIAL

Page 170

1 landscape of tests and how much genomic
 2 footprint they cover.
 3 Q. Are multi-cancer early detection
 4 tests listed anywhere on this chart?
 5 A. No, they are not.
 6 Q. Where would multi-cancer early
 7 detection tests fall on this chart if they were
 8 on there?
 9 MS. RATHBUN: Object to form,
 10 foundation, and calls for speculation.
 11 A. So that's somewhat hard to
 12 anticipate, I think. They would fall
 13 potentially in that 10 to 100 million read
 14 range, but we are not clear on what the
 15 technology requires for the number of reads on
 16 a multi-cancer early detection platform, and
 17 that's for an individual sample.
 18 So at scale, you have to think
 19 about running hundreds to thousands of those
 20 samples, so your read requirement scales by
 21 hundreds or thousands to generate the right
 22 economics in a centralized testing facility.
 23 Q. Do you know where the Galleri test
 24 that GRAIL is developing would fall?
 25 MS. RATHBUN: Objection to form.

Page 171

1 Foundation. Calls for speculation.
 2 A. No, I do not.
 3 Q. And, practically, do you expect
 4 multi-cancer early detection tests to be done
 5 at scale?
 6 MS. RATHBUN: Object to form.
 7 Calls for speculation.
 8 A. It's our belief that it's likely
 9 to be done in a centralized facility at scale
 10 given the requirement to screen large numbers
 11 of patients.
 12 Q. If you could just scroll down,
 13 then, to the next slide, slide 8.
 14 A. Yes.
 15 Q. We had discussed this particular
 16 slide previously. Based on your understanding
 17 of multi-cancer early detection tests, where do
 18 you believe those would fit on this chart?
 19 MS. RATHBUN: Object to form.
 20 Foundation. Calls for speculation.
 21 A. Our belief would be that we more
 22 likely would be on the left-hand side of this,
 23 the vertical line that's shown, the vertical
 24 dotted line, rather than the right-hand side.
 25 Q. What types of tests are on the

Page 172

1 right side of this dotted line?
 2 A. What we would classify as large
 3 gene panels, whole genome sequencing, whole
 4 exome sequencing, or transcriptome sequencing.
 5 Q. But again, the Ion Torrent
 6 instrument is on the left side of this chart;
 7 is that right?
 8 A. Correct.
 9 [REDACTED]
 10 [REDACTED]
 11 [REDACTED]
 12 [REDACTED]
 13 [REDACTED]
 14 [REDACTED]
 15 [REDACTED]
 16 [REDACTED]
 17 [REDACTED]
 18 [REDACTED]
 19 [REDACTED]
 20 [REDACTED]
 21 [REDACTED]
 22 [REDACTED]
 23 [REDACTED]
 24 [REDACTED]
 25 [REDACTED]

1 [REDACTED]
 2 Q. And so, when you said that
 3 multi-cancer early detection tests would fall
 4 on the left side of the chart, do you mean as a
 5 technical concept?
 6 A. Yes. I think there were a few
 7 technical concepts that we are aware of in this
 8 space: One is to use targeted panels, and the
 9 other one are to use low coverage whole genome,
 10 which would fall on the right-hand side.
 11 We do not know which one will be
 12 the predominant use case in the market.
 13 Q. So which of the platforms listed
 14 in this chart here do you think would be
 15 economical to deploy multi-cancer early
 16 detection tests in a centralized environment?
 17 MS. RATHBUN: Objection to form.
 18 Foundation. Calls for speculation.
 19 A. The only ones that we believe
 20 would be relevant would be Illumina and BGI.
 21 [REDACTED]
 22 [REDACTED]
 23 [REDACTED]
 24 MS. RATHBUN: Objection to form.
 25 [REDACTED]

CONFIDENTIAL

<p style="text-align: right;">Page 178</p> <p>1 copy.</p> <p>2 THE VIDEOGRAPHER: Would you also</p> <p>3 like a copy of the video?</p> <p>4 MR. HARKRIDER: Sure. Why not.</p> <p>5 THE VIDEOGRAPHER: Standard is</p> <p>6 fine for that. You don't need it</p> <p>7 expedited; is that correct?</p> <p>8 MR. HARKRIDER: No, that's</p> <p>9 correct.</p> <p>10 THE VIDEOGRAPHER: Thank you. And</p> <p>11 for the other individuals, Ms. Van Dine,</p> <p>12 did you want a copy of the video?</p> <p>13 MS. VAN DINE: I defer to Anna on</p> <p>14 that one.</p> <p>15 MS. RATHBUN: Yes, we'll take a</p> <p>16 copy please.</p> <p>17 THE VIDEOGRAPHER: So Ms. Rathbun,</p> <p>18 standard order is fine?</p> <p>19 MS. RATHBUN: Yes.</p> <p>20 THE VIDEOGRAPHER: And I'll put no</p> <p>21 order for Ms. Van Dine individually.</p> <p>22 Mr. Huth, did you want a copy of</p> <p>23 the video?</p> <p>24 MR. HUTH: I don't do a lot of</p> <p>25 these depositions. I'm happy to go with</p>	<p style="text-align: right;">Page 180</p> <p>1 MR. ANDREW: As are we.</p> <p>2 THE VIDEOGRAPHER: Thank you. We</p> <p>3 are off the record at 2:29 p.m. and this</p> <p>4 concludes today's testimony given by</p> <p>5 Andrew C. Felton, Ph.D. The total</p> <p>6 number of media units used was six, and</p> <p>7 will be retained by Veritext Legal</p> <p>8 Solutions.</p> <p>9 (Time Noted: 2:29 p.m.)</p>
<p style="text-align: right;">Page 179</p> <p>1 whatever the standing order is.</p> <p>2 Anna, do you know if we have been</p> <p>3 requesting separate copies of the video?</p> <p>4 MS. RATHBUN: I don't think so. I</p> <p>5 think one should be fine, so we can take</p> <p>6 that.</p> <p>7 MR. HUTH: One should be fine for</p> <p>8 Defendants.</p> <p>9 MS. RATHBUN: Right. Yeah,</p> <p>10 Alexis, we only need one. I don't need</p> <p>11 a separate one.</p> <p>12 THE VIDEOGRAPHER: Thank you. And</p> <p>13 Mr. Andrew, standard is fine for your</p> <p>14 video.</p> <p>15 MR. ANDREW: Standard is fine. I</p> <p>16 don't know what we have been ordering.</p> <p>17 Whatever the standing order is that we</p> <p>18 have with you guys, I'll just go with</p> <p>19 that. I don't want to get in trouble</p> <p>20 here.</p> <p>21 THE VIDEOGRAPHER: Okay. Anything</p> <p>22 else before we go off or is everyone</p> <p>23 ready to conclude?</p> <p>24 MS. RATHBUN: The Defendants are</p> <p>25 ready to conclude.</p>	<p style="text-align: right;">Page 181</p> <p>1 C E R T I F I C A T E</p> <p>2</p> <p>3 I, Michael O'Connor, Registered</p> <p>4 Merit Reporter/Certified Realtime Reporter,</p> <p>5 do hereby certify:</p> <p>6 That ANDREW C. FELTON, Ph.D., the</p> <p>7 witness whose testimony is hereinbefore set</p> <p>8 forth, was duly sworn by me and that such</p> <p>9 testimony is a true and accurate record of</p> <p>10 my stenotype notes taken in the foregoing</p> <p>11 matter to the best of my knowledge, skill</p> <p>12 and ability.</p> <p>13 IN WITNESS WHEREOF, I have hereunto</p> <p>14 set my hand and Notarial Seal this 2nd day</p> <p>15 of June 2021.</p> <p>16</p> <p>17 <i>Michael O'Connor</i></p> <p>18 MICHAEL O'CONNOR, RMR, CRR, CRC</p> <p>19 Notary Public</p> <p>20</p> <p>21 My Commission expires:</p> <p>22 November 22, 2022</p> <p>23</p> <p>24</p> <p>25</p>

CONFIDENTIAL

Page 182

1 John Harkrider, Esquire
 2 jharkrider@axinn.com
 3
 4 RE: Federal Trade Commission v. Illumina/Grail
 5 6/2/2021, Andrew C. Felton , Ph.D. (#4596003)
 6 The above-referenced transcript is available for
 7 review.
 8 Within the applicable timeframe, the witness should
 9 read the testimony to verify its accuracy. If there are
 10 any changes, the witness should note those with the
 11 reason, on the attached Errata Sheet.
 12 The witness should sign the Acknowledgment of
 13 Deponent and Errata and return to the deposing attorney.
 14 Copies should be sent to all counsel, and to Veritext at
 15 cs-midatlantic@veritext.com
 16
 17 Return completed errata within 30 days from
 18 receipt of testimony.
 19 If the witness fails to do so within the time
 20 allotted, the transcript may be used as if signed.
 21
 22 Yours,
 23 Veritext Legal Solutions
 24
 25

Page 184

1 Federal Trade Commission v. Illumina/Grail
 2 Andrew C. Felton , Ph.D. (#4596003)
 3 ACKNOWLEDGEMENT OF DEPONENT
 4 I, Andrew C. Felton , Ph.D., do hereby declare that I
 5 have read the foregoing transcript, I have made any
 6 corrections, additions, or changes I deemed necessary as
 7 noted above to be appended hereto, and that the same is
 8 a true, correct and complete transcript of the testimony
 9 given by me.
 10
 11 _____
 12 Andrew C. Felton , Ph.D. Date
 13 *If notary is required
 14 SUBSCRIBED AND SWORN TO BEFORE ME THIS
 15 _____ DAY OF _____, 20____.
 16
 17
 18 _____
 19 NOTARY PUBLIC
 20
 21
 22
 23
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 25

Page 183

1 Federal Trade Commission v. Illumina/Grail
 2 Andrew C. Felton , Ph.D. (#4596003)
 3 E R R A T A S H E E T
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 24 Andrew C. Felton , Ph.D. Date
 25

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CONFIDENTIAL

[& - 4596003]

Page 1

&	170:13 174:15	2000th 168:10	2:02 163:2,5
& 4:5 5:4 7:14 11:1 44:8 102:13 110:20 114:10	100 32:24 34:15,23 34:24,25 35:11 86:8 103:21 109:17 166:17,21 167:15,18 168:3 169:11,20 170:13 174:16	20024 3:8 2015 89:3 2015-2019 88:18 2018 140:9 141:14 2019 7:4 89:3 202 3:9 4:9 2020 6:21 7:21 57:19 70:10 71:9 106:20 109:7 110:21 113:23 117:12 2021 1:21 2:7 8:4 9:5 65:12 86:4 113:3,11,11 115:2 181:15 2022 181:22 2023 21:25 2024 21:25 109:24 110:5 2025 75:8,16 86:5 21 22:19 32:20 212 4:23 5:8 22 41:18,19,23 63:7,13,19,20,24 64:3 181:22 23 8:4 23rd 16:10 24 18:24 20:6 22:17 33:24 35:24 35:25 109:3 25 29:13,14 81:17 81:19 110:20 151:17,19 153:6 153:21 250 30:17 31:2 26 83:20 112:2 27 57:19 27th 146:7 28 110:15	2:15 89:21,25 90:4 2:23 177:7,8 2:27 177:9,12 2:29 180:3,9 2:30 89:22 2nd 181:14
0			3
0001 57:6 00036643 7:10 106:18 00036678 7:11 00183972 7:5 97:17 00184001 7:6 00265386 7:24 139:25 00265389 7:25 00308779 117:10 00800 9:23 01090369 7:16,22 113:20 01090377 7:17 01155694 6:22 70:2 01155697 70:18 01155850 6:23 01662776 6:11 57:10 01662778 6:12	1000 4:7 10036 5:7 11 26:6 78:18,19 89:7 114 5:6 11743 4:22 11:16 91:3,6 12 117:4 125:14 12:38 145:8,10 13 24:1 113:22 125:24 129:17 14 75:8,15 130:18 15 21:7 139:18 16 64:7 162:8 17 132:13 133:4 17393 181:17 180 14:17 1:01 145:11,14 1:26 162:24 163:1 1:30 85:15	3 6:19 37:9 56:25 57:6 69:23,25 70:1 73:24 75:6 75:18 102:6,8,9,10 102:11 114:4 123:6 128:12 137:15,16 151:12 153:6,22 154:9 3/23/21 17:3 30 17:23 18:1,2,5,6 18:11,16,24 20:6,6 182:17 300 125:3 31 85:22 140:9 32 87:2 321 9:23 326-2688 3:9 35 21:4,6,7 119:10 36 22:15,16 37 22:19 371 114:5	
1	2		4
1 6:10 29:15 30:7 30:10,22 31:8,11 31:17 47:22,23 56:25 57:3,5,18 67:1 118:18 145:20 146:3,4 151:10 162:7,8 168:10 1/3 102:23 10 25:6,8,22 61:14 109:7 117:21 129:12 166:17,21	2 1:21 2:7 6:13 9:5 26:5 32:20 47:23 64:11 65:2,4,8 66:23 67:1,16 118:18 119:10 168:11 20 25:14 102:25 106:20 107:6 184:15 2000 168:10 20004 4:8	24 18:24 20:6 22:17 33:24 35:24 35:25 109:3 25 29:13,14 81:17 81:19 110:20 151:17,19 153:6 153:21 250 30:17 31:2 26 83:20 112:2 27 57:19 27th 146:7 28 110:15	4 7:3 21:7 47:22 65:2 70:17 73:23 75:5 97:12,14 102:7 126:8 163:9 40 23:24 24:1 119:20 400 3:7 41 4:21 24:2 4596003 1:25 182:5 183:2 184:2

CONFIDENTIAL

[47th - ago]

Page 2

47th 5:6	68 37:9	a	acknowledgment 182:12
48 33:14 162:10	7		
5	7 7:18 24:2 35:25	43:20,23 57:19	acquiring 77:20
5 7:7 41:20,24	37:8,9 75:17,18	90:12,14 91:3,6	acquisition 12:13
69:23 106:12,14	97:12 98:6 117:4	146:7 150:17	12:15 36:18 37:2
106:15 125:13	117:7 128:11	abhay 141:13	50:4 120:24 144:6
126:13 127:2,4	163:10 164:19	ability 39:1 80:22	acquisitions 74:9
133:5 137:15,16	70 41:18,19,23	181:12	74:22
50 102:25 104:17	121:24	able 13:3 15:10	acronym 50:8
167:25 169:12	704 78:20	19:14 30:6,21	78:12 126:18
500 31:4 125:4	7070 8:3	38:7 55:20 63:14	action 10:9
156:12	71 41:20,24	68:24,25 80:25	activities 136:1,3
52 26:4,5,6	718 81:18 151:21	81:6 92:1 101:4	actual 104:20
55 29:12,13,14	719 83:21	142:8 156:5,9,15	adapt 142:19
555 4:6	724 85:23	159:20 160:3	143:1
57 29:14 32:17,20	725 87:3	161:21 167:4	add 13:21
32:20	728-2200 5:8	168:22	addition 53:17
58 63:7,13,20,20	731-9333 4:23	access 71:25 76:12	additional 73:9
63:24 64:3	759 88:14	122:24 123:4	93:18 104:5
59 35:24,25	776 146:4	155:19 158:19	116:18 176:24
6	8	160:13	additions 184:6
6 7:12 98:6 113:14	8 7:23 18:16 20:6	accuracy 112:15	address 14:15
113:16,20 127:13	77:6,8 89:4 98:8	112:21,22,24	55:8 94:2 140:15
141:14	106:12 125:10,10	156:4 160:2	140:21
6/2/2021 182:5	125:11 129:11	161:20 182:9	administrative 1:4
60 35:25 75:23	139:18,20 171:13	accurate 17:14,15	adoption 175:15
6000 24:25 25:3	80 167:25 168:3	17:19,20 19:6	adult 82:17
61 64:7	8:09 2:8 9:4	20:9,14 21:15,20	advantage 77:12
637-2200 4:9	8:28 57:19,21,22	23:1,6,8 24:9,14	advantageous
64 88:12	8:35 146:7	26:14,20 29:21	147:11
654 125:14	9	30:1 34:19 36:6	adverse 56:3,7
655 125:24	9 113:14	36:11 37:16,20	affect 52:13
656 130:19	9401 1:11	42:4,9 181:9	103:24
659 132:13	974 102:7	accurately 15:10	affiliations 10:14
662 107:8	978 163:11	achieve 156:5,9	aggregating 28:19
666 109:4	979 98:9	160:3 161:21	28:24
668 112:2	9:02 43:18,19	achieved 59:5	aggressive 119:19
67 37:7,8	9:15 43:20,23	achieves 97:2	agilent 107:22,23
670 110:18		acknowledgement	ago 15:17 160:16
		184:3	

CONFIDENTIAL

[agree - apply]

