PUBLIC

## In the Matter of Illumina, Inc. and GRAIL, Inc. Docket No. 9401



Oral Argument by Complaint Counsel December 13, 2022



## Illumina Is the "Only Game in Town"

#### Mike Nolan, Freenome CEO:

10	You testified on direct that as of now,
11	Freenome cannot switch to another NGS platform other
12	than Illumina; right?
13 14	A. Yeah. We just don't have see a suitable
14	substitute to meet our highest-level requirements.

#### Dr. Darya Chudova, Guardant SVP Technology:

- 1 A. Illumina sequencers, as I mentioned earlier,
- 2 are the only game in town. There are other sequencers
- 3 on the market, but ultimately they don't perform
- 4 similarly. And the test has been optimized to work in
- 5 an Illumina environment.



## MCED Test Developers Rely on Illumina Extensively

#### Bill Getty, Guardant SVP Commercial:

#### **Technical Support:**

4	and, you know, say simple things like, you know, "We
5	can't get a technician out to your sequencers until next
6	Friday" or "the Friday after," and that could create
7	challenges around turnaround time and disappoint Supply:
8	customers and therefore hurt us competitively. 9 Q. If Illumina stops supplying Guardant with the   10 reagents that Guardant uses for its cancer-screening   11 tests, what would the impact be to Guardant's   12 cancer-screening business?
D	Delayed Access to Technology:
22	development and they were able to share that
23	technology ahead with GRAIL, ahead of the other
24	companies in the space who are also going to be reliant

25 on that technology, it would give GRAIL a significant 1 head start on the development of, say, a next version

2 of that assay -- excuse me, test, I use those

Sources: CCFF 2919, 2893, 2839, Getty (Guardant) Tr. 2518-19

## MCED Test Developers Rely on Illumina Extensively

#### Bill Getty, Guardant SVP Commercial:

15	And so they are in a position where they could
16	take a significant advantage by kneecapping our ability
17	to run our lab, which would of course flow through to
18	our inability to compete in this larger blood-based