Page 3

<p>agree 9:15 54:6,20 56:8 58:14,17 68:1,3,8 74:20 99:14 130:24 131:6 146:22,24 149:14 agreed 109:7 agreement 7:14 109:24 111:11,15 113:22 114:15 115:22 126:5,21 128:18 129:12 130:9,11 131:13 131:16 133:6,8,9 138:9 158:22,25 agreements 105:23,25 106:2,4 106:7,8 107:17 125:7 127:23 agrees 127:13 ahead 97:22 117:4 al 9:21 alexandra 4:12 11:3 alexandra.vandine 4:13 alexis 5:16 10:3 179:10 aligned 153:9,14 153:18 aligns 77:10 allotted 182:20 allow 87:19 138:18 allowing 129:6 allows 52:9 alphaseq 133:3 america 1:2 amount 27:1,14,15 39:2 111:14 127:12 137:5</p>	<p>174:1 amounts 27:8 39:21 93:1,1 amplicons 63:7,13 63:20,20,24 64:3,7 ampliseq 61:10 66:10,18,19 67:17 analyses 69:3 analysis 64:15,18 64:24 68:25 69:1 69:6 175:14 andrew 1:20 2:13 3:10 6:3,4 8:3 9:17 10:19,20 11:14,18,23 12:6 18:3 43:3,10,24 44:12 48:11,21 49:3,8,22 52:15 53:6,12,19 54:10 54:18,24 55:4,9,13 55:19 56:4,17 59:3,10,16 60:24 61:21 62:7,17 63:2,8,16,25 64:4 64:8 67:19 68:7 68:18 69:4,14 71:12 73:13 74:15 75:1 76:6 78:15 79:22 80:7,19 81:8 83:5 84:13 84:25 85:10 86:24 87:14,25 88:7 90:8 91:23 92:4 92:21 93:21 94:8 94:16 95:2,8,14,20 95:25 96:5,11,22 97:4 99:9,19 100:3,9 101:2,12 101:16 103:8,16 104:2,11,18 105:9 115:16,24 118:4</p>	<p>119:2,17 120:20 121:20 122:1,14 122:19 123:12,22 124:5,12 126:23 127:25 128:7 129:9 131:17,23 132:7 135:13 138:16 139:4 141:10 142:2,11 143:3,12,24 144:8 144:18,25 145:16 163:6 176:14,22 177:18 179:13,15 180:1,5 181:6 182:5 183:2,24 184:2,4,12 andy 11:10,19 43:25 89:21 aneuploidy 64:18 69:1 anna 4:10 10:25 44:7 63:10 132:1 142:4 178:13 179:2 anna.rathbun 4:11 announced 120:17 120:25 121:3 annual 75:15 answer 12:25 13:20,21 15:23 16:1 18:23 21:7 31:20 32:2 33:19 38:4 95:4,16 96:6 97:5 99:11,22 100:13 101:13 108:20 126:25 127:1 151:5 157:22 answered 13:18</p>	<p>answering 136:7 answers 12:23 13:2,6 19:5 20:8 20:13 anticipate 36:17 36:25 37:4 94:25 170:12 anticipating 156:13 anybody 90:6 145:5 apologies 102:8 apologize 164:17 164:20 appear 17:4 19:20 153:21 appearance 10:17 14:8 appearances 10:13 91:3 appeared 55:13 appearing 14:16 appended 184:7 applicability 154:2 applicable 92:7,11 182:8 application 16:14 40:14 44:21 46:12 68:17 118:19 119:5 152:12 159:3 applications 14:23 20:22 39:19 41:12 41:16 46:25 47:3 75:14 99:2 152:3 152:17,19 applied 62:2 68:10 81:22 83:8 apply 44:13</p>
--	---	--	--

CONFIDENTIAL

[appreciate - bates]

Page 4

<p>appreciate 177:17 177:21 approach 42:20 56:12,13 66:20 67:4 approached 42:12 appropriate 56:2 102:2 approval 21:24 22:5 52:5,7,21 109:11 122:24 123:4,7,17,20,25 124:3 134:12 136:2 147:23 148:4 approved 23:20 51:10,11,13 52:1 52:16 53:8 78:9 123:14 124:9 137:20,23 138:13 139:2 approximate 33:11 approximately 15:16 31:4 33:24 52:23 102:23 119:10 157:2,8 april 141:14 apton 94:22 95:22 96:9,20 117:2 154:16 160:10,12 160:14,19 161:4 161:15,21 apton's 95:23 160:25 161:12 aptum 160:10 architecture 117:23 168:2 area 24:4 40:21 areas 72:6 73:9 118:19</p>	<p>arrangement 129:4,7 137:13 143:17 article 65:16 67:23 aside 151:10 154:10 160:18 asked 144:2 145:24 151:23 154:12 asking 15:6 128:2 129:5 assay 52:11,14 94:1 98:23 132:25 135:6 137:25 138:3 143:6,10 165:5 167:6,8 172:18 assays 61:11 65:21 67:4 87:18 92:25 104:21 141:19,25 142:8,19 143:1,22 152:24 164:7 165:2,6 assayss 6:18 assertion 172:17 assess 47:20 assessment 82:1 assist 144:3 associate 5:11 associated 128:21 136:7 159:4 assume 52:24,25 113:11 116:1 121:5,7 135:5 144:19 155:25 157:23 assumed 137:24 assumption 148:2 148:13 assumptions 86:16</p>	<p>attach 110:11 attached 45:21 182:11 attempts 163:19 164:25 attend 19:14 attending 3:4 4:4 4:19 5:5,14 10:12 attention 18:16 21:4 22:15 23:24 26:4 29:12 32:17 41:18 110:14 149:1 attorney 4:18 10:18 12:6 15:25 182:13 attorneys 3:3 4:3 5:3 15:16 16:5 attracted 92:9 attracting 92:18 audio 9:12,13 audit 127:4,9 augmented 93:12 august 113:22 authorization 134:15 135:20 137:1 authorize 133:18 authors 67:23 107:5 automate 93:14 automation 119:23 120:2,4 available 81:12 105:1 182:6 aware 50:19 53:16 53:21,24 54:1 94:17 106:2,5,7,8 121:15,23 122:5,7 122:15 123:24 124:2 156:8,11</p>	<p>158:14,21 173:7 axes 82:4 axinn 5:4 11:8 axinn.com 5:10 182:2 axis 82:6,7 165:4</p> <p style="text-align: center;">b</p> <p>b 6:8 7:1 8:1 61:12 back 35:15 51:22 53:14 64:13 89:17 89:25 91:10 112:1 114:8 127:4 145:20 151:11 172:16 background 114:10 125:16 bar 168:4,5 barcoded 65:20 barcodes 66:13 baroded 6:17 base 102:23 103:24 based 28:5 35:18 38:15,17 46:21 54:3 56:14,15 75:23 77:24 92:14 111:5 113:8 122:16 123:9 124:1,4,10 133:2 151:2 167:12 171:16 basically 165:9 bates 6:10,21 7:5,9 7:15,21,23 57:9 70:2,18 78:19 81:17 87:3 88:13 88:13 97:16 98:9 102:7 106:17 107:7,8 109:4 110:18 113:19 114:5 117:10</p>
---	--	--	---

CONFIDENTIAL

[bates - cancer]

Page 5

<p>125:14 139:25 146:4 151:21 163:11 bc 67:2,12 beginning 10:17 18:22 43:22 44:13 91:5 145:13 163:4 177:11 begins 18:17 20:5 22:16 24:1 26:5 66:3 behalf 11:1,5 65:13 belief 68:11 92:5 121:10 171:8,21 175:7 believe 28:18 29:2 29:8 32:4 33:14 34:19 36:23 38:11 54:3 58:6 61:24 69:17 73:16 79:25 80:2,4 81:11 88:8 91:19 92:23 95:13 95:18 101:7 109:16 110:1 114:3 122:10 138:24 143:4 144:9,21 145:1,24 151:4,23 153:17 154:1,13 156:12 157:1,12 158:6,9 158:12 161:2,6,24 163:25 167:21 169:22 171:18 173:19 174:5 175:7 176:5,8 believed 26:1 80:22 believes 68:13 beneficial 130:12 130:13 131:2</p>	<p>benefits 130:20,25 best 13:7 17:11,17 21:23 22:2 34:12 39:20,21 41:13 56:13,19 88:5,9 181:11 better 27:8 77:10 77:23 92:18 147:9 beyond 31:1 bgi 91:15 98:20 166:6,7 173:20 bgs 9:23 billion 25:6,8,14 25:22 30:7,10,22 31:8,11,17 118:18 118:18 122:12 168:11,20 174:15 bio 112:5,8,9 biological 46:6 biopsies 46:20 biopsy 40:1 46:2,4 46:10,11,15,18,24 61:11 79:2,16 118:20 119:4 141:20 164:15 169:1,4,7,12,17 biosciences 91:14 biosystems 94:22 bit 85:13 139:8 blocks 18:9 blood 46:7,7,15,19 46:19 50:6,15 84:19 99:16 board 109:11 bodies 78:9 body 47:24 165:7 bold 153:7 border 167:20 borne 46:19 bottom 18:12 57:18,23 60:18</p>	<p>65:11 76:8 83:21 102:17 119:7 boulevard 14:17 box 76:20,22 brand 44:22 60:9 break 13:23,25 43:4 85:14,19 89:9 91:20 139:10 139:11 162:17 breast 6:15 65:18 67:18 briefly 12:21 bring 163:9 broad 108:3 bullet 70:21 71:20 72:13,16,17,18 73:20,22 75:5,11 75:22 76:22 77:7 77:15,25 79:1,12 79:15,16 86:17 102:21 113:1 114:24 116:4 118:15 119:8,21 135:19 136:22 138:5 bullets 134:2 135:8,17 bureau 3:6 bus 7:8 106:19 business 44:17,19 45:16,17,19 49:10 75:12,19,23 77:7 79:9 85:8 111:3 116:2 129:4,7</p>	<p>cab 9:23 cagr 75:8 calculate 34:22 calendar 129:20 california 1:22 2:14 9:22 10:2 14:18 90:3 call 44:21 55:17 162:17 called 28:4 40:3 81:21 87:3 98:15 107:10 122:5 calls 15:15 53:20 54:11,19 55:5 69:15 80:7,19 81:9 95:2,8,14,25 99:9 101:2 115:24 131:24 142:12 143:25 147:3,16 148:1,11 169:19 170:10 171:1,7,20 172:15 173:18 175:6 176:4 cancer 27:22 28:10,20 29:4 36:16 37:1,5,25 38:12 39:6 40:13 40:23 42:13,19 47:13,17,21 48:1,1 48:7,9,10 49:12 51:3 53:15 54:8 56:12 58:5,19,25 62:10,21,25 68:5,9 76:13 79:5 80:4 82:9,10,19,24 83:1 99:5,16,24 100:5 101:17,19 124:1,3 132:25 138:2 147:22 148:3,10 148:14,15 149:13 149:15 151:6</p>
		c	
		<p>c 1:20 2:13 3:1 4:1 5:1 6:3 9:1,17 11:14 180:5 181:1 181:1,6 182:5 183:2,24 184:2,4 184:12</p>	

CONFIDENTIAL

[cancer - columns]

Page 6

<p>152:11,15,18 153:13,20 154:4 169:14,15 170:3,6 170:16 171:4,17 172:11,19 173:3 173:15 175:3 cancers 6:15 46:19 65:19 67:18 153:3 cannon 4:21 cap 51:16 capabilities 43:1 72:20 73:1 76:24 153:10,15,19 capability 31:2 120:6 capable 30:18 31:12,16 68:9 69:2,6 118:17 capacity 30:17 102:22,25 103:6 103:23 104:17,19 105:2,6 115:1 capture 72:20 73:1 carefully 175:13 carrier 82:14,15 82:16 carry 82:18 case 9:23 18:11 19:13 58:4 69:17 83:13 92:7 128:19 152:24 173:12 176:23 cases 40:19 138:19 138:21 category 169:16 cc 140:20 cdx 129:19 131:3 131:7 cell 25:24 33:16</p>	<p>cellphones 9:10 cells 25:2 cellular 9:9 center 58:7 59:8 59:14,20 132:20 132:24 centralized 28:12 28:16,25 69:13 76:14 84:6 88:10 124:25 146:13,19 147:1,8,9,12 170:22 171:9 172:22 173:16 175:18,22 cerebrospinal 46:8 certain 30:4 176:10 certainly 54:12 certified 181:4 certify 181:5 chain 6:10 7:23 59:24 61:5 140:2 149:11 challenging 38:16 39:3 84:5 124:15 158:2 chance 17:8 19:2 20:4 21:11 22:22 24:5 26:10 29:17 36:3 37:12 42:1 change 36:18 147:14 183:4,7,10 183:13,16,19 changes 136:19 158:11 182:10 184:6 channel 74:10,23 channels 71:25 74:1</p>	<p>charge 167:2 charles 11:23 chart 82:19 109:23 153:6,21 154:5 164:13 165:7,16,20 166:10 167:14,23 168:5,8,12 170:4,7 171:18 172:6 173:4,14 chat 14:24 check 14:25 checkmark 87:7 chef 22:10 children 82:16 china 78:11 chip 30:12,15,16 30:25 31:3,16,24 32:5,10,14 72:20 73:1 162:8,10 167:3,8 168:1 chips 30:18 choose 69:16 choosing 69:11 circle 82:3,10,13 circulating 47:8 47:23 50:15 65:24 84:18 169:8 circumstances 14:7 claims 127:19 131:3,7 clarify 13:10 63:9 104:12 128:1 150:4 class 116:6,22,25 123:6 124:23 classify 169:24 172:2 clause 60:19</p>	<p>clear 25:25 35:14 36:24 123:19 129:5 131:25 133:11 148:7 164:1 169:20,21 169:25 170:14 clia 51:16 client 15:25 clinical 6:19 49:7 49:20,24 50:1 58:21,22,22 60:1,3 60:5 70:8,24 71:3 71:4,10,24 72:4,4 72:9,11 75:25 76:4,10 77:19 80:6,15 81:4 86:11,13 87:3,5,23 91:17 92:2,8,20 93:6,15,19,23 99:2 102:13 106:1,5 108:12,20 124:23 131:19 150:13 151:25 152:4,12 152:16,20,25 clonal 110:12 159:3 close 88:2 closed 107:11 closer 87:16 101:11,17 cluster 66:14 cogs 110:20 collaborations 157:4,13 colleague 11:3 collects 128:13 column 78:23 79:8 86:16 111:5 134:3 168:25 columns 164:6,10 164:13 165:4,8</p>
---	---	--	--

CONFIDENTIAL

[combination - copies]

Page 7

<p>combination 115:17 combined 80:6 come 56:20 64:12 89:17,25 94:14 95:13 146:21 147:19 157:2 175:21 coming 98:21 commenced 23:15 comments 86:16 commercial 32:6 56:20 62:19 96:24 97:2,7 104:8 133:14,17 154:25 159:12 commercialization 60:7 113:2,7,12 160:24 commercialized 157:3 162:2 commercializing 96:13,17 commercially 61:1 commission 1:3 3:3,5 9:20 10:21 10:24 12:7 17:6 181:21 182:4 183:1 184:1 communicate 15:2 15:6 communication 160:21 communications 15:25 160:19 companies 48:14 48:19,24 49:14,20 50:17 51:7,12 61:8,20 62:24 74:1 94:13,18,20 107:11,20 108:2,5</p>	<p>120:13,18,22 121:2,6,8 130:2 133:2 150:20 companion 22:11 123:9,14 124:10 130:3,7 company 51:24 52:9 97:1 99:4 112:10 121:15 122:5 128:25 155:20 156:17 158:19 159:5 160:14 161:25 163:22 company's 54:6 103:18 compare 173:22 174:11 compared 27:18 38:20 41:6 comparison 25:9 compete 62:15 88:5 competing 97:8 104:5 competition 3:6 competitive 75:25 77:11 176:1 competitor 85:6 88:18 96:14 97:2 97:6 108:6 competitors 71:16 84:20 85:3 89:6 91:12,13 96:9,16 96:20,25 102:12 complete 13:20 184:8 completed 182:17 compliant 22:13 component 82:22 82:24</p>	<p>components 109:21 120:5 compound 49:3,8 54:11 56:18 69:14 96:11,22 compounded 75:15 comprehensive 167:19 comprise 44:21 con't 7:1 8:1 concept 30:5,21,24 31:7 168:7 173:5 concepts 173:7 concerned 81:15 concierge 5:15 conclude 177:23 179:23,25 concluded 142:14 concludes 180:4 conclusion 66:25 131:24 concrete 32:2 conditions 147:10 conducted 12:22 59:19 conducting 13:14 14:5 69:2,6 confer 176:18 confident 30:9 31:10,11 confidential 1:17 2:4 confused 164:18 conical 165:1 connection 128:17 131:12 consent 43:12 consequently 167:8</p>	<p>consider 38:3 55:17 73:11 74:13 116:20 consideration 154:1 175:2 considerations 62:1 considered 40:5 40:18 41:15 46:5 63:3 considering 38:23 71:9 85:8 119:1 176:12 consists 44:19,23 constantly 63:1 consumables 49:2 49:6 consumes 174:3 consummated 36:19 37:2 cont'd 4:1 5:1 contact 141:5 contemplated 32:6 content 141:18 context 87:15 continue 9:14 55:23 56:1 62:5 72:19,25 76:23 79:13,19,23 86:25 93:18,19,22 144:9 144:16 continuum 152:16 control 22:10,12 controlled 58:4 conversation 42:25 161:7 conversations 9:8 155:14,18 copies 179:3 182:14</p>
---	---	--	---

CONFIDENTIAL

[copy - delays]

Page 8

<p>copy 17:4 58:13 178:1,3,12,16,22 corner 18:6,12 102:17 corporation 1:9 1:13 correct 16:11,12 17:7 18:14 25:8 27:1 32:13 33:9 34:8 35:3,21 39:9 45:7,10 47:1,4,5,8 47:11 49:18 55:12 56:21 67:18 68:17 69:3 73:3 74:25 75:10 76:5,7,19 78:14 79:21 84:12 85:11 86:10,19,20 86:23,25 88:8 91:18 94:9 96:18 99:2,3 100:2,4 101:23 102:3 106:21 107:12 109:2 110:1,7,23 111:12,16,17 114:18 115:23 118:14 123:11,15 123:17 126:22,24 127:1,14,24 129:12,13,16 134:10,15,16,19 134:21,25 135:4 136:1,18 137:3 141:1,11 142:1 143:23 144:17,24 146:2 148:18 149:18 150:8 151:8 163:14 166:8,15,22 168:19 172:8,16 178:7,9 184:8</p>	<p>corrections 184:6 correctly 63:17 64:20 88:19 162:7 162:9 corresponds 168:14 cost 35:5,10,11 84:4 112:16,21 174:11,18,21,24 174:25 175:13,20 costs 110:20 167:8 counsel 9:18 10:11 16:5 145:21 151:12 156:19 163:10 182:14 court 4:21 9:22 10:5 12:24 13:1 110:17 151:20 cover 170:2 coverage 173:9 cpi 126:12,16 crc 1:24 2:16 181:18 create 98:5 106:25 117:18 163:15,23 164:19 created 98:3,7 163:13 creating 70:14 98:1 credible 116:1 crr 1:24 2:16 181:18 cs 182:15 csd 7:8 106:19 ctdna 6:14 65:18 65:23,24 66:15,25 67:11,13 current 11:24 12:1 23:9 61:13 75:3 80:24 81:10 94:11</p>	<p>119:20 126:19 152:23 154:22 156:20,24 159:9 161:1 162:1 169:25 currently 14:9,19 22:3 31:1 36:15 48:15 49:15 62:16 74:16 81:5 86:7 94:10,15 98:19 137:5 149:19 152:6 154:15 155:9 167:24 customer 77:9,17 104:15,22 130:5,5 130:6 131:15 132:9 143:1 customers 77:21 92:9,19 104:10 105:4,10 128:6,8 128:13 135:11 155:5 157:5,11,15 159:17 175:3 cv 9:23</p>	<p>day 150:17 181:14 184:15 days 182:17 deal 99:20 108:23 108:25 109:6,14 109:19,20 114:10 deals 98:16 107:12 107:17 108:2 decentralization 87:9,13,15,23 decentralize 101:10 decentralized 69:12 88:9 146:20 147:21,24 148:4 175:22,25 decide 61:8,17,20 150:20 decision 23:17 118:11 deck 160:15,18 declare 184:4 declined 89:4 91:21,25 decreased 119:24 deemed 184:6 defendant 11:2,6 defendants 19:13 176:18 177:15 179:8,24 defer 178:13 define 92:13 defined 23:15 99:11 defines 99:21 definition 71:5 72:9,10 169:10 degree 82:5 delays 158:4 161:16</p>
		d	
		<p>d 1:24 2:15 5:9 6:1 9:1 121:24 d.c. 3:8 4:8 data 38:8,19,20 39:4 40:9,10 41:4 41:5 58:2 142:20 date 59:2 156:4 160:3 183:24 184:12 dated 57:19 106:20 113:22 140:9 dates 22:2 david 3:12 10:22 140:9,17</p>	

CONFIDENTIAL

[delineate - directly]

Page 9

<p>delineate 138:17 deliver 75:7 delivered 51:6 delivery 120:7 demand 114:25 115:15,18,18 depend 32:3 dependent 104:25 depending 100:15 104:23 depends 173:25 deploy 173:15 deployed 147:24 deployment 147:20 deponent 182:13 184:3 deposing 182:13 deposition 1:19 2:12 6:2 9:12,17 9:24 14:6 15:3 19:13 depositions 178:25 depth 169:13 derived 65:24 84:18 169:9 describe 44:17 107:14 125:19 134:7 described 23:10 23:14 44:23 description 134:3 138:5 design 22:10,12 31:16 39:15 designed 47:20 51:2 98:24 169:8 designing 31:12 detail 48:13 59:4 59:17 95:11 96:7 121:4 140:6</p>	<p>154:23 155:12 158:7 161:10,14 161:19 detailing 67:11 details 54:4 detect 39:10 68:24 detected 6:15 65:18 66:25 67:2 detecting 39:18 56:12 detection 27:23 28:11,21 29:4 36:16 37:1,5,25 38:12,24 39:6 40:13,23 42:13,19 47:14,17 48:2,9 49:13 50:5 53:15 54:9 58:8,19,25 62:10,21,25 66:15 67:11,18 68:5,9 79:3 80:5 82:24 83:2,8,10,11,16 84:18 99:5,17,25 100:5 124:1,4 146:13,18 147:1 147:23 148:8,10 148:14,15 149:13 149:16 151:7 152:11,15,18 153:14,20 154:4 169:15 170:3,7,16 171:4,17 172:11 172:19,21 173:3 173:16 175:4 detections 83:11 detects 48:9 determine 47:7 100:13 dev 7:8 106:19 develop 72:19,25 74:9,21 94:18</p>	<p>101:21 118:11 119:15 133:18 135:11 137:2 152:24 176:13 developed 22:11 51:15 66:3,9 92:6 92:25 93:5 123:8 123:13 134:11 164:2 developer 63:12 68:15,16 69:11 100:20 135:24 developers 42:13 42:19 49:7,12 53:4,9,15,16 59:19 62:5,9 68:21 99:15 100:6 101:9 133:18 143:22 147:8 developing 31:24 48:15 49:17 62:25 87:17 93:18 94:14 99:5 118:3,7 119:1 120:13,18 121:9,18,21 122:9 136:17 156:1 170:24 development 23:18,21 30:11,14 32:4 45:18 54:15 60:6 82:7 93:23 94:3 103:10 110:20 111:22 118:6 119:9 120:22 121:12 130:3,8 136:12 153:2 154:15,22 155:8,14,17,23 156:20,24 157:17 157:20 158:4 159:9,20,25</p>	<p>160:20 161:1,5,16 162:1 developments 93:24 157:23 develops 45:5 134:9 device 14:23 dgonen 3:13 diagnostic 78:12 123:10,14 124:10 130:3,8 difference 45:12 163:20 different 18:19 62:9 69:8 94:2 105:13,17 154:14 164:7 165:1,3,8,9 165:11 differentiate 46:17 differentiated 87:8 differentiation 60:13 71:15 82:5 148:23 difficult 97:5 124:8 166:13,25 167:4 difficulties 159:24 difficulty 124:16 digital 40:3,12 dine 4:12 11:3 178:11,13,21 direct 18:15 21:3 22:14 23:23 29:11 32:16 41:17 52:10 52:18 110:14 149:1 directly 51:4 52:7 103:19 131:7 148:21 149:4,12 150:1,9</p>
--	---	--	---

CONFIDENTIAL

<p>directors 109:11 disagree 56:9 discovered 51:4 discretion 126:11 discriminating 39:22 discuss 16:6 52:17 129:18 142:21 discussed 38:23 68:22 76:3 94:3,5 118:12 132:9 154:18 171:15 discusses 118:5 discussing 118:1 133:24 discussion 42:24 51:22 113:10 116:2 130:1 137:7 143:13,16 164:1 discussions 16:4 143:21 disease 50:10,12 50:13 67:6 72:7 73:8,10 82:23 83:9,15 diseases 82:17 disorders 82:18 distinct 98:14 distributed 60:14 148:24 175:18 district 9:21,22 divided 98:14 division 6:21 59:25 60:1,3,4,5 70:9 86:12,14 87:4 106:1,6 108:13,21 131:19 150:13,14 dna 45:21 47:8,11 64:15 65:25 84:18 110:11 169:9</p>	<p>docket 1:11 doctors 54:23 document 6:13,19 7:3,7,12,18 16:16 57:2,9,12,14 65:3 65:8 67:21 69:24 70:5,7 85:18 97:13,19,24 98:1 106:13,23,25 107:3,4 113:15 114:5 117:6 139:19 documents 15:18 doing 28:4 32:6 62:12 136:20 dollars 122:12 dominated 98:20 dotted 165:19,22 166:9,16,20 168:14 171:24 172:1 dr 20:3 43:7 44:6 44:16 47:12 56:7 56:11 57:4,11 65:5,7 68:1 80:1 88:15 91:9 97:18 124:18 139:22 140:1 144:5 145:17 163:7 176:20 177:14 drew 103:9 drive 74:3 87:8,13 174:22 driver 174:25 dual 6:17 65:20 66:12 due 115:14 duly 11:15 181:8 dx 122:24 123:1</p>	<p style="text-align: center;">e</p> <p>e 3:1,1 4:1,1 5:1,1 6:1,8,10 7:1,23 8:1 9:1,1 57:15,19 57:25 59:22 60:10 60:18 61:4,4 91:1 91:1 139:24 140:2 140:5,8,15,21,23 141:4,13 142:15 145:23,25 146:5 146:10 148:8 149:11 150:15 181:1,1 183:3,3,3 e.g. 118:19 earlier 13:21 35:15 44:8,24 51:23 79:17 94:4 94:6 114:17 117:1 149:11 150:5 151:24 154:13 early 6:14 21:25 27:22 28:11,21 29:4 36:16 37:1,5 37:25 38:12 39:6 40:13,23 42:13,19 47:13,17,21 48:1,9 49:12 50:5 53:15 54:8 56:12 58:2,8 58:19,25 62:10,21 62:25 65:18 67:6 67:17 68:5,9 79:2 80:5 82:24 83:1,8 83:11,16 99:5,17 99:24 100:5 101:20 124:1,3 146:12,18,25 147:22 148:8,10 148:14,15 149:13 149:16 151:7 152:11,15,18 153:14,20 154:4</p>	<p>157:4 169:15 170:3,6,16 171:4 171:17 172:11,19 172:21 173:3,15 175:3 easier 145:2 easily 93:12 easy 13:6 economic 38:9 69:7,10 100:14 168:21 economical 144:17 144:20 173:15 economically 87:21 104:14 167:21 176:10 economics 38:4,5 38:18 84:2,5,9 166:12,24 167:3 167:10 170:22 172:23 173:1 174:8 editor 65:17 effect 104:3 efficient 29:1 104:15 effort 22:13 80:17 egge 4:14 either 38:23 46:7 130:4 140:18 element 112:4,8,9 117:2 154:15 159:7,15,19,24 160:2 element's 159:8,11 160:7 elements 83:7 104:25 113:7 124:15 125:25 eleventh 4:6</p>
--	---	--	---

CONFIDENTIAL

[emerging - extremely]

Page 11

<p>emerging 116:6 emphasize 60:12 148:22 employ 93:3 employer 11:24 enable 112:15,21 133:1 enabling 108:4 118:19 encountered 156:3 158:1,4 161:16 ended 25:8,10,10 25:11,17,19 ends 20:6 70:17 83:20 85:22 87:2 109:3 engage 116:2 enter 36:16,25 80:23 95:1 143:16 144:13,16,20,23 149:9 150:1 entering 37:4 115:21 143:21 enters 95:23 entirely 123:19 165:13 entirety 108:15 entities 107:18 entitled 6:13,19 7:3,7,12,18 78:20 85:23 125:15 129:3 138:25 entrants 105:23 environment 28:2 28:7,25 29:10 52:10,18 53:22,25 88:10,11 147:12 172:21 173:16 environments 28:17</p>	<p>envisaged 119:6 envision 168:1 equate 165:12 equation 175:20 equipment 38:14 equivalence 51:17 equivalent 32:25 34:4,10 35:12 errata 182:11,13 182:17 esq 3:10,12 4:10 4:12,14,24 5:9 esquire 182:1 established 56:6 estimate 21:23 33:1,4 34:12,17,18 35:15,18 119:20 estimated 119:9 estimates 22:3 et 9:20 eu 78:10 europe 51:17 european 65:13 78:11 evaluate 42:14 evaluating 42:20 eventually 101:10 169:22 everybody 139:15 evidence 58:23 59:1 evolve 69:18,20 101:7 147:19 evolving 62:22 exact 48:17,25 49:15,23 50:2 54:7 84:22 108:17 108:18 exactly 148:5 examination 11:17 44:4 145:15</p>	<p>examined 11:16 example 74:7 99:4 142:24 166:1 167:19 169:24 examples 94:21 165:6 exceed 30:21 31:8 114:25 126:12 exceeding 31:17 excerpts 17:22 excess 102:22 103:23 exchange 129:6 137:1 145:25 excluded 154:1 155:17 execute 129:2 130:3 131:5 executed 129:24 137:8 executes 124:24 exhibit 6:10,13,19 7:3,7,12,18,23 8:3 14:12 16:13,15,17 16:18 56:25,25 57:3,5,6,18 64:11 65:2,4,8,8 66:23 67:16 69:23,25 70:1 73:24 75:6 75:18 97:12,14 102:7 106:12,14 106:15 113:14,16 113:20 117:4,7 125:10,13 133:5 139:18,20 145:20 146:4 151:10,12 153:6,22 154:9 163:9 exist 74:18 existing 102:22</p>	<p>exists 74:18 exit 83:22 84:1 exiting 85:8 exome 98:19 172:4 expand 71:22,24 74:10,22 81:21 151:25 152:5,6,20 expandable 138:8 expanded 131:3 expansion 76:12 138:19,21 expect 16:6 28:10 31:7 42:18 62:24 75:7,12 133:9 137:12 171:3 175:16,24 expectations 119:14 expected 86:4 137:5 expects 62:4,8 86:8 expedited 178:7 expense 86:3 expenses 86:4,9 expensive 59:13 experience 122:16 139:3 expires 181:21 explain 45:11 48:3 77:15 81:25 98:11 132:1 explore 140:24 expression 39:24 41:14 45:24 extension 129:15 extent 15:24 19:10 19:23 104:4 external 133:1 extremely 39:3 84:5</p>
---	---	---	--

CONFIDENTIAL

[f - flow]

Page 12

<p>f</p> <p>f 91:1 181:1</p> <p>facilities 28:12</p> <p>facility 124:25 170:22 171:9</p> <p>fact 155:16</p> <p>factor 103:12,14 103:17 175:14,17</p> <p>factors 102:17</p> <p>fails 182:19</p> <p>fair 32:8</p> <p>faith 129:19</p> <p>fall 100:7 152:12 152:16 169:16 170:7,12,24 173:3 173:10</p> <p>familiar 46:1 50:7 50:8,22 67:20 106:22 107:2 114:1 117:15 124:18 154:21 156:19,21 159:8 161:25</p> <p>families 66:14</p> <p>far 111:1 160:22 167:19</p> <p>farther 32:17 143:18</p> <p>favorable 174:8</p> <p>fda 21:24 22:4,13 51:10,13 52:1,5,7 52:16,21 53:8 78:10 123:7,14,20 124:2,9 133:19 134:9,25 135:12 137:2 147:23 148:4</p> <p>fda's 123:24</p> <p>feasible 167:21</p> <p>features 92:24 93:4,18</p>	<p>february 110:21</p> <p>fecal 50:5</p> <p>federal 1:3 3:3,5 9:19 10:20,23 12:6 17:6 182:4 183:1 184:1</p> <p>fee 128:9 135:20 135:23 136:8,12 136:15,20</p> <p>fees 127:14,17,18 128:5 129:6</p> <p>felon 8:3</p> <p>felton 1:20 2:13 6:3 9:18 11:10,14 11:23 16:16 20:3 43:7 44:6,16 47:12 55:10,13,17 55:25 56:7,11,24 57:2,4,5,11 65:2,3 65:5,7 68:1 69:23 69:24 70:1 80:1 88:15 91:9 97:13 97:18 106:13 113:15 117:6 124:18 139:19,22 140:1 144:5 145:17 163:7 176:20 177:14 180:5 181:6 182:5 183:2,24 184:2,4 184:12</p> <p>fewer 100:17,22</p> <p>field 137:20,23 138:1,1,3,14 139:1 139:5</p> <p>fifth 73:22</p> <p>filed 9:21</p> <p>files 136:6</p> <p>filing 127:19</p> <p>filled 105:3</p>	<p>final 109:15 137:19</p> <p>financial 85:23 110:19,24 111:2 130:21 135:16 136:23</p> <p>financially 10:9</p> <p>financing 121:25</p> <p>fine 12:17 26:2 178:6,18 179:5,7 179:13,15</p> <p>finished 115:10</p> <p>firm 10:6</p> <p>first 57:18,25 58:1 65:12 66:2,23 67:11 70:12 75:18 75:22 76:9 79:1 87:7 102:21 118:15 123:9,13 124:9 135:19 138:4 140:8 143:14 149:2</p> <p>fisher 11:9,11,25 12:2,8 29:3,9 45:1 45:4 49:5,9 52:20 53:1 62:4,8,13,15 62:18 63:14 66:11 68:13 71:8 73:5 73:11 74:13,21 78:13 79:19 80:1 80:4,13,16,21 81:4 81:5,15 83:17,25 84:21 86:7,21 87:12,22 88:1,4 89:2 91:25 92:1 92:17 93:5,17,25 96:9 100:25 105:16,22 106:3 107:18 108:1,3,9 108:15,18,22 110:4,25 111:22</p>	<p>115:7,13 116:12 116:17,20 118:2 118:11 122:23 123:8,13 124:9 125:5,20 126:6,10 126:20 127:3,8,16 128:3,4,16,22 130:12,20,25 131:3,13,15,20 132:3,22 133:6,24 134:8 135:10,25 136:16,25 137:9 138:8,13,20 140:14,25 141:24 142:25 143:9,20 144:23 153:18</p> <p>fisher's 44:17 46:23 47:2,6 48:25 49:16 52:5 53:5,10 63:23 64:2,6,14,23 68:2 68:4,16,23 69:1,5 69:9 72:9,25 76:17 77:3 86:4 91:11,16 103:25 104:4,8 105:5 113:6 118:24 119:14 127:23 134:20,22 135:3 137:1 142:9 143:2 143:11,23 150:1</p> <p>fit 72:8,10 84:3 167:23 168:8 171:18</p> <p>five 31:22 91:18 91:22 147:5,13 154:13 163:4 177:6</p> <p>fixed 35:10</p> <p>flow 25:2,24 33:16 38:17</p>
--	--	---	--