## This Acquisition Gives Illumina The "Leading" Market Position

#### Francis deSouza to investors at the 2020 Cowen Liquid Biopsy Summit:

SEPTEMBER 24, 2020 / #30PM, JUMN OQ - Illumina inc at Covid	en Liabed Biopsy Summit (Virtual)	SEPTEMBER 2U 2020 / 12 DOPM, ILMKLOG - Illumina Inc. to Acquiry GRAIL	- MSA Call
rancis A. deSours - Illumina. Inc CED, President & Director here are another of things if alike to highlight, Doug. First, our cam business is strong that the conclusiones will another and a double direct around CADP ways without CADM.		Before we start i swent to actions/indue the GRAL team for what they've accomplished. We your ex- goal to revolutione the way we detect cancer by developing a boost test that could find cancer 4 and results since them have exceeded even our birthy repectations, senting the staps for evely can	seriler than is possible today. Their innova
	GRAIL acquisition gives us a leading po narkets we see today, NIPT and therapy	sition in that very large market opportunity. And the ear selection for oncology combined.	rly detection of
Active means an and trust in TRPT, Take new we go their setti hereit seconday person ing TSS	AND AND SO THAN A ADDRESS OF MALE AND THE ALL AND THE AUTOMOUST AND	and the second	mical opportunity esabled by our technol
electron of concern against a five largest argument by the Diricci market service in text, rd like to point out that the GRAIL acquisition gives us a leading position in that ancer market dwarfs the clinical markets we see today. NIPT and therapy selection for	very large market opportunity. And the early detection of	Specifically, the acquisiton pusition illuminato participate in what we expect will be a \$75 billion in 560 billion higher than our encology TAM excluding GRAL.	market for NG5-based oncology tests by 2
ind then finally, by participating directly in that segment write our exceeding a little		Cancer is one of the grantest Writest to human handle. Beginn the rightfaunt interstances and a part to far, when obligations account to that writers in a modulatic, but and 2004 of partness will partner and/or you've approximately time of partners are expected to accele beginn 2 system. Account 71 me draw	more than 5 years, in contrast, if we titag
We alwardy had Thrive present today. Exact's kind of put ther flag in the ground it	that's the metaphor or saying that indicated that they're	Another the method time, there is a recentlogy process that enders us a solar advect the analysis and Galler, which areas to receive cancer dealth by transforming how and when cancer is detected. O	RAIL's technology characterizes the ONA
We alward had. Three present today. Exact's kind of put their flag in the ground it scued on agregationatic multi-center screening. That's just 2 of the few that are going	that's the metaphor or saying that indicated that they're	Gallet, which are to reduce cancer deaths by transforming here and when cancer is detected. G cancer cells shed into the blood, detecting unique signatures that identify both the prevence and of	RAIL's technology characterizes the DNA ften the tissue of origin of the cancer.
We already had Thrive present today. Exacts kind of put their flag in the ground it accused on asymptotomatic multi-cancerscorening. That's just 2 of the few that are going why GAAC	that's the metaphor or saying that indicated that they're	Gallet, which arise to reduce cancer identity by transforming how and when cancer is detected. O cancer cosh shall off to the biologic detecting unique signatures that identify both the presence and of Ballet this year. (BAIL shared positive results from to Circulating Coli free Genome Attac or COCA is shardy-haund that the first version of Collient reported avoiding of 45% for Stage 1 through 3 standard the 12 deallets cancers. And in 9 you of the positive results, the rest concertly, identified the firstase	RAIL's technology characterizes the DNA frem the flasse of origin of the cancer, udy, that has enrolled 15,000 participants for 50 different cancers and 67% sensitiva
A vie already had Thrive present today. Exacts kind of put their flag in the ground it acues on asymptomatic multi-cancer screening. That's just 2 of the feet that are going why GRAL! Pands A. deSeres - filterina, Inc CED. President & Director es. There are potobily 1 things we liked a lot about GRAL. First in their it has a primar	that's the metaphon on saying that indicated that they're to talk about that, and that's just today. I gains the question 	Gallet, which arise to reduce cancer identity by transforming how and when cancer is detected. Q cancer costs shall off to the biological detecting unique plasmars that identity both the presence and d Ballet this year. (BAIL shared positive results from St. Circulating Coli free Genome Attac, or CCCA is sharp found that the first version of Collien reported avoiding of 45% for Stage. It through 3 tunneer the 12 deallets cancers. And in Why of the pointive results, the test correctly identified the tasks of 99% and from a single blood draw.	RALS inclinelogy characterities the DNA from the tissue of origin of the cancer unly, then has enrolled 15.000 participants for 50 different cancers and AGN sensitiva f angin. All with the specificity of greater
A series of the series and the series of the	that's the metaphor or saying that indicated that they're to talk about that, and that's just today. I gains the question 	Gallet, which arise to reduce cancer identity by transforming how and when cancer is detected. O cancer cosh shall off to the biologic detecting unique signatures that identify both the presence and of Ballet this year. (BAIL shared positive results from to Circulating Coli free Genome Attac or COCA is shardy-haund that the first version of Collient reported avoiding of 45% for Stage 1 through 3 standard the 12 deallets cancers. And in 9 you of the positive results, the rest concertly, identified the firstase	RAL's technology characterities the DNA from the tissue of origin of the cancer. why thet has enrolled 15.000 participants for 30 different cancers and 67% sensitivit of angin, All with the specificity of greater edictive value, or PPV, which is the percen-
A short y had Thrive present today. Exacts time of put their flag in the ground its scued enarymotomatic multi-cancer screening. That's just 2 of the few that are going why GAU.1 rands A deleves - flumma, line - CED, President & Director es. There are possibly 1 things we liked a lot balow GMU. First is that it has a primar foraction across multiple cancer. And so a yeas aid, there are a number of companie registrough and the screen screening screen and there of the screen introduction of the screen screen screening screen and the screen deleves and there work was that GMU. Then the ground cancer and specific screen across multiple cancer. And is upon all of thereagy relections, some do MDD as there work was that GMU. Then the ground cancer and specific screen deleves and became clear over the last year that from that perspective monthly, identified using or figure, and it als alwas do of themarket in terms of the last screen. Art is clear to us and became clear over the last year that from that perspective monthly do screen the screen screen screen screen screen and the clear screen screen screen screen screen screen screen screen the task screen screen scr	that's the metiophor or saying that indicated that they're to talk about that, and that's just today. I guess the question 	Galler, which areas to reduce cancer identify by transforming how and when cancer is detected. O cancer cash shed into the blood, detecting unique signatures that identify both the presence and o Earlier thisyaes. GRAIL shared positive results from this Circulating Cell Res Genome Atta. Or CCCA in study-found that the first version of Caller reported ansistancy of ABN for Stage. If through 1 burners that 1 detailers comers. Act AP why the the positive results, the test correctly identified the torse of 99% and from a single blood draw. Arguably, one of the most important performance measures for doctors and payers is the positive per of positive tests that are actually cancers. For Galler, we predict a PPV of ASN. This represents a very most commonly used serving tests, which den the area PPV of ASN. This represents a very most commonly used as serving tests, which den the area PPV of a ASN. This represents a very most commonly used serving tests, which den the area PPV of a ASN. This represents a very most commonly used serving tests, which den the area PPV of a ASN. This represents a very most commonly used serving tests, which den the area PPV of a ASN. This represents a very most commonly used serving tests, which den the area PPV of a ASN. This represents a very to detect cancer earlier, which can transform cancer cere and improve population health.	RALS section long characterizes the DMA from the blowe of origin of the cancer. When the blower control of SDO participants for 50 different conversion of DMIs eventual forgin. All with the specificity of greater edictive value, or PPV, which is the percen- significant step forward compared to to that this is a remarkable advance in the all
Second billion higher than our oncolog We alwardy had Thrive prevent today. Exact, stind of put their flig in the ground it put of the second secon	that's the metiophor or saying that indicated that they're no talk about that, and that's just today. I guess the question 	Gallet, which areas to reduce cancer identify by transforming how and when cancer is detected. O cancer cells shed into the blood, detecting unique signatures that identify both the presence and o built they was GRAIL shared positive results from this Circulating Cell Area Genome Attac. O CCCA is study found that the first version of Callier reported answiring vid ARM for Stage 1 through 1 burners the 12 dealliest cancer. And in 92% of the positive results, the test correctly identified the torace 99% and from a single blood daw. Arguably, one of the most important performance measures for doctors and payers is the positive results, which with how the PV of ASII. The representa avery most commonly used streaming taxis, which with how the Vera PV of ASII. The representa avery most commonly used streaming taxis, which with how a PV in the arguing of 73% of 93%.	RALS section long characterizes the DMA from the blower of origin of the cancer. Why that has enrolled 15.000 participants for 50 different cancers and holfs semifiuit origin. All with the specificity of greater edictive value, or PPV, which is the percen- significant step forward compared to too that this is a remarkable advance in the al- ecters on the left half of Slice 6. The limits