CONFIDENTIAL

[flows - genes]

Page 13

<p>flows 93:3 fluid 46:8 focus 70:24 71:10 100:1 focused 76:21 98:15,17 folder 16:19 folks 89:18 follows 11:16 footprint 74:10,23 170:2 174:6 foregoing 181:10 184:5 foreseeable 28:12 form 19:8 20:19 21:16 22:1,6 23:2 23:12 24:24 26:17 26:22 27:3,10,24 28:14 29:6 30:8 30:23 31:9,18,25 32:11 33:2,8,17 34:6,16 35:7 36:20 37:3,21 38:1 39:8,12 40:15,24 41:10 42:16,22 46:6 48:11,21 52:15 53:6,12,19 59:3 60:24 61:21 62:7 62:17 63:2,8,16,25 64:4,8 68:18 69:4 71:12 73:13 74:15 75:1 76:6 78:15 79:22 84:13,25 86:24 87:14 91:23 92:4 93:21 94:8 94:16 97:4 99:19 100:9 101:12,16 103:8,16 104:2,11 104:18 105:9 115:16 118:4</p>	<p>119:2,17 120:20 121:20 122:1,14 122:19 123:12 126:23 127:25 128:7 129:9 131:17,23 132:7 135:13 138:16 139:4 141:10 143:3,12 144:8,18 144:25 147:2,15 147:25 149:17,23 150:7,25 152:14 152:22 153:16 154:7 156:25 157:7 164:9 166:19 167:16 169:6,18,21 170:9 170:25 171:6,19 172:13 173:17,24 174:13,23 175:5 176:3 former 130:5,6 forth 181:8 forward 23:18 134:11 forwarded 141:4 foundation 19:9 20:20 27:25 29:7 31:19 32:1,12 33:3,18 38:2 40:16,25 67:22 123:23 142:3,12 148:12 154:7 169:19 170:10 171:1,20 172:14 173:18 175:6 176:4 four 18:7,9 30:18 31:21 52:23 86:23 124:14 145:13 162:24</p>	<p>fourth 72:17 86:16 fraction 175:10 frag 61:12 fragmentation 64:24 68:25 fragments 110:11 francisco 1:22 2:14 10:2 14:18 115:6,8,11 freenome 48:16,24 49:15,25 54:2 108:10,14,16 freenome's 54:7 frequently 58:3 ftc 16:9 19:10 55:16 177:19 ftc's 55:11,14,25 ftc.gov 3:11,13 full 11:21 14:15 33:23 57:25 66:7 102:25 fuller 18:13 fully 15:10 23:15 function 104:20 112:22 funding 23:21 120:11,13,19,23 121:3,5,8 further 74:3 177:15,20 future 7:4 28:13 28:17 62:6 74:17 74:25 133:10</p>	<p>150:10,16,18 garret's 61:4 genapsys 121:16 121:18,24 154:16 161:25 162:1,2,5 162:12 gene 39:23 41:7,14 45:23 98:16,18 125:4 137:25 169:11,12,24 172:3 general 40:2,4 41:11 48:22 49:10 108:7 125:19 139:5 144:1 160:16 174:4 generally 20:23 21:1 26:25 28:21 38:3,25 39:10,13 40:17 41:1 46:5 46:17,20 47:19 63:3 68:6 83:10 98:5 101:18 165:15,17 generate 32:24 34:4,10 38:7 40:10 41:4 58:21 62:19 71:6 170:21 generated 38:20 38:21 generates 167:25 generating 93:14 generation 6:20 30:16,25 31:5 45:13 60:8 70:8 71:6 87:4 107:25 108:6,12 109:21 112:10 genes 63:7,13,19 63:20,24 64:3,7 98:25 99:6,25</p>
---	--	--	---

CONFIDENTIAL

[genes - hematological]

Page 14

<p>100:2 genestudio 20:17 20:24 21:2 22:5,9 33:7,10,21 34:1 35:2 44:25 173:23 174:12 genestudios 34:3 34:13 35:16 genetic 82:18 genexus 21:24 44:24 78:1 117:23 120:6 167:22,24 genome 66:21 98:18,25 99:7,12 100:11 163:21 172:3 173:9 174:2 genomic 50:4 170:1 174:6 genomics 122:6,8 122:11 genotype 39:22 genotyping 41:15 getting 80:17 87:16 gigabase 156:12 gigabases 27:15 give 16:6 35:11 88:13 89:21 107:7 134:8 given 39:4 42:25 55:25 61:25 68:10 75:3 92:24 104:24 126:13 171:10 174:9 180:4 184:9 go 9:15 12:21 17:21 23:17 31:4 70:17 89:19 96:23 97:22 117:3 132:12 139:9 143:18 145:4 151:11 154:19</p>	<p>163:10 165:15,18 176:16 177:2 178:25 179:18,22 goal 61:1 78:16 112:14 118:24 goes 67:9 going 9:4 12:22 15:22 19:9 31:12 35:11,14 43:4,12 43:13 44:1 51:22 53:14 69:18 80:10 80:11,14 85:12 89:11,11 90:7 121:6,8 139:7,13 145:6 147:17 162:22 168:20 174:8 175:8 gonen 3:12 10:22 10:22 good 9:3 11:19,20 18:3 64:22 85:20 89:9 101:14,18 129:19 grail 1:13 4:3 6:11 6:12,22,23 7:5,6 7:10,11,16,17,22 7:24,25 11:2 12:10,11,15 44:9 48:16,24 49:14,25 54:7 56:6 57:10 70:2 97:17 106:18 113:20 117:10 120:17 139:25 144:6,22 151:13 170:24 182:4 183:1 184:1 grail's 145:20 156:19 163:10 granted 133:14 granting 129:1 133:24</p>	<p>grasp 40:19 great 43:8 44:3 89:16,24 99:20 139:14 140:6 162:19 greater 51:21 ground 157:5 grow 75:14 grown 89:7 growth 71:18,24 74:2,11,14,20 75:15,24 76:21 88:18 102:18 103:13,15,18 guaranteed 130:16 guaranteeing 130:14 guess 85:1 95:10 124:23 147:17 168:10,11 guide 51:2 guys 179:18 gx 61:13</p>	<p>h h 6:8 7:1 8:1 183:3 half 33:23 149:2 hampton 57:16 59:23,24,25 60:11 60:23 146:1,6,10 146:16 148:8 149:5 150:5,10,16 hand 18:6,10,12 78:22 79:8 88:21 100:8 102:16 111:4 130:19 171:22,24 173:10 181:14 hands 93:9,12,13 happen 143:17</p>	<p>happened 89:2,5 143:19 happy 13:10 178:25 hard 170:11 harder 144:23 145:2 harkrider 5:4,9 11:7,8 15:21 26:17,22 34:6 37:3 43:15 85:12 85:20 89:10,16,20 89:24 90:4 177:3 177:25 178:4,8 182:1 harvey 140:10,11 140:12,24 141:4,6 hd 61:10 66:10 67:17 head 13:4 50:21 heading 73:23 health 50:4 141:20 healthcare 175:12 hear 13:9,15 heard 162:11 hearing 12:22 13:14 15:14,19 16:10 17:5,9,13 19:12,21 23:1 24:9 26:15 29:21 35:5 36:7 37:17 42:5 hearings 19:15 heavily 172:22 held 2:13 hello 145:17 help 88:2 106:25 117:18 143:9 hematological 73:7 153:3</p>
---	---	--	---	---

CONFIDENTIAL

[heme - intend]

Page 15

<p>heme 46:16,18,18 47:3 82:23 83:4 83:12,18 152:7,8 153:1,2 herbst 145:25 hereinbefore 181:7 hereto 184:7 hereunto 181:13 hi 10:19 11:7 high 20:22,25 27:18 44:18 45:20 71:24 74:2,11,14 74:20 75:24,24 86:18,22 94:6,11 101:25,25 105:13 112:14,20 116:7 116:13,14,21,22 116:24 118:2,6,12 119:15 higher 31:5,13 35:6,12 92:9,19 94:9 105:7 112:15 112:21,24 highest 20:17 24:21 41:6 71:18 highly 6:16 64:5 65:19 66:19 67:3 75:24 84:6 hit 156:15 159:20 hitting 155:8 157:17 158:13 161:5 hmm 111:19 112:7 hold 64:12 honestly 63:22 horizontal 165:20 166:9 hospital 87:20 hour 43:5 85:14 89:14 139:8</p>	<p>hours 33:14,23,25 house 16:5 human 66:21 hundredfold 174:18 hundreds 170:19 170:21 huntington 4:22 hurdles 155:23 156:1,3 157:20,24 huth 4:20,24,25 11:4,4,5 20:1 178:22,24 179:7 huthreynolds.com 4:25</p> <p style="text-align: center;">i</p> <p>identification 16:17 57:3 65:4 69:25 97:14 106:14 113:16 117:7 139:20 identifiers 66:13 ih 27:4 36:22 illumina 1:9 4:18 9:20 11:6 12:9,10 27:18 51:9 56:5 85:3,5 91:14,25 92:18 96:20 98:20 103:1 105:7,12 120:17 144:22 173:20 182:4 183:1 184:1 illumina's 12:14 24:18,21 89:3 91:21 94:11 103:5 103:6,15,24 104:15 105:6,21 144:6 166:2 impact 144:6 impactful 148:21 149:4,12</p>	<p>implement 38:17 implementation 38:22 51:2 implemented 51:15 implication 149:7 importance 52:4 important 13:13 68:15 101:9 104:7 116:16 138:12 175:2 impose 131:21 132:3 imposed 132:8 imposition 132:11 inborn 82:17 include 102:18 157:24 includes 134:14 including 49:12 58:5 62:10 75:13 108:5 153:3 incorporate 119:22 incorrectly 13:18 increase 92:2 109:1 110:5 117:23 119:23 120:3 126:11,20 131:10 increased 91:17 increases 167:7 increasing 111:16 indicate 166:3 indicated 24:4 indicates 67:16 individual 170:17 individually 178:21 individuals 178:11</p>	<p>industry 139:3 infectious 72:6 73:10 infer 155:10 inference 103:9 inflation 126:19 information 141:6 155:20 158:20 160:14 inherently 172:20 inherited 82:17 innovate 76:23 79:20,23 144:16 144:20 innovating 63:1 innovation 63:3 78:24 79:13 144:7 144:10 inspections 134:17 installed 102:23 103:24 instruct 15:23 instrument 24:22 24:22 30:13,18,20 31:6 35:20 72:19 73:1 74:3 86:18 86:22 96:10,21 105:24 134:18,21 134:23 157:21 159:25 160:4 168:7 172:6 instruments 18:19 27:7 29:3,9 32:24 33:5 34:24 42:21 46:24 47:3 49:16 91:12,14 102:24 120:14,18,22 155:4 157:10,14 159:16 172:10 intend 93:17 149:18,20</p>
--	---	--	---

CONFIDENTIAL

[intended - large]

Page 16

<p>intended 138:18 intent 126:18 151:5 intentionally 154:5 interested 10:10 interfere 9:11 interference 9:9 interject 15:22 internal 155:19 158:19 160:13 161:9 interrogate 45:22 47:9 63:13 98:24 99:7 169:8 interrogated 100:11,16,18,23 interrogating 174:2 intervention 83:14 introduced 145:21 151:12 163:9 invasive 84:17 invest 81:6,14 86:25 122:17,20 investigational 16:10 17:5,13 19:12,15,21 investing 86:22 investment 121:13 136:21 investments 70:24 71:10 86:17 investors 122:17 122:20 involve 46:15 involved 70:14 113:10 163:22 involves 157:14 ion 18:18 44:22 45:2 60:8 66:10</p>	<p>66:18 67:17 131:4 132:10 133:2,19 133:20 142:19 144:4 165:24 166:13,25 172:5 172:10 174:7 175:24 ionosphere 109:22 110:10 ipo 122:13 ira 145:25 isp 7:14 113:22 114:25 115:19 isps 110:3,8,10 111:10,14 114:11 114:16,20 115:7,9 115:14 item 86:17 136:11 ivd 78:4,7,8,14 127:19,20,22 128:9,19,21,23 129:1,6,25 131:5 ivds 128:5 ivf 73:10</p>	<p>j</p> <p>jandrew 3:11 japan 78:11 jharkrider 5:10 182:2 job 1:25 john 5:9 11:7 182:1 join 20:1 joined 11:2 jordan 3:10 10:19 12:5 17:25 27:5 157:22 164:10 journey 78:3 judges 1:4 jump 162:16</p>	<p>june 1:21 2:7 9:5 181:15</p> <p>k</p> <p>karl 4:24 11:4 keep 139:13 kevin 140:10,11 140:12 key 72:20 73:2,4 73:12 78:20 87:5 102:17 118:19 119:5 174:24 kind 28:20 48:7 148:5 172:18 175:15 kinds 165:2 kit 133:18,19 134:9,11 137:2 kits 135:11 knew 99:6,25 know 13:20,24 15:5 16:22 17:24 18:24 19:18 21:9 22:19 24:2 25:1 25:11 26:8 29:15 31:13 32:9,13,21 33:11,15 36:1 37:9 40:8 41:20 48:12,23 49:19,24 54:4,6,13,14,21,22 55:2,7 56:11,19 59:4,7,13,18 68:20 69:19 70:18 80:9 80:11 84:22 89:10 95:4,11,16 96:2,7 97:25 98:2,6 99:22 101:13,21 108:10,11,14,14 108:21 109:14 113:9 121:4 122:4 124:15 126:17 128:2 136:8 137:4</p>	<p>139:21 140:17,18 140:19 148:5 154:24 155:3,7,12 155:22 156:2,4,13 156:14 157:9,12 157:14,16,19,25 158:3,7 159:11,15 159:19,23 160:2,6 160:25 161:4,10 161:11,15,19,20 162:4 163:17,23 170:23 173:11 179:2,16 knowledge 17:11 17:17 42:17 48:14 48:16 50:18 67:10 99:21 111:25 123:18 140:4 181:11 known 39:16 58:5 130:15 kumar 141:13</p> <p>l</p> <p>lab 124:24 167:11 labeled 82:10 164:14 laboratory 51:15 132:24 labs 61:8,20 102:24 103:4 150:20 167:4 lack 148:12 154:2 lacks 67:22 142:11 landscape 121:11 170:1 language 143:7 153:7 large 22:12 28:3,8 28:22 38:8 41:4 58:6,21 74:17,24 80:10,14 81:2</p>
--	--	---	--	---

CONFIDENTIAL

[large - march]

Page 17

<p>98:18 99:22 118:20 119:3,4 136:8 144:12 163:21 169:24 171:10 172:2 175:10 larger 80:5 late 21:25 107:11 113:3,11 latham 4:5 11:1 44:8 launch 154:25 159:12 launched 78:1 law 1:4 lead 7:13 76:12 leader 78:3,14 leading 54:10,18 54:24 55:4,9 56:17 74:1 80:20 81:8 85:10 87:25 88:7 123:22 143:24 leads 164:3 learn 99:15 leave 89:15 left 18:12 78:22 100:8 130:19 164:6 165:15,18 167:19 171:22 172:6 173:4 legal 10:4,7 109:10 131:24 180:7 182:23 letter 65:17 134:15 leukemias 153:4 level 44:18 45:20 48:12 116:13 120:10,12 125:20</p>	<p>levels 58:20 leverage 60:13 117:22 148:23 levy 136:20 libraries 120:8 library 61:12 93:10 119:23 120:2,4,4 licensing 127:19 127:21 128:4,5 limit 167:14 limitations 68:11 68:12,14 limiting 120:5 limits 165:23,25 166:4 line 18:16,24 20:6 20:6 21:7,7 22:17 22:19 24:1,2 26:5 26:6 29:13,14,15 32:18,20,20 35:24 35:25,25 37:8,9,9 41:18,19,20,22,23 41:24 86:3 119:13 140:20 166:9,12 166:16,20,24 168:14,18,23 171:23,24 172:1 183:4,7,10,13,16 183:19 lines 165:20,23 link 131:8 linked 103:19 links 52:8 liquid 39:25 46:2,4 46:6,8,11,15,18,20 46:24 61:11 79:2 79:16 118:20 119:4 141:20 164:14 169:1,4,7 169:12,17</p>	<p>list 55:11,14 56:1 154:16 listed 130:25 170:4 173:13 lists 130:19 litigation 44:9 little 32:17 85:13 119:18 139:8 168:23 liver 48:6 llp 4:5,20 5:4 11:5 local 76:14 located 10:1 location 14:16 long 31:15 52:20 59:7 69:20 94:23 95:22 146:14,21 146:25 longer 89:11 look 7:3 16:13 57:17 65:11 66:1 66:22 76:8 78:23 81:17 82:9 83:20 85:22 86:2,3,15 88:12,21 97:20 98:8 102:16 108:23 109:3 111:4 114:4 117:21 125:13 126:8 127:4,10 130:18 138:4 140:7 142:15 146:3 148:6 151:11 looked 59:23 looking 57:22 67:5 164:17 looks 109:23 141:4 losing 138:24 loss 88:23</p>	<p>lot 178:24 low 39:1 41:6 84:3 84:11 85:7 87:18 87:19 93:11,13 105:14 173:9 lower 27:17 39:7,9 41:8 112:15,21,23 168:23 174:14,19 lowest 166:9 168:5 lucky 122:4 lunch 89:12 luncheon 90:13 lung 48:6 138:2 lw.com 4:11,13,15 lymphomas 153:4</p> <p style="text-align: center;">m</p> <p>magnification 110:12 magnitude 174:17 mail 6:10 7:23 57:15,19,25 59:22 60:10,18 61:4,4 139:24 140:2,5,8 140:15,21,23 141:4,13 142:15 145:23,25 146:5 146:10 148:8 149:11 150:15 main 72:13 125:25 major 75:5 141:21 141:25 making 35:18 manage 175:13 management 12:3 158:11 manner 108:5 manpower 104:22 manufacturing 130:15 134:18 march 7:4,20 8:4 16:10 106:20</p>
--	--	---	--