Any alward had Thrive preserve today. Exacts kind of put their flag in the ground it cuade an asymptomatic multi-cancer screening. This's just 2 of the few thist are going why GRAL? Transis A. deSerets - filmmin, Inc CEO, President & Ovector - is. There are probably 2 bings we likes a lot alward GRAL. Find in this II has a primar procuss on different puts of the multi-cancer screening - procuss on different puts of the site of a systel alk, there are a sub-def of company that we loved was that GRAL from the ground up was always focused on figural block motion of the performance characteristics. Some do theory blocks have been able to a citiz minimum, dentified bisse of origin, and 2's also alward of themarket in terms of the lot and minimum, dentified bisse of origin, and 2's also alward of themarket in them for the lot and interview.	that's the metiophor or saying that indicated that they're no talk about that, and that's just today. I guess the question 	Galler, which areas to reduce cancer identify by transforming how and when cancer is detected. O cancer cash shed into the blood, detecting unique signatures that identify both the presence and o Earlier thisyace. GRAIL shared positive results from its Circulating Cell Ree Genome Atta. Or CCCA in study hourd that the first version of Caller reported anxistary of 45% for Stage. If through 12 unices that 12 deallers cancers. Act An Visit of the positive results, the test correctly identified the tissue of 99% and from a single blood draw. Arguably, one of the most important performance measures for doctors and payers is the positive pro- of positive totes that are actually cancers. For Galler, we predice a PPV of ASIL. The representa a way most commonly used a strening tests, which den the area PPV of ASIL. The representa a way most commonly used a strening tests, which den the area PPV in a 12.1. We believe it to detect cancer earlier, which dat transform cancer care and improve population health. An index cancer earlier, which data transform cancer care and improve population health. As need cancer earlier, which data transform to the stages, as shown by the test in the or current sciencers are carrently disposided in lete stages, as shown by the test in the or current sciencem previous of the only 31% of careers being Saleritide in Stages 1 and 2. when	RALS section long, characterizes the DMA frenche blasse of anjight of the cancer. why that has enrolled 15,000 patticipants for 50 different cancers and ADM semilar forgin, AI with the specificity of greater edictive value, or PPV, which is the person- significant step forward compared to too that this is a remarkable advance in the al- chart on the inft half of Slide 6. The limitat in they'recentimedid cancer screening, cancer is directed. Broad adoption of G
A series of the	that's the metiophor or saying that indicated that they're no talk about that, and that's just today. I guess the question 	Galler, which are to reclarce cancer identify by transforming how and when cancer is detected. Q cancer cash shell of the blood, detecting unique signatures that identify both the presence and of Builter this year. (BAIL shared pacifies results from SL Circulating Caf Ree Genome Attac. or CCCA is study-found that the first version of Caflerin reported revoluting of 45% for Stage 1 through 3 simple the 1 of dediter cancers. And A My Why of the pointive results, the test correctly identified the thus of 9% and from a single blood draw. Arguably, one of the most important portemation on advances for discretion appreciation of 9% and from a single blood draw. Arguably, one of the most important portemation emissures for discretion appreciation by the positive or positive to test an actually cancer. For Galler, we porticat 2 PPV of 25%. This represents a way most commonly used screening tests, which often have a PPV in the range of 7% to 5%. The GARL fram is preparing to launch Caflerin is a bits developed test, or L07, in 2007. We believe to to detect cancer earlier, Mrkich can transform cancer can end microve spoulduict in Halls. As needs seeling, most cancers are currently diagnosid in jets slages advanced in the cange service in the of current screening nethods is to only 19% of cancers being beneficient of the gray besis in the of current screening methods is to only 19% of cancers being beneficient of the gray besis in the studer, this could herease to 63% with the wad adoption of Caller's blood test, complementing the studers, this could herease to 63% with the ball doction of Caller's blood test, complementing This matters is because, at we mentioned earlier, survival rates are directly corralized with how early	RALS section long, characterizes the DMA frenche blasse of anjight of the cancer. why that has enrolled 15,000 patticipants for 50 different cancers and ADM semilar forgin, AI with the specificity of greater edictive value, or PPV, which is the person- significant step forward compared to too that this is a remarkable advance in the al- chart on the inft half of Slide 6. The limitat in they'recentimedid cancer screening, cancer is directed. Broad adoption of G

Sources: CCFF 3136, 3139



## Other MCED Companies Are Developing Competitive Tests

MCED Developer	Similar Patient Population*	Similar Objective: Detect multiple early- stage cancers affecting large population	Blood-Based Test	Diagnostic Follow-Up (Identification of the TOO)	Established Commercialization Plans
<b>O</b> "		segments	0055 77 000 40	0055 070	00000 00 400
Grail	CCFF 75-76,	CCFF 79, 377, 605, 669,	CCFF 77, 608-10,	CCFF 670,	CCFF 82-109,
	378, 381, 712, 714	712	616, 3437	712, 3565-69	5271-5381
Exact/Thrive	CCFF 378, 381,	CCFF 414, 1938-40,	CCFF 1908, 1912,	CCFF 1963,	CCFF 1990-2014
	2159	2124-26	1936-37, 1940,	1966-68,	
			1942, 5999	3282, 3551-54	
Freenome	CCFF 378, 381, 717	CCFF 439-40, 443, 2355-	CCFF 439, 2363,	CCFF 2385,	CCFF 2368-69,
	1 10 10 10 10 10 10 10 10 10 10 10 10 10	56, 2373, 2375, 3537-38	2392	3555	2386-88
Guardant	CCFF 378; 381,	CCFF 377, 426,	CCFF 619-20, 641-	CCFF 2315-16,	CCFF 2285, 2294,
	716	430, 2274, 2277-78,	44, 935, 2258,	3299, 3549-50	2318-22
		3534-36	2343		
MCED #5	CCFF 420, 2217,	CCFF 420-22, 2211-12,	CCFF 2213, 2250,	CCFF 2236,	CCFF 2213, 2256
	2229	2221, 3541	2255	3548	
Singlera	CCFF 2422, 2463,	CCFF 447, 2418, 2421,	CCFF 448, 2418,	CCFF 2426,	CCFF 2434-41,
1610	2471	3539	2460	3556	2475-77
Helio	PX7077 at 30	CCFF 405-406, 455, 704,	CCFF 406, 454,	CCFF 2524	CCFF 2550-56,
		2513-15, 3363, 3542-44	2478, 2517		PX7077 at 81-82
MCED #8	PX7074 at 61, 204-	CCFF 377, CCFF 2564,	CCFF 2562,	PX7074 at 73	CCFF 2573-75,
	05	3545	PX7074 at 61-64		2591-94

\*(I.e., asymptomatic undiagnosed patients at average risk of cancer)

Sources: Compl. Counsel Post-Tr. Reply Br. at 38-57; Compl. Counsel Post-Tr. Br. 50-54.



## **Ordinary Course Documents Show MCED Competition**

Selected Ordinary	<b>Course Evidence of</b>	MCED	Competition
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PX2009 at 019	PX4027 at 001-04	PX4198 at 005	PX4450 at 241-42
PX2013 at 010	PX4037 at 008	PX4207 at 013, 033, 052	PX4456 at 002, 005, 012-13
PX2026 at 002	PX4046 at 094	PX4241 at 002, 005	PX4473 at 003, 005, 012
PX2031 at 005 n.2	PX4048 at 002, 004-07, 015	PX4250 at 003, 009, 011	PX4476 at 002, 004
PX2043 at 001	PX4049 at 001-03	PX4259 at 001	PX4519 at 001
PX2054 at 001-03, 05	PX4052 at 012, 039, 040, 044-45	PX4266 at 008, 045-046	PX4554 at 003-04, 008
PX2549 at 021	PX4053 at 001, 005	PX4267 at 009, 012, 032, 036, 048	PX4616 at 017, 030
PX2569 at 008	PX4054 at 008, 012	PX4284 at 012	PX6049 at 035-40
PX2575 at 064-65	PX4066 at 003	PX4288 at 001	PX8324 at 005
PX4006 at 001	PX4074 at 001, 099	PX4315 at 001	PX8368 at 079
PX4007 at 001-02	PX4075 at 009-10, 017, 027, 032-43, 046	PX4337 at 005-08	PX8458 at 001, 003
PX4011 at 003-005	PX4082 at 036	PX4340 at 004	PX8503 at 066
PX4016 at 006-07	PX4111 at 001	PX4350 at 001, 009	PX8530 at 003
PX4018 at 005-07	PX4129 at 001	PX4387 at 020, 043	PX8532 at 007
PX4021 at 001	PX4142 at 067	PX4441 at 002-04	PX8652 at 001
PX4023 at 001	PX4145 at 006, 009, 017, 021, 024, 033, 044	PX4442 at 001-03	PX8655 at 031
PX4025 at 001	PX4150 at 008, 032	PX4444 at 002, 009, 013	RX0894 at 24

Sources: CCFF 408, 697, 715, 759-60, 765, 772, 3189-3470, 3465-70, 3694-95.