CONFIDENTIAL

[march - millions]

Page 18

<p>109:7 117:11 140:9 margin 75:24 mark 56:24 64:10 65:1 69:22 97:11 106:11 113:14 117:4 125:9 139:17 marked 16:15,16 16:18 57:2,5 65:3 65:8 69:24 97:13 106:13 113:15 117:6 125:11 139:19 marker 18:10 54:3 markers 45:25 67:7 99:15 market 40:20 69:17,19 72:21 73:2,4,6,7,12,17 73:18 74:11,11,14 74:17,19,24 75:4 75:13,25 76:24 77:23 79:14,21,24 79:25 80:4,10,14 80:18,23 81:13 82:2,4,6 84:2,3 88:18 91:16,21,24 92:2 94:2,10,15,19 95:1,13,23 96:10 96:21 97:7 98:13 98:17,21 99:21 101:7,19,21 102:12 103:15 104:1,6 105:24 107:25 121:10 123:9,10,14,15 124:10,11 131:8 131:21 132:1 137:18 144:12,17 146:18 147:9,19</p>	<p>149:9 150:24 151:7 152:24 153:25 157:3 165:2,12 173:12 175:8 marketing 52:11 52:13 147:10 markets 73:8,10 80:12,16 marks 43:16,21 91:4 145:7,12 162:23 163:3 177:5,10 massachusetts 66:12 match 76:24 79:14 material 108:15 115:9 materials 49:11 155:11 math 34:20 matter 1:7 9:19 181:11 maximum 33:13 33:21 mced 47:13,17 48:15,18 49:17 53:16,24 54:22 55:2 59:18 62:6 68:15 69:10 72:8 72:10 73:11 74:13 74:23 76:3 80:17 100:19,20,23 101:1,9 123:16,20 144:7,10,24 175:25 mean 17:25 47:18 48:5 50:9 58:11 60:23 62:11 63:19 63:22 70:12 75:11 77:16 84:10 92:11</p>	<p>103:4 112:18 116:11 123:5,6 129:23 131:25 149:25 164:11 166:23 173:4 means 84:7 87:16 87:17 112:23 116:12 149:8 meant 134:7 146:16 measurable 50:9 50:11,13 73:8 83:9 measure 45:23 66:20 measured 47:22 measurement 41:14 measurements 39:24 measures 50:14 media 9:16 43:17 43:22 90:11 91:5 145:7,13 162:23 163:4 177:6,11 180:6 medical 65:13 132:19,23 medium 105:14 meet 44:10,11 79:20,24,25 81:12 meeting 17:3 mentioned 26:24 36:14 44:8 51:23 131:11 154:13 156:18 merger 12:14 merit 181:4 messages 87:5 messed 143:8</p>	<p>methylation 38:25 47:7,10,10 61:10 64:15 68:24 metric 25:9 mgi 91:15 166:2,6 166:7 168:14 michael 1:24 2:15 4:14 10:6 177:23 181:3,18 michael.egge 4:15 microarray 45:8 45:12,16,19 microarrays 40:22 41:8,13 45:20 microphones 9:6 9:11 mid 115:2 164:15 169:1 midatlantic 182:15 middle 66:1 midsize 169:5,11 midsized 98:16 169:17 midway 146:5 milestone 127:14 127:17,18 128:20 milestones 155:8 157:17 159:21 161:5,9 million 30:17 31:2 31:4 34:23,25 86:8 119:10,20 121:24 162:7,8,8 162:10 166:17,17 166:21,21 167:15 167:18,25 168:3 168:10,10 170:13 174:16 millions 45:25</p>
--	--	---	--

CONFIDENTIAL

[mind - novaseq]

Page 19

<p>mind 13:22 17:23 minds 68:21 minimal 82:23 93:1,9 minuscrypt 18:1,5 21:4 minute 97:20 minutes 43:6 176:17 mischaracterizes 83:6 92:22 149:24 172:14 missed 122:3 misstates 27:2 35:8 36:21 mix 77:9 mm 111:19 112:7 model 110:19,24 111:2 146:19,20 147:1 moderate 103:18 moderates 103:14 moderating 102:18 103:12 molecular 65:20 66:13 molecule 66:14 moment 16:21 22:7 money 119:15 122:22 167:9 monitor 120:10,12 monitoring 79:4 83:15 monlecular 6:17 morning 9:3 11:19 11:20 move 99:17 165:15,17 mrd 50:7,8,17 51:23,24 52:1,3</p>	<p>53:4,9 79:3 82:21 83:3,4,12,18 152:8 152:9 multi 27:22 28:10 28:20 29:4 36:16 37:1,5,25 38:12 39:6 40:13,23 42:13,19 47:13,17 48:1,1,9 53:15 54:8 58:7,19,25 59:8,14,20 62:10 62:21,25 68:5 80:4 99:5,16,24 100:5 123:9,14 124:1,3,10 147:22 148:10,15 149:13 149:15 151:6 152:11,15,18 153:13,20 154:4 169:15 170:3,6,16 171:4,17 172:11 173:3,15 175:3 multiple 34:3,9 84:22 105:2 120:7 multiplied 34:23 66:19 multiplying 35:10 mutation 6:18 65:20 mutations 50:14 51:4</p>	<p>141:6,18,25 142:7 142:18 143:5,9 natera's 140:25 natively 117:9 nature 84:6 157:24 near 28:17 69:18 133:10 necessarily 62:11 172:24 necessary 13:11 23:20 184:6 need 12:25 13:23 60:12 89:22 100:16 103:21 111:11,15 148:22 162:16 168:21 175:12 178:6 179:10,10 needed 58:8 63:12 100:18,22 needing 115:19 needs 76:25 79:14 79:21,24,25 136:12 negotiated 133:14 negotiating 137:8 neither 56:5 never 61:14 new 4:22 5:7,7 30:16 71:25 79:14 79:20,24 94:1 117:22 118:1,17 119:22 121:13 newly 66:3,9 ngs 38:21 39:7 41:9 45:4 46:12 53:17 56:14 63:6 64:14,17,23 68:16 76:13 88:17 91:12 91:13 93:11 96:10</p>	<p>96:21 98:13 102:12 107:10,19 108:2 110:8 112:14 114:20 116:7,14,21,23,25 120:13,18,21 121:9,18,21 122:9 123:9,15 124:10 155:15,24 156:5 156:10 159:1 160:8,20 161:12 161:21 162:12 168:6 nice 44:10,11 nipt 83:22 84:1,6 84:10,15,16,21 85:6,7 nod 13:3 noise 112:19,20,22 112:23 non 45:4 63:18 84:17 130:21 nonfinancial 130:24 normal 127:22 normally 137:12 norway 115:1,8,10 notarial 181:14 notary 2:16 11:15 181:19 184:13,19 note 9:6 182:10 noted 91:3 180:9 184:7 notes 181:10 notice 2:15 noticing 10:17 novaseq 24:25 25:2,6,12,23 32:25 33:12,12 34:2,5,15 35:13,18 166:2 168:17 173:22</p>
	n		
	<p>n 3:1 4:1 5:1 6:1 9:1 91:1,1,1 112:14,18 160:11 n.w. 4:6 name 10:3 11:21 12:5 44:7 nanopore 91:15 natera 50:20 51:24 140:21</p>		

CONFIDENTIAL

[novaseq - oncology]

Page 20

<p>174:5,7,9,12,14 176:2 november 181:22 nucleotide 38:24 39:22 45:23 number 9:23 27:16,21 28:3,8,19 28:22 34:13 35:1 35:10,15 38:8,19 38:20 39:4 40:9 41:4,5 43:17,22 51:14 81:18 84:23 85:1 90:11 91:5 93:7 94:17 101:5 104:21 107:8 108:4 110:18 111:13 127:10 144:13 145:7,13 162:24 163:4 165:4,14 170:15 174:17,19 177:6 177:11 180:6 numbers 39:1,23 87:19 146:4 151:21 163:11 166:4 167:2 171:10 nvp 111:5</p>	<p>48:21 53:6,12,19 61:21 62:7,17 63:2,8,16,25 64:4 64:8 68:18 71:12 73:13 74:15 75:1 76:6 78:15 79:22 84:25 90:7 145:6 149:17 150:7 152:14,22 153:16 162:22 166:19 167:16 169:6 170:9 171:6,19 174:13,23 175:5 objection 19:8 20:1,11,15,19 21:16,17,21 22:6 23:3 24:10,15,24 26:21 27:3,24 29:6,22 30:2,8 31:18,25 32:11 33:2,8,17 34:6,7 36:8,12,20 37:3,21 38:1 40:15,24 41:10 42:6,16,22 43:15 49:3,8,22 52:15 54:10,18,24 55:4,9 56:17 59:3 59:10,16 60:24 67:19 68:7 69:4 69:14 80:7,19 81:8 83:5 84:13 85:10 86:24 87:14 87:25 88:7 91:23 92:4,21 93:21 94:8,16 95:2,8,14 95:20,25 96:5,11 96:22 97:4 99:9 99:19 100:3,9 101:2,12,16 103:8 103:16 104:2,11 104:18 105:9</p>	<p>115:16,24 118:4 119:2,17 120:20 121:20 122:1,14 122:19 123:12,22 124:5,12 126:23 127:25 128:7 129:9 131:17,23 131:24 132:7 135:13 138:16 139:4 141:10 142:2,11 143:3,12 143:24 144:8,18 144:25 147:2,15 147:25 148:11 149:23 150:25 154:6 156:25 157:7 158:16 164:9 169:18 170:25 172:13 173:17,24 176:3 objections 10:15 19:16,19 23:7 24:11 26:16 27:3 36:22 37:22 42:10 55:24 obtain 52:21 120:14 obtained 58:25 122:23 obviously 55:23 october 57:19 70:10 146:7 oem 7:14 113:21 114:10 offer 62:18 81:6 134:13 135:15 offered 131:9 offerings 151:25 152:5 office 1:4</p>	<p>oh 150:3 okay 16:13 17:21 18:15 21:3,5 23:23 24:5 25:21 26:2 29:11 32:15 35:22 37:6 41:17 42:1 43:2 44:16 52:4 55:22 56:4 56:22 63:19 64:22 78:25 85:2,20 89:16,24 97:10 98:4 106:10 115:12 117:3 118:15 125:12 139:14 140:7 143:8 150:3 151:9 151:19 154:9 156:17 158:24 159:5 160:10 161:24 162:4,23 163:7,17 164:21 165:8 176:14 179:21 old 61:14 omitted 154:5 omniome 94:22 96:8,19 106:8 108:24 117:2 154:15 156:19 157:9,16,19 158:1 158:18,19,25 159:1 omniome's 94:25 156:20,24 once 25:2 126:10 129:19 oncology 49:7,20 49:24 50:1,3 65:14 70:25 71:3 71:4,11 72:4,9,11 73:9 74:2,11</p>
<p>o</p>			
<p>o 9:1 91:1,1,1 160:11 o'connor 1:24 2:15 10:6 181:3 181:18 oath 13:17 object 19:10,22 22:1 23:2,12 26:17,22 27:10 28:14 30:23 31:9 34:16 35:7 39:8 39:12 43:13 48:11</p>			

CONFIDENTIAL

[oncology - patients]

Page 21

<p>75:25 76:4,10 77:10,19 78:4,7,8 78:14 80:6,16 81:4 87:6,23 91:17 92:3,8,20 93:6,15,19,23 99:2 123:10 124:11,19 124:21,22,24 125:1,2,6,8,15,21 125:25 126:6,22 127:9 130:12 131:14,22 132:4,5 141:1 151:25 152:4,13,16,20,25 153:1,2 165:1,3 ones 50:19 61:23 117:1 154:17 157:25 173:19 onetouch 159:2 open 143:20 151:13,15 operate 29:1 147:11 167:4,12 operating 81:5 opinion 147:4 153:13 opportunities 72:21 73:2,5 129:19 opportunity 19:19 73:12 114:20 121:13 opposed 46:9 69:12 71:7 146:20 orally 12:25 order 144:16 178:18,21 179:1 179:17 ordering 179:16 orders 174:17 177:24</p>	<p>organ 48:7 origin 47:25 48:4 48:10 originally 26:1 oriz 10:3 ortiz 5:16 outcome 10:10 outline 70:9 107:16 126:4 outlined 30:11 117:1 outlook 75:19 output 32:25 34:4 34:10,14 35:17,19 105:11 outputs 105:13,17 105:20,21 outside 16:5 107:18 116:15 overall 75:7 82:4 91:24 120:8 overcome 157:25 overtake 80:11,15 overview 77:7 oxford 91:15 oyster 14:17</p>	<p>32:17,19,20 35:24 35:24,25 37:7,8,9 41:18,19,20,23,24 57:18,23 65:12 66:23 70:12 72:13 73:23 78:17 85:22 88:12 98:6 102:10 107:6,9 109:3 112:2,2 114:4 125:24 132:13 133:4 140:8 146:3 146:5 183:4,7,10 183:13,16,19 pages 18:7 paired 25:10,11,14 25:17 panel 98:22,23 99:8,22 100:2 125:4 163:21 167:20 169:7,7,14 169:25 174:1,6 panels 98:16,18 99:1,18 100:6 118:21 119:3,4 164:15 169:1,5,13 169:17 172:3 173:8 panorama 141:19 142:8 paragraph 58:1 66:2,23 112:13 141:17 142:16,17 part 45:16 48:1,4 63:4 72:24 93:11 97:25 98:17 107:23 168:12 participate 71:19 116:6 participation 116:13</p>	<p>particle 109:22 particles 110:10 particular 51:3 93:10 137:25 143:17 165:5 167:3 171:15 particularly 13:13 54:2 108:24 parties 9:15 129:18 partner 73:25 132:6 133:1 partnering 7:20 117:11 partnership 71:23 125:6 126:1 132:14,21 133:5 136:9 137:6,10 138:14 140:25 partnerships 72:5 74:8,22 parts 19:11 94:2 106:3 party 10:8 55:15 pass 141:6 path 123:20 pathology 93:16 patient 27:1,9,16 27:21 28:3,8 51:2 51:6 52:9,18 71:6 87:17,19 88:3 92:14 100:15,17 100:22 101:5,17 167:7 patient's 47:24 patients 28:19,22 28:24 55:3 58:5 76:13 82:18 101:11 102:3 171:11</p>
	<p>p</p>		
	<p>p 3:1,1 4:1,1 5:1,1 9:1 160:11 p.m. 145:8,10,11 145:14 162:24 163:1,2,5 177:7,8 177:9,12 180:3,9 pacific 91:14 page 6:2,9 7:2 8:2 17:23 18:1,1,5,5,7 18:7,11,13,16,24 20:6,6 21:4,6,7 22:15,16,19 23:24 24:1,2 26:4,5,6 29:12,13,14,14</p>		

CONFIDENTIAL

[patterns - portion]

Page 22

<p>patterns 47:7 68:24 paul 5:15 pay 127:14,17 128:12,20 135:24 136:16,25 paying 127:11 payment 128:20 129:3 pcr 37:24 38:11,17 38:20,22,23 39:7 39:10,19,25 40:3,3 40:4,12 66:20 pdf 18:1 pdt 2:8 pegged 31:2 pending 14:1 109:10 percent 75:8,15,23 89:4,7 102:25 103:21 104:17 109:17 126:13 128:12 137:15,16 169:20 perfect 57:7 perform 64:15,17 68:25 performance 75:19 period 34:11 104:24 127:4 146:21 personalised 6:18 personalized 65:20 67:3 personally 163:15 pgm 44:25 123:1,2 ph.d. 1:20 2:13 6:3 9:18 11:14 180:5 181:6 182:5 183:2 183:24 184:2,4,12</p>	<p>pharmaceutical 51:5 52:8 130:1 phase 83:11 pick 9:7 pieces 98:2,4 pittsburgh 132:19 132:23 place 9:10,14 133:8,10 168:4 175:21 placed 155:4 157:10 159:16 placement 74:3 placing 157:14 plaintiff 9:19 plan 55:17 71:9 72:25 83:17 87:12 93:22 148:20 149:3,8 150:1 152:4 planner 70:13 planning 70:9 83:25 86:21 93:25 115:13 149:9,15 plans 19:10 36:15 36:17 62:15 79:19 87:22 88:1 103:25 104:4 151:24 152:6,19,23 plasma 46:7,21 50:15 61:13 67:6 platform 14:9,13 14:24 21:2 22:9 22:11 23:10,18,21 24:25 25:3 30:5 30:10 42:15 43:1 44:24,25,25 53:8 78:2 79:13,20,24 84:3 86:18,23 93:8 94:3,5,7,10 95:1,12,23 96:13</p>	<p>103:20,20 105:5 105:11 107:11,19 108:2 116:7,14,21 116:23,25 117:22 118:2,6,8,12,17 119:6 120:9 121:19,22 122:9 122:25 123:1 131:4 133:20 135:3,6 142:20 143:6,11 144:4 149:22 150:23 154:2 155:1,15,24 156:2,6,10 159:1 159:13 160:8,20 161:13,22 162:3,5 162:12,13 165:24 166:2,3,6,7 167:22 167:24 168:24 170:16 172:19,20 174:6,7,7,9,15,20 platforms 12:4 27:19 41:7 44:20 44:23 61:25 63:7 63:24 64:7,14,17 64:23 71:14 73:16 77:22 80:25 82:8 84:8 87:17 93:9 94:12,19 103:22 104:5,9 105:6,13 105:14,15,17 121:9 141:21,25 142:10 143:2,23 147:7 151:3,4 154:12,14 166:4 173:13 176:11,12 play 81:1,22 83:17 148:20 149:3,8,15 149:19,21 player 149:10</p>	<p>players 98:21 144:13,15 playing 74:19 149:13 153:8 please 9:6,9 10:15 11:21 12:24 16:21 18:22 22:18 23:24 27:5 32:19 37:8 41:19 44:16 56:24 57:1 63:10 64:10 65:2 69:22 78:18 97:11,21 106:12 113:14 117:5 125:9,13 132:1 139:18 142:4 145:19 151:14,17 163:9 164:24 178:16 plus 115:18 pma 123:3,17 pmg 122:24 point 13:17,23 14:17 25:25 31:14 32:7 56:5 147:20 167:10 points 38:8,19,21 39:4 40:9,11 41:4 41:5 policy 108:3 polymorphisms 39:23 poor 84:6,10 population 28:5 58:20 175:11 portfolio 150:2 portion 19:3,5 20:5,8,14 21:8,12 21:19 22:23 23:10 23:25 24:6,17,20 25:16 26:7,11,14 29:18 36:4 37:13</p>
---	---	--	---