Ability to Foreclose a Monopoly Proportion of the Market "Of Course" Violates the Clayton Act

"If the share of the market foreclosed is so large that it approaches monopoly proportions, the Clayton Act will, of course, have been violated"

U.S. v. Brown Shoe, 370 U.S. 294, 328 (1962)



## **Competition Between Grail and Exact/Thrive**

#### May 2021 Grail AACR Conference Report:





## Grail and Exact/Thrive Are Neck and Neck in Development of an MCED Test

### Exact/Thrive: Grail's "most significant competitor in [the] MCED space"

Exact/Thrive CancerSEEK		Grail Galleri
8	Number of early-stage cancers detected in asymptomatic patients	7
	Has undergone a prospective, interventional clinical trial	
	Has multiple published studies on its MCED test	
	Relies on Illumina NGS as a critical input	
	Currently seeking FDA approval	
	Currently developing next version of its MCED test	
	Requires follow-up imaging tests to confirm cancer diagnosis	



## Respondents' Open Offer Does Not Change Illumina's Incentives To Foreclose Grail's Rivals

8	to be sure. But if the incentives aren't
9	right, then the contract is not going to be
10	successful in terms of promoting the business
11	effectively for both parties.
12	"And, sure, the parties try to build
13	in the protections that they think they can ge
14	into the contract, but the real details of how
15	the business is going to work evolve from
16	appropriate business incentives shared betweer
17	the parties."

- Prof. Robert Willig, Expert for Respondents



## The Open Offer Fails To Eliminate Illumina's Ability To Harm Grail's Rivals

Illumina Lever	Inadequate/Unworkable Open Offer Provision	Major Loopholes
"Illumina Can	Illumina must supply any and all sequencing instruments	"A contract is only as good as it is enforceable. And
<b>Completely Foreclose</b>	and core consumables ordered by the customer in a	ultimately [Guardant's ability] to investigate
Grail's Rivals" (CC	timely manner. (PFF ¶¶ 1000, 1037; RRFF ¶¶ 2832,	adherence to the terms of that contract is nearly
Post-Trial Br. at §	2839, 2841, 2843, 2852, 2854, 2858.)	impossible." (CCFF 4804); see also (CCFF 4806-07;
II.E.1.a.ii.a)	(a) Direct a field in the second state of the second difference of the second state	4993-5012)
"Illumina can impact supply" (CC Post-Trial Br. at II.E.1.a.ii.c)		The provisions in the Open Offer that relate to customer access to supplied products and customer pricing do not include access to or pricing of library prep consumables. (CCFF 4553); <i>see also</i> (CCFF 4528-31; 4533; 4536-40; 4543; 4553-54)
"Illumina can increase	Illumina cannot increase prices beyond inflation for the	Respondents' economic expert, Dr. Carlton, testified
prices" (CC Post-Trial	entire 12-year term of the Open Offer, until August 18,	that "GRAIL doesn't technically pay a price. If you want
Br. at § II.E.1.b)	2033. (PFF ¶¶ 1021–22; RRFF ¶¶ 2705, 4363.) Illumina	to make up a scenario in which you force GRAIL to
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	must lower sequencing prices by at least 43% by 2025.	'pay some price,' and you call that a transfer price
	(PX0064 (Illumina) at 5; PFF ¶ 1023; RRFF ¶¶ 4363,	I'm happy to make that assumption." (CCFF 4652); see
	4658.) And if Illumina offers GRAIL or any other oncology	also (CCFF 4646-52; 4671-72])
	customer lower prices, it must offer those same lower prices to the customer. (PFF ¶¶ 1017–18 RRFF ¶¶ 2750, 4361–63.)	The Open Offer takes away discretionary discounts that were available to customers pre-Acquisition. (CCFF 4641-43).
		Illumina publicly announced plans to reduce sequencing costs 83 percent, much more than the 43 percent decrease in the Open Offer. (CCFF 4660-62, 4655-4703). The 43 percent price decrease is the price <i>per gigabase</i> of sequencing, which is irrelevant to
		MCED test developers. (CCFF 4675-82)

Sources: Resp. Post-Tr. Reply Br. at 51; Compl. Counsel Post-Tr. Br. 89-94, 172-173.



## The Open Offer Fails To Eliminate Illumina's Ability To Harm Grail's Rivals

Illumina Lever	Inadequate/Unworkable Open Offer Provision	Major Loopholes
"Illumina can diminish	Illumina must supply the same levels of service and	"They [Illumina] could also, you know, one day turn
service and support"	support to the customer as it provided pre-merger and	around and, you know, say simple things like, you
(CC Post-Trial Br. at	as it makes available to GRAIL. (PFF ¶ 1004; RRFF ¶¶	know, 'We can't get a technician out to your
II.E.1.a.ii.d)	2855–57, 2868, 2871–73, 2878–93.)	sequencers until next Friday' or 'the Friday after,' and
15.07		that could create challenges around turnaround time
		and disappoint customers and therefore hurt us
		competitively." (CCFF 2919); see also (CCFF 4495-
		4510; 4808-10; 4813; 4825-4842)
"Illumina can delay or	Illumina must provide the customer access to new	Illumina's Nicole Berry testified that the Open Offer
deny access to new	technology at the same time—within five days—as it	does not prevent Grail from having knowledge of
technology" (CC Post-	provides that technology to GRAIL. (PFF ¶¶ 1005, 1008;	Illumina's new technology before other companies.
Trial Br. at at	RRFF ¶¶ 2810–25.)	(CCFF 2810). Dr. Bert Vogelstein testified that
II.E.1.a.ii.e)		advanced knowledge of "future product
		developments and refinements" from Illumina "could
		substantially alter research and development in the
		field and the nature of the test products that are
		eventually produced." (CCFF 2813); see also (CCFF
		4594-4608)
"Illumina can develop	Upon customer request, Illumina must enter into a	When Illumina first formed Grail, it noted that
products specifically	development agreement on commercially reasonable	"Illumina understands the sequencer better than
for GRAIL" (CC Post-	terms relating to the design or modification of	anyone since they developed it and can in partnership
Trial Br. at II.E.1.a.ii.f)	sequencing products to optimize interoperability with	with [Grail] optimize i[t] for ctDNA applications
	the customer's tests. (See PFF ¶¶ 1005, 1008, 1010;	(e.g., improved error profile). This means that [Grail]
	RRFF ¶¶ 2825, 2830, 2986–97.)	can get better performance than someone who has to
		use the off the shelf version." (CCFF 2986); see also
		(CCFF 4609-14; 4545)

Sources: Resp. Post-Tr. Reply Br. at 51; Compl. Counsel Post-Tr. Br. at 94-99.



#### Jay Flatley, former Illumina Executive Chairman and CEO:

	v2-Not for t Illumina/GRAIL Q&A For Use with Investors + Modia	Distribution
Illumina/GRAIL Q&A		
For Use with Investors +	Media	
	Q. By creating and unleashing GRAIL have you created a competitor for your custom A. With the mention channer, we have actually leveled the playing field. Previously 6	
A: With the result <u>this chang</u> technology and pricing that screening market. Today, G	ng GRAIL have you created a competito e, we have actually leveled <u>the playing</u> was preferential to our customers, albe RAIL has access to technology on same perform large scale studies. As a resul	field. Previously GRAIL had access to eit just for the asymptomatic terms and price as other large
	Q: What dilution will you have to recognize in Q17 Will there be a weighted average impact on the full year? A: Depends when financing closes, but we will provide some boundaries when we profer 2017. We will do so for both Q1 and PP17. Q: Has the timeline for the product been pushed out	