CONFIDENTIAL

[portion - purely]

Page 23

<p>37:16 42:2 98:25 99:6,12 129:3 position 12:1 108:7 possible 25:1 31:14 32:5,10,14 64:1 69:16 75:2 101:6 138:7,15 172:17 possibly 31:21 73:25 post 83:10,14 potential 72:6 74:17,24 96:9,20 105:23 116:7,14 116:21,22,25 118:5 120:11 144:12 155:4 157:11 159:17 potentially 73:7 98:21 100:14 116:14 117:2 119:22 151:2 157:4 162:8 170:13 power 131:21 132:1 practically 171:3 predominant 173:12 prefer 105:5,10 preferred 54:23 55:3 pregnant 84:17 preliminary 55:14 premarket 122:24 123:4,7 prenatal 84:17 prep 93:11 preparation 15:19</p>	<p>prepare 15:14 prepared 89:2 preparing 81:14 presence 46:21 47:21 50:14 present 5:14 10:11 presentation 70:15 106:18 113:21 114:2 117:9,16,19 president 12:3 60:1 150:13 presumably 103:19 131:9 pretty 115:20 prevalence 6:13 65:17 previously 47:12 164:22 171:16 172:9 price 84:10 85:6 126:11,21 137:17 167:1 173:21,22 173:25 174:22 175:1,9 176:1,8 primarily 28:11 44:22 61:23 83:13 92:15 125:3 primary 38:13,17 41:15 61:1 91:13 primer 39:16 primers 45:21 49:1,6,10 principles 160:17 print 166:10 prior 16:3 17:2,9 23:14 priori 39:17 priorities 76:9,18 77:4</p>	<p>private 9:8 probably 89:14 119:18,20 137:15 143:15 147:5 158:12 168:15 problem 172:25 173:1 176:21 proceeding 10:15 55:11,18 proceedings 91:2 process 31:23 33:22 93:14 107:17 123:25 124:3 134:12 produce 25:6 30:6 34:14 35:17 115:7 produced 115:10 117:9 product 12:3 61:13 97:3,9 122:17 150:2 production 115:1 115:14,19 products 60:7 71:16 82:6 87:24 program 124:13 124:14 130:4,8 programs 14:22 project 23:16 32:7 141:1 projected 108:25 111:10,14 113:11 154:24 159:11 projecting 111:19 projection 111:18 projections 111:6 projects 124:17 pronounce 64:20 proposal 133:25 propose 142:18</p>	<p>proposed 12:12,13 12:14,15 36:18 37:2 133:7 136:9 136:9 proposing 142:25 143:5 proposition 168:21 prospective 58:4,6 59:7,14,19 protein 54:3 56:15 protocols 61:12 proton 45:2 prototype 155:4 157:10 159:16 provide 25:15 61:7,9,19 62:5,8 150:19 provided 16:9 19:7 20:10 21:15 23:1 24:9 96:23 141:5 160:16 provider 116:21 149:22 providers 116:8 116:15,23,25 provides 135:10 providing 110:4 150:23 151:2 provision 129:14 136:5 public 2:16 11:15 181:19 184:19 publicly 162:10 published 65:12 pull 74:4 purchase 103:21 155:11 purchased 104:6 purely 77:24</p>
---	---	---	---

CONFIDENTIAL

[purpose - receive]

Page 24

<p>purpose 7:13 pursuant 2:14 12:19 pursue 69:11 pursuing 108:1 push 87:22 put 80:16 167:7 178:20 putting 144:3 px7070 16:15,17 16:22,24 17:14,19 17:24</p>	<p style="text-align: center;">r</p> <p>r 3:1 4:1 5:1 9:1 91:1 181:1 183:3 183:3 r&d 86:2,4,9,17 136:21 rafferty 5:15 raised 121:24 122:12 range 105:12,16 105:19,20 124:16 137:11,14 161:3 167:12,25 168:2 168:11 169:11 170:14 176:9 rate 75:15 92:10 92:19 126:19 rates 71:18 rathbun 4:10 6:5 10:25,25 17:25 19:8 20:11,15,19 21:16,21 22:1,6 23:2,7,12 24:10,15 24:24 26:16,21 27:2,10,24 28:14 29:6,22 30:2,8,23 31:9,18,25 32:11 33:2,8,17 34:7,16 35:7 36:8,12,20 37:21 38:1 39:8 39:12 40:15,24 41:10 42:6,10,16 42:22 43:14 44:3 44:5,7 55:8,16,22 56:8,10,23 57:8 64:10 65:1 69:22 85:16,21 89:8,13 90:9 91:8 97:11 106:11 113:13 117:3,8 125:9 132:12 139:7,14</p>	<p>139:16,24 145:3 147:2,15,25 148:11 149:17,23 150:7,25 152:14 152:22 153:16 154:6 156:25 157:7 158:16 164:9 166:19 167:16 169:6,18 170:9,25 171:6,19 172:13 173:17,24 174:13,23 175:5 176:3,16 177:13 178:15,17,19 179:4,9,24 ratio 112:19,21 rationale 116:5 raw 115:9 reach 30:17 31:11 42:24 reaching 140:24 reaction 39:2 61:6 61:19 150:18 read 19:11,24 24:4 29:16 32:22 36:2 47:8,11 66:7 79:17 88:19 112:25 162:8,10 166:4 169:9 170:13,20 174:11 174:21,24 182:9 184:5 reading 142:13 reads 25:6,9,10,12 25:12,14,17,18,20 25:22 27:14 30:7 30:11,17,22 31:2,4 31:8,17 34:23,25 35:1 118:18 146:11 148:19 150:17 153:7</p>	<p>156:8,13 165:5,14 166:10,17,21 167:15,18 168:1,3 168:11,20,25 170:15 174:2,15 174:16,18,20 ready 16:22,23 18:25 19:1 21:9 22:20,21 24:3 26:8,9 29:15 32:21 36:1 37:10 37:11 41:21,25 177:2 179:23,25 reagent 49:10 61:22 108:4,8 130:15 151:2 reagents 44:20 49:1,5,11 62:5 92:6 107:24 108:10,13,18 133:20 159:4 realize 13:17 really 97:8 98:14 realtime 181:4 reask 20:2 reasking 19:24 reason 15:9 38:13 128:24 182:11 183:6,9,12,15,18 183:21 reasonably 30:9 31:10 reasons 38:4,5,10 38:14,15 40:8 rebalance 70:23 rebalancing 71:9 recall 65:10 97:24 140:13 receipt 182:18 receive 21:24</p>
<p style="text-align: center;">q</p> <p>quality 112:25 quantity 110:3 quarter 122:12 129:20 question 13:18 14:1 16:1 18:4,17 18:23 19:25 20:3 21:6 22:16 26:5 27:6 63:9 69:8 95:5 104:12,20 120:21 questions 12:23,25 13:5,9,10 14:6 15:7 19:16,20 44:1,13 56:1 134:25 135:2 136:7 145:18,24 151:24 154:11 159:6 163:8 176:15,24 177:15 177:20 quick 139:10 quickly 60:13 148:23 quinten 5:11 quite 42:25 63:22 146:13</p>			

CONFIDENTIAL

[received - rest]

Page 25

<p>received 120:18 120:22 121:2 123:17 recess 43:19 90:13 145:10 163:1 177:8 recipients 140:5 recognize 16:24 17:1 57:11 70:5 97:18,23 140:1 recollect 160:9,23 162:7,9 recommend 21:1 recommendation 83:22 reconfigure 142:19 143:1,6,10 143:22 reconvening 43:20 145:11 163:2 177:9 record 9:4,15 10:14 11:22 13:1 13:3,6 14:8 19:17 19:24 43:10,12,13 43:18,23 45:12 57:8 84:14 89:19 90:7,12 91:7 97:16 117:8 145:4 145:6,9,14 162:22 162:25 163:5 176:17,23 177:2,4 177:7,12,24 180:3 181:9 recorded 9:17,24 12:23 recording 9:13 recurrence 79:3 refer 12:8,9,10,12 46:15,20 82:4 145:20 151:22</p>	<p>153:5 reference 124:24 referenced 24:18 24:21 149:11 182:6 referencing 46:14 referred 25:23 31:7 referring 12:14 18:4 24:23 25:17 25:19 33:6,9 35:1 38:6 48:19 51:25 52:2 53:8 72:3 74:7,8 114:15 146:18 148:9,14 148:16 refers 46:18 72:5 78:8 84:16 regarding 14:7 36:22 79:16 regardless 47:24 48:3 146:12 175:21 regards 134:24 region 100:11 registered 181:3 registrational 58:7 59:8,14,20 regulated 78:8 regulation 51:16 regulatory 52:19 78:9 134:1,6,15 135:9,20 136:2,6 reimbursement 167:13 relate 158:25 related 10:8 51:5 82:8 93:8 128:5 128:10 136:2 154:11 160:7 161:12</p>	<p>relates 82:2,3 159:2 relationship 45:18 125:20 relatively 41:6 release 96:24 97:3 relevant 61:9,20 61:24,25 99:16 150:21 151:4,6 152:9 173:20 175:11 remains 23:13 remember 13:19 47:14 140:3,6 remind 13:16 remote 1:19 2:12 14:7 remotely 2:13 3:4 4:4,19 5:5,14 9:25 10:12 13:14 14:6 repeat 27:6 142:4 rephrase 13:11 164:12 report 67:11 150:9 reporter 1:24 10:5 12:24 13:1 110:18 151:20 181:4,4 reporting 92:14 represent 10:20 44:9 165:21,23 representing 11:8 reproductive 141:20 request 13:25 128:16 130:2 requesting 128:8 179:3 require 22:12 28:2 28:7,8,21 30:25 31:3 40:9 58:21 136:21 147:23</p>	<p>148:4 169:13 required 27:22 30:12,15 35:16 39:5 82:8 136:19 158:22 165:15 172:18 184:13 requirement 170:20 171:10 requirements 81:12 requires 28:6 33:24 39:15 115:22 165:5 170:15 175:9 requiring 20:22 93:1 127:16 research 12:4 71:7 76:21 77:10,22,24 102:13 103:10 reserve 19:22 44:2 176:23 residual 50:9,11 50:13,14 73:8 82:23 83:9 resistance 79:4 resources 70:23 71:10 respect 103:25 118:25 135:3,5 respectively 141:21 respond 150:16 responded 61:3 responds 59:23 response 79:4,9 142:13 responsibilities 60:2 responsible 60:6 rest 44:2 108:22 116:24</p>
---	--	---	--

CONFIDENTIAL

[restricted - scale]

Page 26

<p>restricted 98:24 restrictions 139:1 139:2,6 result 93:2 resulted 115:18 results 58:4 71:7,7 92:15 93:14 resumed 91:2 retained 92:9 180:7 retaining 77:20 92:19 retrospective 58:3 return 122:21 182:13,17 reveals 15:24 revenue 81:3 116:19 128:12 130:17 review 7:9 15:18 15:20 16:21 17:9 18:22 19:2 20:4 21:8,11 22:18,22 23:25 24:6 26:7 26:10 29:14,17 32:19 35:24 36:3 37:8,12 41:19 42:2 106:19 107:4 109:11 142:21 164:4 182:7 reviewed 16:2 revised 158:15 reynolds 4:20 11:5 right 13:21 18:6 18:10,11 19:22 20:2 35:2,20 41:3 43:6 44:1,3,14,15 45:6,9 46:12 49:17 54:15,17 55:20 56:16 57:23 73:2 79:8 85:9</p>	<p>86:9 87:24 88:6 88:21 89:8 90:3,5 91:22 94:7 96:17 100:8 101:20,22 102:16 104:9 105:18 106:20 109:1,12,25 110:6 110:22 111:4 113:13 115:15 121:19 122:9,13 122:18,25 127:12 129:8,15 131:16 137:2 139:15,17 141:8 145:3 146:1 148:10,17 150:6 152:1 164:6,8 165:10,16,18 166:11,18 167:20 168:7,13,18 170:21 171:24 172:1,7,12 173:10 179:9 rights 127:3,8,19 127:21 128:5,9,10 128:20,23 129:1,1 129:7,25 131:6 133:14,17,23 rmr 1:24 2:15 181:18 rna 169:9 roadmap 78:3 164:1 role 149:13,15 room 10:12 14:20 roughly 161:8 round 121:25 routine 71:5 77:18 92:7,12,13,14 93:15 row 78:24 134:6 135:9,17 136:23</p>	<p>137:19 138:5 royalties 138:24 royalty 127:12 128:12,17,21,23 131:12 136:23,25 137:4,10,12 rule 52:19 144:1 rules 44:12 run 25:2,7,13,24 26:1 27:14,16,17 28:11,16 30:7,11 30:17,22 31:2,4,8 31:17 33:11,15,20 33:23,25 34:2,3,9 34:13 35:9,10,12 35:16,19 100:25 104:22 105:1,10 118:18 119:24 142:9 143:2,23 155:22 156:9 157:20 159:6 165:3 167:3 168:1 168:3,20,22 172:18 174:6,16 174:16 175:17 running 14:13,23 30:18 33:12,21 102:2,24 104:16 162:16 170:19 172:20 175:25 runs 24:1 109:24</p>	<p>sample 35:5 46:6,7 46:7,8,9,9 93:2 166:13,25 167:1 167:13 168:20 170:17 173:21,22 173:25 174:3,22 174:25 175:1,9 samples 27:1,9,16 27:21 28:3,8 87:19 100:15,17 100:22 101:5 104:21 167:2,7 168:22 170:20 san 1:22 2:14 10:2 14:18 115:6,8,11 saw 91:20 saying 63:17 118:10 149:6 says 60:11 66:24 70:22 71:21 72:13 72:18 73:20,24 75:6,18,22 76:10 76:11,20,22 77:8 77:25 78:24 79:1 79:9,12 82:13 83:22 87:5,7 88:22 102:17,21 109:6,10 112:13 113:2 114:19,24 116:5 118:16 119:8,21 126:9 127:2 128:11 129:11,17 130:21 133:17 135:19 137:20 138:6 141:17 142:17 149:2 scalable 69:7,10 scale 7:15 38:8,14 38:18 39:3 40:10 115:14,19,22</p>
		s	
		<p>s 3:1,10 4:1 5:1 6:8 7:1 8:1 9:1 91:1,1 91:1 112:14,18 183:3 s.w. 3:7 sabre 119:23 sales 62:16 74:10 74:23</p>	

CONFIDENTIAL

[scale - set]

Page 27

<p>168:22 170:18 171:5,9 172:25 scales 170:20 scaleup 113:22 schodin 140:9,17 140:23 sciences 48:17,25 49:15,23 50:2 54:7 108:17,19 scientific 7:19 11:11,25 12:2,8 29:9 49:9,12 63:4 66:11 108:22 138:9 scientist 63:18 screen 6:15 65:18 67:2,18 171:10 screening 28:5 58:2,20 67:12 68:5 82:10,11,14 82:15,16,19,23 scroll 88:12 112:1 141:3 151:16 171:12 scrolling 17:23 59:22 141:12 seal 181:14 second 15:22 72:13,17 76:20,21 77:7 98:17 112:13 113:1 114:7,19 119:7 130:20 140:8 141:17 168:1,25 section 32:22 75:18 77:8 113:2 114:7,19 130:21 139:9 see 16:20 18:20,21 31:1 57:4,6,20 58:9,14 60:16,21</p>	<p>61:15,16 65:5,12 65:15,16,21,22 66:5,6,16,17 67:8 67:14,15 70:3,21 71:1,20 72:1,2,12 72:15,22,23 73:9 74:5 75:9,20 76:1 76:15 77:1,13 78:5,19 79:6,10,17 80:25 81:19,23 82:12,13 83:21,23 85:25 86:5 87:10 88:15,20,24 97:15 98:10 102:14,15 102:19 103:2,3 106:15 107:9 109:5,8 110:16 111:7,8 112:3,6,12 113:4,5,24 114:6 114:12,22 115:3 116:9 117:13,24 118:22 119:11,25 125:17 126:2,14 127:6 128:14 129:21 130:22,23 132:16 133:13,15 133:21 134:4 135:21 136:13 137:21 138:10 140:14,20 141:2 141:15,22 142:22 142:23 146:8 151:19 153:11 162:15 164:16 166:14 169:2 176:19 seek 128:3,4 seeking 22:4 42:14 135:11 175:3 seen 65:7 129:10</p>	<p>sees 73:5 segment 73:17,18 74:14,20 75:4 77:21,22,23,24 80:18 81:7,13 82:6,21 83:12 91:17 92:3,20 149:9 152:1,25 163:22 segments 71:18,24 72:4 74:2,12 75:13 77:17 82:2 83:2 153:8 165:1 165:9,12 selection 50:23,25 51:1,8,10,13 52:6 52:19,22 53:2 60:14 61:2 73:6 92:16 148:24 152:7 self 47:8,11 51:16 169:9 sell 97:9 sells 49:5,10 sense 97:7 sensitive 6:16 9:7 65:19 67:3 175:8 175:14,17 sent 146:6 182:14 sentence 58:1,12 58:15,18 66:2,8 142:16 146:11 148:19 149:2 separate 179:3,11 sequence 39:16 63:7,24 64:3,7 sequenced 27:22 28:4,9,22 sequencer 20:18 63:15 68:2 111:23 118:25 119:16</p>	<p>sequencers 47:6 53:2,5,7,10 64:2 68:4,14,17,23 69:1 69:9 94:14 100:7 100:12,25 101:25 102:1 103:5,6,24 104:16,16 105:8 115:21 sequencing 6:20 20:23 21:1 27:15 29:3 33:22 35:9 41:7 42:15 44:17 44:19 45:13 46:23 47:2 49:1,6,16 53:18 60:1,3,5,8 63:6,23 64:6 66:3 66:10 70:9 71:6 76:24 86:12,14 87:1,4 94:18 98:13,15,18,19 104:1 105:24 106:1,5 107:25 108:6,12,21 109:22 110:9,13 112:10,23,24,25 131:19 132:6 142:9 143:2 150:14,23 153:9 153:15,18 154:12 154:14 155:1 156:2 159:1,3,13 161:13 163:20,21 169:13 172:3,4,4 175:10 series 45:21 121:24 serious 115:20 set 14:13 80:23 81:6 98:24 99:6 99:25 151:9 154:9 181:7,14</p>
---	--	---	---

CONFIDENTIAL

[setting - specific]

Page 28

<p>setting 67:12 77:19 87:21 93:16 147:21,24 175:18 175:19,23 176:1 settings 26:25 27:8 76:14 seventh 3:7 shake 13:4 share 14:12 16:14 57:1 80:17 88:22 89:3,6 91:16,21,24 92:2 102:12 103:15,18 142:20 shared 110:25 111:21 sheet 182:11 shift 77:9 short 42:25 43:4 shorter 34:2 shorthand 123:3 show 16:14 133:5 163:19 164:7,25 showing 58:3 167:17 shown 168:5 171:23 shows 98:12,13 133:7 163:18 164:24 sic 81:22 side 30:13,13,15 78:22 88:22 100:8 100:12 102:17 111:3 130:4,19 171:22,24 172:1,6 173:4,10 176:25 177:19 sign 182:12 signal 112:19,20 112:23</p>	<p>signatera 141:19 142:8 signature 181:17 signed 182:20 significant 158:10 significantly 71:22 158:2 174:19 similar 35:17 83:13 simple 93:3 simultaneously 28:23 30:19 34:4 34:9,14 35:17 single 25:8,10,17 25:19 32:25 33:16 34:5,15 38:24 39:22 45:23 82:21 168:19 singular 122:6,8 122:11 site 134:18 sitting 30:4 54:5 80:3 six 177:11 180:6 size 82:2,2,3,4 164:15 167:6 169:1 174:1,5,9 sized 104:9 skill 181:11 slide 70:17,22 75:5 75:17,18 77:6,8 78:18,19 81:17,19 81:21,25 82:1 83:20,21 85:23 86:3 87:2,3 88:15 88:17,22 89:1 98:6,8,12 100:8 102:6,8,9 103:11 107:10,14 108:24 110:15,19 114:7,9 114:15 116:4</p>	<p>117:21,22 118:1 118:13,16 125:14 125:15,19,23,24 125:24 126:4 130:18 132:12,14 133:4 151:17,19 151:23 153:6,21 160:15,18 163:10 163:13,16,24 164:2,4,18,19,19 164:23,25 171:13 171:13,16 slides 85:17 slightly 85:15 small 39:21,23 93:1 98:16 100:11 101:5 124:22 164:15 166:10 169:1,4,10,16 smaller 26:25 27:8 27:16 87:20,20 society 65:13 software 44:20 92:6 135:6 136:11 136:17,19 163:25 164:2 sole 126:11 solid 46:9,21 48:7 61:10 82:22 83:3 83:9 118:20 119:3 125:4 152:9 164:14 solution 100:15 solutions 10:4,7 62:19 80:24 81:7 180:8 182:23 somewhat 161:6 165:12 167:18 169:23 170:11 sorry 24:18 27:5 41:22 50:16 60:17</p>	<p>62:13 72:17 73:21 80:2 94:23 100:20 102:8 120:11 125:12 126:25 130:10 135:8 140:11 142:4 150:4 160:11 162:15 164:10 sort 104:9 112:12 131:11 sound 141:8 source 58:13 116:18 south 14:17 115:6 115:8,11 southern 9:22 space 36:16 37:1,5 40:5 60:15 61:2 61:24 62:3,22,22 68:10 71:17 74:19 74:24 81:1,2 83:18 84:21 85:6 88:5 92:16,24 93:6,23 112:11 128:25 129:2,8 144:7,10,24 148:25 149:19,21 152:7,8,10,13,21 152:25 165:2,6 166:5 167:5 173:8 spaces 98:14 speak 12:25 13:7 speaking 105:7 special 136:17 specific 6:17 17:22 30:14 65:19 66:20 67:4 136:12 138:7 138:15 155:13 156:2 159:23 160:22</p>
---	--	---	--

CONFIDENTIAL

[specifically - sworn]

Page 29

<p>specifically 29:13 72:14 73:23 140:3 151:22 157:25 specifications 160:7 161:12 162:5 speculate 68:20 80:9 122:20 speculating 101:4 speculation 53:20 54:11,19,21 55:5 59:11 68:19 69:15 80:8,20 81:9 95:3 95:9,15 96:1 99:10 101:3 115:25 124:6 142:12 143:25 147:3,16 148:1,12 169:19 170:10 171:1,7,20 172:15 173:18 175:6 176:4 speculative 31:20 54:25 speculatively 55:6 speed 120:8 speeds 120:7 spend 86:8 spoke 156:18 spot 76:9 spread 83:2 ssf 115:1,5,6 staff 105:1 stage 47:21,22 67:1,1,6 107:11 stages 47:23 stamp 70:18 117:10 stamped 57:9 70:2 97:17 106:17 113:19 139:25</p>	<p>stance 75:3 standard 47:22 178:5,18 179:13 179:15 standing 179:1,17 standpoint 61:23 stands 126:18 start 24:19 94:24 100:21 112:9 154:20 state 10:13,16 11:21 12:7 45:15 67:23 statement 146:23 146:24 166:24 states 1:2 9:21 38:25 135:1 statistics 25:15 status 23:9,13 47:10,10,25 48:4 59:5 154:22 156:20,24 159:9 161:1 162:1 stenotype 181:10 step 78:2 steps 142:21 stewart 5:11 strap 6:21 70:11 70:12,13 strata 124:19,21 124:22 125:2,6,8 125:15,21,25 126:6,21 127:9,11 127:13,17 128:11 128:17 129:24 130:7,12,13,16 131:5,9,14,21 132:4,4,9 strategic 70:9,13 71:9 72:25 76:9 76:18 77:4 103:25</p>	<p>116:5 strategy 7:8,20 69:12,13 71:23 104:8 106:19 117:11 street 3:7 4:6 5:6 strike 50:16 52:24 61:17 62:14 67:25 68:2 73:19,21 81:16 103:13 111:20 118:9 130:10 studies 58:5 67:5 subject 110:12 138:8 submit 133:19 135:11 137:2 submits 134:9 subpoena 12:19 subscribed 184:14 subset 76:4 success 56:21 62:20 successful 54:8,13 54:16 61:2 62:12 67:5 71:14 77:18 92:24 93:6,20 96:12,16 successfully 81:1 sufficiently 38:7 suit 84:7 suitable 40:4 147:20 172:20 suite 4:7 suited 26:25 27:8 27:15 29:3,9 37:24 38:11 39:20 39:21,25 40:12,22 41:13 73:17 77:23 88:9 105:11 147:9 172:10</p>	<p>summary 78:20 85:24 summer 5:11 supervisor 57:16 150:5 supplied 163:18 supplier 107:16,24 108:8 132:24 144:2 supplies 108:9,15 supply 7:14 105:22,25 106:2,4 106:7,8 108:4,13 108:18 109:20,24 111:11,15 113:21 114:10,15 115:22 125:7 126:5,21 130:9,11,14,16 131:13,16 158:22 158:24 support 58:23 59:1 134:1,7,7,12 134:14,24 135:7,9 135:10,15,20 176:10 supportable 166:4 supporting 134:17 sure 13:5,15 27:7 62:23 63:10,22 89:20 97:22 104:13,14 109:17 125:10 127:11 128:2 142:6 157:12 161:18 176:21 178:4 surface 45:22 surveillance 82:22 83:3 sustainable 77:11 sworn 11:15 181:8 184:14</p>
--	---	---	--

CONFIDENTIAL

[system - tests]

Page 30

<p>system 22:10 23:14 27:14 31:12 45:2 104:23 112:14 120:6 174:10 175:12 systems 26:24 27:18 69:5 92:6 93:13</p>	<p>targeted 76:13 98:15,22,23 99:1,8 99:12,18 100:6 163:20 169:23 173:8 targeting 157:1 targets 66:20 84:4 119:5 137:24,25 138:13 176:8 team 164:3 technical 45:18 136:6 155:8,23 156:1 157:17,20 157:23 159:20,24 160:7 161:5,11 162:4 172:25 173:5,7 technically 14:10 31:14 32:14 53:13 68:9 100:10 101:6 105:7 172:17 technician 56:24 technologies 10:1 45:5,8,9,13,14 53:17,21,23 62:2 63:4 75:14 80:24 81:7,11 94:1 107:23 108:7 116:15 121:14 147:18 technology 30:13 31:1,3 32:4 39:4 40:19 46:12 56:14 56:15,16,20 66:4 66:10 67:13 71:17 78:24 82:8 84:7 87:1,21 88:2,9 102:12 121:11 127:20,22 133:3 154:3 159:3 160:17 165:24</p>	<p>166:3 170:15 tell 55:20 156:23 164:23 165:20 ten 43:6 51:21 84:24 tens 45:24 term 46:2 47:13 48:18 69:18,20 70:11 127:22 129:11 terms 56:13 109:6 114:10 126:5 130:13 131:13,14 131:21 132:4,8,15 133:5,7,13 135:17 136:23 174:17 test 28:1,6,7,20 29:1,10 38:9 40:13 42:13,15,19 46:2,4 47:20 48:9 49:7 50:12,13 51:4 52:1,3,10,17 53:15,16,24 54:2,6 54:9,13,22,23 58:25 59:18 63:12 68:15,21 69:10 99:5,14,25 100:6 100:19,20,23 101:9 123:10 131:10 132:24 133:2 135:23 137:17 138:2,2,17 138:19,22 143:21 144:1,3 147:8,9,23 170:23 175:9,15 175:17,25 testified 11:16 17:12,18 testify 15:10 testifying 12:19</p>	<p>testimony 16:3,6,9 17:2,14,16 19:7 20:10 21:14 22:25 23:5,14 24:8,13 26:13,19 27:2 29:20,25 30:12 35:4,8 36:6,10,14 36:21 37:15,19 42:4,8 44:24 83:6 92:22 94:4,6 149:24 172:15 180:4 181:7,9 182:9,18 184:8 testing 46:19,21 50:6 52:9 54:3 74:23 76:13 84:7 84:11,15,16,17,21 85:7 87:16,20 88:2 92:14 101:19 124:24 125:4 144:7,10 146:19 146:20 147:12 148:3 152:1,4,13 152:21 153:14 170:22 tests 27:23 28:11 29:5 37:25 38:12 40:23 42:21 46:11 46:16 47:17 48:15 48:19,20 49:17,20 49:24 50:1,3,7,17 50:23,25 51:1,8,10 51:11,13,14,23,24 52:6,22 53:2,4,5,9 53:11,18 54:7,15 54:16 55:2,3 62:6 62:25 63:1 72:8 73:12 74:14 76:4 78:9 80:5,6 81:4 84:4 99:17 101:1 101:10,17 102:2</p>
<p>t</p>			
<p>t 6:8 7:1 8:1 91:1 160:11 181:1,1 183:3,3 tab 56:25 57:6 65:2 69:23 97:12 106:12 113:14 117:4 125:10,11 139:18 take 9:14 13:24 16:21 31:16 32:23 43:3 52:20 57:17 63:21 78:23 85:14 85:18 89:9 97:20 98:8 119:15 139:10,11 147:13 147:18 162:17 169:22 178:15 179:5 taken 9:18 43:19 90:13 145:10 163:1 177:8 181:10 talked 162:6 talking 33:6 101:24 102:4 114:16 149:21 150:22 151:1 174:15 target 100:1 113:8 137:20,23 139:2,6 156:12,15</p>			

CONFIDENTIAL

[tests - time]

Page 31

123:16,21 124:1,4 125:1 127:11 131:8 152:8 153:3 164:7 165:11 169:16 170:1,4,7 171:4,17,25 172:11 173:3,16 175:4 text 142:14 143:7 thank 12:5 22:14 25:21 32:15 37:6 43:9,25 46:1 64:22 91:9 115:12 123:2 162:19 176:14 177:13,16 177:18 178:10 179:12 180:2 thanks 35:22 44:6 151:9 theoretically 75:2 83:16 therapies 51:3 131:8 therapy 50:22,25 51:1,5,7,10,12 52:5,8,18,21 53:2 61:2 73:6 83:14 92:15 152:7,10 thermo 6:11,12,22 6:23 7:5,6,10,11 7:16,17,22,24,25 11:8,11,25 12:2,8 12:9 20:23 22:4 23:17,20 26:24 27:7 29:2,8 30:6 32:24 33:5 36:15 36:25 42:12,14,20 44:17 45:1,4 46:14,23 47:2,6 48:25 49:5,9,16 52:5,20 53:1,5,10	56:6 57:10 62:4,8 62:13,15,18 63:14 63:23 64:2,6,14,17 64:23 66:11 68:2 68:3,13,16,23 69:1 69:5,9 70:2 71:8 72:8,24 73:5,11 74:13,21 76:17 77:3 78:13 79:19 80:1,3,13,16,21 81:4,5,15 83:17,25 84:20 85:7 86:4,7 86:21 87:12,22 88:1,4 89:2 91:11 91:16,25 92:1,17 93:5,17,25 96:9 97:17 100:25 103:25 104:3,8 105:5,16,22 106:3 106:18 107:18 108:1,3,9,15,18,22 110:4,25 111:21 113:6,20 115:7,13 115:17 116:12,16 116:20 117:10 118:2,11,24 119:14 120:10,12 122:23 123:8,13 124:8 125:5,20 126:6,10,20 127:3 127:8,16,23 128:3 128:4,16,22 130:6 130:12,20,25 131:3,13,15,20 132:3,22 133:6,24 134:8,20,22 135:3 135:10,25 136:16 136:25 137:1,9 138:8,13,20 139:25 140:14,25 141:24 142:9,24	143:2,9,10,20,23 144:23 149:14 150:1 152:4,19 153:14,18 164:8 168:7 thermo's 20:17 42:20 63:6 67:17 151:24 173:23 thermofisher 7:19 thing 101:15,18 things 93:7 122:21 136:5 think 30:20 31:15 42:23 50:20 51:19 56:2 60:20 61:6 61:18 73:18 74:16 83:3 85:13,13,14 89:8,13 92:17 94:21 95:6,24 101:8,14 110:1 122:17 144:5 145:3 146:25 147:13 150:4,18 154:17 170:12,18 173:6,14 174:4 175:1 179:4,5 thinks 88:5 third 55:15 70:21 72:16 75:5 114:24 136:22 142:16,17 146:11 thought 80:13 164:21 thousand 168:9 thousands 45:24 45:25 170:19,21 three 31:21 52:23 54:16 91:5 94:21 95:7,11,19 96:4,15 119:19 124:13,14 134:2 135:7,8,17	145:7 161:3 throughput 20:18 20:23,25 24:22 27:17,19 33:13,21 39:7,9 40:11 41:5 41:7,9 62:1 68:11 68:13 86:18,22 94:7,9,11 101:25 102:1 105:8,14,15 117:23 118:2,6,12 119:16,24 120:3,5 120:8 168:24 174:10 throughputs 27:13 87:18 thyroid 132:25 138:2 tied 126:12 time 10:16 13:7 17:14,15 19:6 20:9 21:15 23:1 24:9 26:15 28:9 29:21 33:12,16,20 33:24 34:2,10 36:7 37:16 39:2 40:17 42:5 43:17 43:22 44:2 45:25 59:6 80:25 81:10 89:9,21 90:3,11 91:6 93:2,9,12,13 100:16,18,23 104:24 105:2 119:9,14 120:6 133:11 136:6,21 141:13 145:8,14 146:14,21 147:18 161:3 162:16,24 163:5 176:5,23 177:6,11,14,19 180:9 182:19
--	---	---	--

CONFIDENTIAL

[timeframe - unit]