## Selected Sources of Additional Evidence



## Illumina Is the Only Option for MCED Tests

MCED Developer	IH Testimony	Deposition Testimony	Trial Testimony
Grail	CCFF 1061, 1075-83, 2905	CCFF 1066, 1849-1852	CCFF 1057, 1071, 2902
Exact/Thrive	CCFF 1084, 1090, 1093-95	CCFF 1087, 1089, 2885	CCFF 929, 1084, 1087, 1091-92
Guardant	CCFF 1110, 1135, 1137, 1775	CCFF 1126, 1139, 4489	CCFF 1107-1108, 1116, 1129, 1130-34
MCED #4	CCFF 1104	CCFF 1099-1103	CCFF 1096-97, 1339
Freenome	CCFF 1151, 1157, 1159	CCFF 1143, 1150	CCFF 1140, 1145-46, 1727, 1729, 1155
Singlera	CCFF 1173-75	CCFF 1172, 1530	CCFF 1165, 1168, 2849
Helio	N/A	CCFF 1189, 1529	CCFF 1177-78, 1185, 1528
MCED #8	CCFF 1193, 1200	CCFF 3838-39, 4465	CCFF 1191, 1194-96



# MCED Test Developers Rely on Illumina at Every Stage of Development and Commercialization

Reliance During Research, Development,	Supporting Testimony	
and Commercialization		
Collaboration	CCFF 2829-36, 2873-80	
Custom-designed library prep products	CCFF 2613-14, 2987	
Support/service	CCFF 2829-36, 2892-94, 2896-2900, 2918	
Installation and technical support	CCFF 2805-09, 2880-91 2895	
Dependable and reliable supply	CCFF 2830, 2837-54	
Advance notice of new technology	CCFF 2813-17, 2820-24, 4598-9, 4605, 4559	
Assistance in switching or upgrading to new technology	CCFF 2736, 2805-07, 2887	
FDA approval process	CCFF 2946, 2948-49, 2951, 2954, 2956,	
	2958-60, 2964-70, 2972-77, 4488-90	



## **Open Offer Fails To Alleviate MCED Developer Concerns**

MCED Developer	Testimony		
Exact/Thrive	CCFF 4184, 4399, 4501-02, 4536-37, 4540, 4627, 4672, 4730-31, 4745, 4749, 4823, 4852-57, 4874-75, 4930, 5005, 5007-12		
Guardant	CCFF 4507, 4603, 4732-44, 4804-08, 4829-33, 4837-42, 4847-51,4876- 78, 4938-41, 4962-65, 4993		
MCED #3	CCFF 4178-79, 4485-86, 4528-34, 4613, 4670, 4685-86, 4693, 4708-11, 4729, 4747, 4809, 4844-45, 4929, 4933, 4997-5000		
Freenome	CCFF 4189-90, 4504, 4579-83, 4633, 4636-37, 4834-35, 4846, 4994-96, 5006		
Singlera	CCFF 4177, 4931		
Helio	CCFF 4638, 4671		
MCED #7	CCFF 4335, 4470-71, 4538-39, 4556-57, 4594-95, 4597, 4600, 4611-12, 4753, 4810, 4824, 5002		



## **Respondents' Efficiencies Are Inconsistent and Illogical**

Respondents argue	But also	Source(s)
Grail needs Illumina for recruitment	Illumina spun off Grail to enhance Grail's ability to recruit	RPFF 68.4, 1669; CCFF 3723, 5026
Grail needs Illumina for R&D	Illumina spun off Grail for Grail to be "more nimble" in its R&D efforts	RPFF 1136-1145.9; CCFF 28, 31, 3722-23, 5756
Grail will collaborate closely across business units of Illumina	Illumina is able to maintain a firewall with Grail	RPFF 800.1, 1143.1, 1176.2, 1946; RPFF 1039.2-1039.3, 1041.3-1041.4
Grail needs Illumina's clinical testing experience	Illumina is not a clinical testing company but a clinical tools provider	Resp. Post-Tr. Br. at 191-92; PX2169 at 038
Illumina has no incentive to help Grail's market access absent the merger	Illumina has the incentive to expand NGS use today	Resp. Post-Tr. Br. at 226; 111- 12
EDM efficiency will lead to lower prices for customers	MCED test developers will not compete on price with Grail	RPFF 800.2, 1152.2; Resp. Post-Tr. Br. at 58-59