Page 32

<p>timeframe 157:2 182:8 timeline 111:22 154:25 155:15,17 158:5,15 159:12 160:20,23 161:1 161:17 timelines 158:13 times 35:6 104:23 105:2 119:24 tissue 46:10 48:10 title 102:11 110:17 150:12 titled 65:17 88:17 106:19 110:19 112:4 113:21 114:9 117:11,22 125:25 132:14 today 12:7,19 14:16 15:11 16:7 17:19,20 19:25 20:14 21:20 23:6 23:8 24:14 26:20 30:1,4 32:9 34:19 36:11 37:20 42:9 44:7 47:12 54:5 76:18 77:4 80:2,3 83:14 166:1 176:11 today's 15:14 180:4 told 14:3 tool 52:19 61:19 tools 44:21 61:7,9 61:22 62:9 150:19 150:23 151:2 top 18:9 50:21 60:17 164:12 168:25 torrent 18:18 44:22 60:9 131:4</p>	<p>132:10 133:19,20 166:13,25 172:5 172:10 175:25 total 27:13 180:5 track 161:8 trade 1:3 3:3,5 9:19 10:20,23 12:6 17:6 182:4 183:1 184:1 transaction 12:13 120:16 121:3 144:22 149:10 transcript 8:3 16:2 17:5,9,13,19 17:22 18:16 19:3 19:6,21 20:5,9,14 21:9,12,20 22:15 22:23 23:11,25 24:6,17,20 25:16 26:4,7,11,14 27:4 27:4 29:12,18,21 36:4,22 37:13,16 42:2 182:6,20 184:5,8 transcriptome 172:4 trends 78:20 trials 58:7,21 59:8 59:14,20 tries 15:6 trouble 179:19 true 54:12 67:12 99:13 105:12,19 110:2 121:5,7 181:9 184:8 try 62:19 trying 63:11 94:14 94:18 tuesday 146:7 tumor 47:25 48:4 48:10 61:11 65:24</p>	<p>82:22 83:3,9 84:18 118:20 119:3 125:4 152:9 164:14 169:8 tumors 46:22 turn 9:9 26:3 35:23 37:7 75:17 77:6 78:17,18 102:6 104:24 107:6 132:5 154:20 turnaround 93:2 turning 87:2 125:23 two 15:15 25:2 33:23 43:22 83:2 90:11 95:7 98:14 119:19 157:2,6 174:16 176:17 tx 60:14 148:24 type 39:19 56:15 125:1 127:23 131:15 135:10 types 41:12 93:4 93:24 101:19 164:7 165:11 171:25 typical 124:16 129:4,7 131:14,18 135:14,16 136:23 137:11,14 139:2,6 167:12 169:14 typically 45:24 59:8 128:3,4,25 135:9 169:12</p>	<p>108:25 109:6,10 109:15,19 110:4 110:19,25 111:5 111:10,14,19,21 113:21 114:9,16 115:18,20 116:1 116:20 154:16,20 155:3,7,14,20,22 156:5,9,22 158:3 ultima's 95:12 114:20,25 115:14 154:21,24 ultimate 168:24 ultimately 58:8 174:21 unable 19:15 underlain 103:10 underlying 32:3 underneath 71:21 73:22 77:25 understand 12:18 12:24 13:8,12 14:2 15:1 39:17 47:16 48:20 60:22 63:10,12 104:13 111:2 123:4 166:1 understanding 25:5 27:20 28:1 28:15 35:19 40:20 47:19 48:8 55:10 60:25 86:12 109:18 113:7 114:14 142:7 146:15,17 148:9 149:5 171:16 unfeasible 167:11 union 78:11 unique 66:12 uniquely 87:8 unit 9:16 39:2,2 105:2</p>
		<p>u</p>	
		<p>u.s. 51:17 78:10 132:25 134:9 135:12 137:2 ultima 7:13 94:22 96:8,19 106:9</p>	

CONFIDENTIAL

[united - works]

Page 33

<p>united 1:2 9:21 units 34:9 35:11 180:6 university 132:19 132:23 unknown 39:11 95:21 unlimited 138:19 138:21 updated 61:14 110:20 upmc 132:14,18 132:22 133:6,24 134:8,10 135:24 136:16,17,19,25 137:5 138:14 upmc's 138:21 upper 18:6 168:12 usable 87:18 usage 52:10,12,14 52:17 58:23 59:2 119:5 127:10 use 20:24 40:19 42:21 49:16 52:17 53:1,5,10,17 68:16 71:5 83:13 87:21 88:1 92:7,12,13 99:7 100:12 101:5 109:21 127:20 128:19,21,23 129:6 131:20 133:19 138:1,3,14 138:19,21 139:1,5 146:19 147:1 152:24 173:8,9,12 175:3 useful 40:18 users 93:15 uses 54:3 66:12 70:11 148:8</p>	<p>usually 128:9 utility 58:22 utilization 103:19 104:19 utilize 125:3 130:7 133:2 utilized 103:21 utilizes 128:25 utilizing 147:8</p> <p style="text-align: center;">v</p> <p>v 182:4 183:1 184:1 vacation 122:3 vague 124:12 validated 51:16 validity 58:22 59:1 valuable 122:18 values 108:24,25 van 4:12 11:3 178:11,13,21 variants 38:24 39:11,17 45:23 variety 62:9 various 107:17 147:18 164:13 veltrop 5:4 verify 182:9 veritext 9:25 10:4 10:6 180:7 182:14 182:23 veritext.com 182:15 version 40:3 versus 9:20 174:7 174:12,16 vertical 171:23,23 viable 80:23 81:6 100:14 172:23 vice 12:3 vicinity 168:16</p>	<p>video 9:13,17 178:3,12,23 179:3 179:14 videoconference 1:19 2:12 videographer 5:16 9:3 10:5 43:11,16 43:21 89:18 90:6 90:10 91:4 145:5 145:12 162:21 163:3 177:1,5,10 177:22 178:2,5,10 178:17,20 179:12 179:21 180:2 view 41:1 58:24 96:8,19,24 97:1 101:18 123:25 views 121:11 virtual 9:25 vitro 78:11 volume 111:5,10 130:15 131:10</p> <p style="text-align: center;">w</p> <p>walk 133:12 waltham 66:11 want 13:15,16 89:19 104:13 116:2 128:22 137:9 138:20 139:10 177:23 178:12,22 179:19 wanted 99:7 100:1 141:25 142:7 151:11 159:6 wants 78:13 washington 3:8 4:8 watkins 4:5 11:1 44:8 way 29:1 56:2 69:18 101:6,21</p>	<p>143:4 144:20 ways 144:17 we've 68:22 160:21 162:10 wednesday 1:21 2:7 week 15:17 121:23 122:3,11 welcome 91:9 went 44:12 134:11 west 5:6 whereof 181:13 whispering 9:8 wide 40:19 widely 40:5,21 widespread 58:23 59:1 willing 143:14 win 76:10 87:5 wish 144:13 wished 132:10 133:1 141:18 wishing 130:7 witness 5:3 10:1 11:10 15:23 43:8 55:11,14,25 56:3,7 67:20 89:23 90:2 139:13 176:21 177:16,21 181:7 181:13 182:8,10 182:12,19 women 84:17 work 12:16 38:17 93:3 132:10 142:25 143:6,10 workflow 33:24 38:15 93:11 110:9 114:21 working 14:10 works 89:25</p>
--	---	---	---

CONFIDENTIAL

[world - zoom]

Page 34

<p>world 51:18 78:10 wrap 87:4 write 58:1,12 67:21 writes 146:11 written 138:9 wrong 164:18</p>
x
<p>x 6:1,8 7:1 8:1 82:7</p>
y
<p>y 82:6 165:4 yeah 63:11 102:9 102:11 143:8 179:9 year 16:11 86:8 109:1 110:5 111:11,15 124:13 124:14 126:10,13 126:22 157:2 158:11 161:3 yearly 104:6 years 31:22 52:23 61:14 86:23 91:18 91:22 95:7,11,19 96:4 119:10,19 127:5 129:12 147:5,14 157:6 yesterday 15:16 york 4:22 5:7,7</p>
z
<p>zoom 14:9</p>

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted fashion to authenticated parties who are permitted to access the material. Our data is hosted in a Tier 4 SSAE 16 certified facility.

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PUBLIC VERSION

EXHIBIT C **Proposed Order**

**UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES**

<p style="text-align: center;">In the Matter of</p> <p style="text-align: center;">Illumina, Inc., a corporation,</p> <p style="text-align: center;">and</p> <p style="text-align: center;">GRAIL, Inc., a corporation,</p> <p style="text-align: center;">Respondents.</p>
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Docket No.
9401

[PROPOSED] ORDER

Upon consideration of non-party Thermo Fisher Inc.’s (“Thermo Fisher”) Motion for *In Camera* Treatment, and finding good cause, it is HEREBY ORDERED that the following documents or portions of documents are to be provided *in camera* treatment for a period of ten years from the date of this Order:

Exhibit	Description	<i>In Camera</i> Treatment
PX8444	November 25, 2019 Presentation: Turing dPCR Market Opportunity Assessment	Full
PX8649	<p>March 17, 2021 Cover email from Ira Herbst to Andrew Felton re Recent strategic planning documents.</p> <p>Attachments included in the exhibit are Valhalla CEO discussion 11222020 final.pptx; NIPT scenarios v10 2021.01.27.pptx; 2020 CSD STRAP v23 2020.10.28.pptx; and 2020 CSD STRAP vPre-Read for CLT.pptx</p>	<p>Full</p> <p>(Except for PX8649-017, PX8649-021, PX8649-024, and PX8649-236, which receive indefinite treatment due to R&D sensitivity)</p>
PX8650	March 18, 2019 cover email from Peter Vuong to Andrew Felton re Offcite_Roadmapping.pptx	<p>Full</p> <p>(Except for PX8650-011 to PX8650-016, which receive indefinite treatment due to R&D sensitivity.)</p>

	Attachment included in the exhibit is March 2019 Presentation: A Look into the Future	
RX2728	March 20, 2020 Presentation: CSD - Strategy and Bus Dev Review	Full
RX2729	March 2019 Presentation: A Look into the Future	Full (Except for RX2729-9 to RX2729-14, which receive indefinite treatment due to R&D sensitivity.)
RX2730	April 10, 2018 Email from Suresh Pisharody to Joydeep Goswami re Re: Interested in speaking	Full
RX2732	October 9, 2019 Presentation: IVD Strategy	Full
RX2735	October 30, 20 Presentation: Clinical Next-Generation Sequencing Division STRAP 2020	Full
RX2737	October 27, 2020 Email from Luca Quagliata to Garret Hampton et al re RE: EXAS -- Flash I Acquisition of Thrive Enhances EXAS' Leading Position in Cancer Screening Mkt I Outperform	Partial

It is further HEREBY ORDERED that the following documents or portions of documents are to be provided *in camera* treatment indefinitely:

Exhibit	Description	<i>In Camera</i> Treatment
PX8649	March 17, 2021 Cover email from Ira Herbst to Andrew Felton re Recent strategic planning documents. Attachments included in the exhibit are Valhalla CEO discussion 11222020 final.pptx; NIPT scenarios v10 2021.01.27.pptx; 2020 CSD STRAP v23 2020.10.28.pptx; and 2020 CSD STRAP vPre-Read for CLT.pptx	Partial (PX8649-017; PX8649-021; PX8649-024; PX8649-236) (Note: Full <i>in camera</i> treatment for 10 years non-R&D materials in this document. See “Strategic” Table.)

PX8650	Mar. 18, 2019 cover email from Peter Vuong to Andrew Felton re Offcite_Roadmapping.pptx Attachments in the exhibit include March 2019 Presentation: A Look into the Future	Partial (PX8650-011 to PX8650-016) (Note: Full <i>in camera</i> treatment for 10 years non-R&D materials in this document. See “Strategic” Table.)
RX2729	March 2019 Presentation: A Look into the Future	Partial (RX2729-9 to RX2729-14) (Note: Full <i>in camera</i> treatment for 10 years non-R&D materials in this document. See “Strategic” Table.)
RX2731	March 2020 Presentation: Partnering Strategy; March 2020	Full
RX2733	August 13, 2020 Presentation: ██████████ ██ ████████	Full
RX2734	February 12, 2021 Presentation: Project Starship - Equity Investment Overview	Full
RX2736	April 12, 2021 Term Sheet-Commercial Agreement between Thermo Fisher and Strata	Full
RX2738	April 30, 2020 Thermo Fisher Supply Agreement with Strata	Full

It is further HEREBY ORDERED that the following excerpts from the Declaration and transcripts of the deposition and investigative hearing of Andrew Felton, PX07070 and PX07097/RX3823, are to be provided *in camera* treatment indefinitely:

Mar. 23, 2021 Andrew Felton Investigative Hearing (PX7070) R&D Testimony Cite	June 2, 2021 Andrew Felton Deposition (PX7097/RX3823) R&D Testimony Cite	Declaration Cite (Page & paragraph number)
8:16-8:19; 36:10-37:21; 38:1-38:3; 38:14- 38:18; 55:8-55:12; 55:17-55:20; 55:22-55:23; 56:1-57:1	21:23-21:25; 22:2-22:5; 22:7-22:13; 30:4-30:7; 30:9-30:22; 30:24-31:8; 31:10-31:17; 31:20-31:24; 32:2-	Paragraph 10 limited portions

	<p>32:10; 32:13-32:14; 93:17-93:20; 93:22-94:7; 94:9-94:12; 117:21-117:23; 118:1-118:3; 118:5-118:21; 118:24-119:1; 119:3-119:10; 119:13-119:16; 119:18-119:24; 120:2-120:9; 125:5-125:8; 125:15-125:16; 125:19-125:22; 125:24-126:1; 126:4-126:13; 126:20-126:22; 126:24-127:24; 128:1-128:6; 128:8-129:8; 129:10-129:20; 129:23-130:21; 130:24-131:16; 131:18-131:22; 131:25-132:6; 132:8-132:11; 132:13-132:15; 132:18-133:20; 133:23-134:3; 134:6-135:12; 135:14-136:12; 136:15-137:20; 137:23-138:9; 138:12-138:15; 138:17-139:3; 139:5-139:6 ; 168:1 -168:24</p>	<p>Paragraph 13 limited portions</p>
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Finally, it is further HEREBY ORDERED that the following excerpts from the transcripts of the deposition and investigative hearing of Andrew Felton, PX07070 and PX07097/RX3823, are to be provided *in camera* treatment for a period of 5 years from the date of this Order:

Mar. 23, 2021 Andrew Felton Investigative Hearing Transcript (PX7070):	June 2, 2021 Andrew Felton Deposition (PX7097/RX3823) Testimony Cite
<p>26:9-26:15; 26:22-27:12; 27:25-28:15; 32:12-32:25; 34:1-34:21; 34:25-35:15; 38:5-38:9; 48:15-49:3; 51:3-51:8; 57:2-60:18; 68:7-69:13; 70:3-71:5</p>	<p>23:9-23:11; 23:13-23:22; 27:7-27:9; 27:11-27:19; 29:2-29:5; 29:8-29:10; 32:23-33:1; 33:4; 35:4-35:6; 35:9-35:21; 36:14-36:19; 36:23-37:2; 37:4-37:5; 42:12-42:15; 42:17-42:21; 42:23-43:1; 48:23-49:2; 49:4; 49:14-49:18; 52:20-52:23; 60:10-60:15; 60:22-60:23; 60:25-61:14; 61:18-61:20; 61:22-62:6; 62:8-62:16; 62:18-62:20; 68:3-68:6; 68:8-68:17; 68:20-68:21; 70:21-70:25; 71:8-71:11; 71:13-71:25; 72:3-72:7; 72:12-72:14; 72:16-72:21; 72:24-73:12; 73:14-74:4; 74:7-74:14; 74:16-74:25; 75:2-75:16; 75:23-75:25; 76:3-76:5; 76:7-76:14; 76:17-76:25; 77:3-77:12; 78:13-78:14; 78:16; 79:1-79:5; 79:12-79:17; 79:19-79:21; 79:23-79:25; 80:13-80:18;</p>

	<p>80:21-81:7; 81:10-81:14; 82:9-83:4; 83:7-83:19; 83:21-83:22; 83:25-84:11; 85:5-85:9; 85:11; 86:2-86:5; 86:7-86:23; 86:25-87:9; 87:12-87:13; 87:15-87:24; 88:1-88:6; 88:8-88:11; 89:1-89:7; 91:11-91:22; 91:24-91:25; 103:4-103:7; 103:9-103:11; 103:23-104:1; 104:3-104:6; 105:4-105:8; 105:10-105:15; 105:22-106:9; 107:16-109:2; 109:6-110:7; 110:19-110:21; 110:24-111:6; 111:9-111:25; 112:4-112:5; 112:8-112:11; 113:1-113:3; 113:6-113:12; 113:20-113:23; 114:9-114:11; 114:14-114:21; 114:24-115:2; 115:7-115:11; 115:13-115:15; 115:17-115:23; 116:1-116:8; 116:12-117:2; 115:9-115:11; 120:10-120:15; 124:8-124:17; 140:23-141:9; 141:17-142:1; 142:6-142:10; 142:13-143:2; 143:4-143:11; 143:13-143:19; 144:1-144:4; 148:19-149:16; 149:18-149:22; 149:25-150:2; 150:18-150:24; 151:1-151:8; 152:3-152:13; 152:15-152:21; 152:23-152:25; 153:13-153:15; 153:17-154:5; 154:8-154:9; 155:13 - 155:21; 158:18 - 159:4; 160:13 - 161:10; 166:9 - 167:21; 172:9-173:1; 173:21-173:23; 173:25-174:12; 174:14-174:22; 174:24-175:4; 175:7 176:2; 176:5-176:13</p>
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ORDERED:

 The Honorable D. Michael Chappell
 Chief Administrative Law Judge

Date: _____