Source Book

January 2020

illumina®

This “source book” is intended to pull together information to help you learn about Illumina’s product offering, strategy and historic performance. We hope this will be a helpful resource, but of course, there is no substitute for our SEC filings, and the reader should always refer to the latest disclosures including press releases and investor presentations available on our Investor Relations website. As a reminder, quarterly financial information is unaudited.

As you get to know Illumina, please do not hesitate to reach out if you have questions or any feedback. In the meantime, and on behalf of the management team here at the company, thank you for your interest in Illumina.

Jacquie Ross, CFA
Vice President, Investor Relations and Corporate Social Responsibility
Illumina

Email: jross2@illumina.com
Cell: (408) 594-9328

ILLUMINA'S MISSION

To improve human health by unlocking the power of the genome.

2020 Key Focus Areas

ENABLE
Breakthrough Genomics Research

ACCELERATE
Clinical Adoption of Genomics

ADVANCE
Technology Leadership and Innovation

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ABOUT ILLUMINA

As a startup, Illumina aspired to transform human health. Our initial products enabled researchers to explore DNA at an entirely new scale, helping them create the first map of gene variations associated with health, disease, and drug response. Every breakthrough opened up a new world, and showed us how much further there is to go.

While the rate of progress is rapidly accelerating, we are only beginning to understand the clinical significance of the genome. What causes a cancer cell to mutate? What is the origin of a puzzling disease? Is it possible to prevent the next outbreak? Or safeguard the world's food supply? These are just a few of the challenges that inspire us to push the boundaries of our imagination.

Today we are a global leader in genomics – an industry at the intersection of biology and technology. At the most fundamental level, we enable our customers to read and understand genetic variations. We strive to make our solutions increasingly simple, more accessible, and always reliable. As a result, discoveries that were unimaginable even a few years ago are now becoming routine – and are making their way into patient treatment.

Illumina Milestones	Genomic Milestones
April 1998 Illumina is founded	
October 1999 Jay Flatley becomes President and CEO	
July 2000 Illumina completes its IPO	
	April 2003 Human Genome Project maps the human genome
 *Genome Analyzer*	**February 2005** 454 Life Sciences launches first NGS sequencer
	August 2006 Genomics and Personalized Medicine Act of 2006
November 2006 Illumina acquires Solexa	
	November 2007 23andMe offers direct-to-consumer genetic testing
	May 2008 Genetic Information Non-Discrimination Act
January 2010 Announces HiSeq™ 2000 and $10,000 genome	
	January 2011 DNA sequencing saves first child
November 2013 MiSeq™Dx becomes first FDA-cleared NGS system	 *Nicholas Volker*
January 2014 Announces HiSeq X™ and $1,000 genome	
July 2016 Francis deSouza becomes President and CEO	
January 2017 Introduces NovaSeq™ with path to $100 genome	
April 2017 Launches CE-IVD marked VeriSeq™ NIPT Solution	
	December 2018 Genomics England completes sequencing 100,000 genomes
January 2020 Introduces NextSeqTM 2000 with Blue/Green SBS and super resolution optics	

INSTALLED BASE AND CUSTOMER EXAMPLES

BROAD INSTITUTE

A leading academic research center using genomics to advance the understanding and treatment of human disease.

FOUNDATION MEDICINE

Develops and sells a portfolio of genomic tests, including the FDA-approved FoundationOne CDx that detects genetic mutations and TMB.

wellcome sanger institute

A premier center of genomic discovery, leading collaborations across the globe.

CENTOGENE
THE RARE DISEASE COMPANY

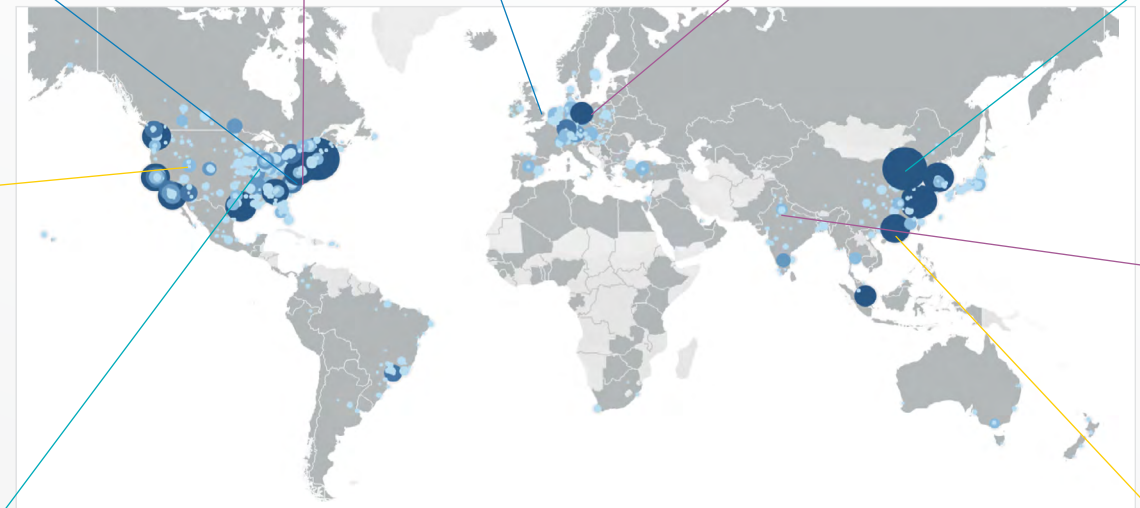
A global leader in genetic diagnostics for rare hereditary diseases with testing samples from over 125 different countries.

Berry Genomics 贝瑞基因

A Chinese prenatal genetic testing and diagnostics company that has a partnership with Illumina for CFDA approved NIPT kit.

ancestry

Discovers genealogy and geographic origins. Samples are processed by Illumina and Quest Diagnostics.



Over 15,000* Systems Placed Globally

FIND
Because diagnosis matters

FIND India focuses on evaluation and demonstration studies of new diagnostic tools that FIND co-develops, supporting the Revised National Tuberculosis Control Program by building programmatic capacity for genome sequencing in India.

TEMPUS

A technology company that enables physicians to deliver personalized cancer care for patients through its platform. Also provides genomic sequencing services and data analysis to empower physicians.

WEGENE

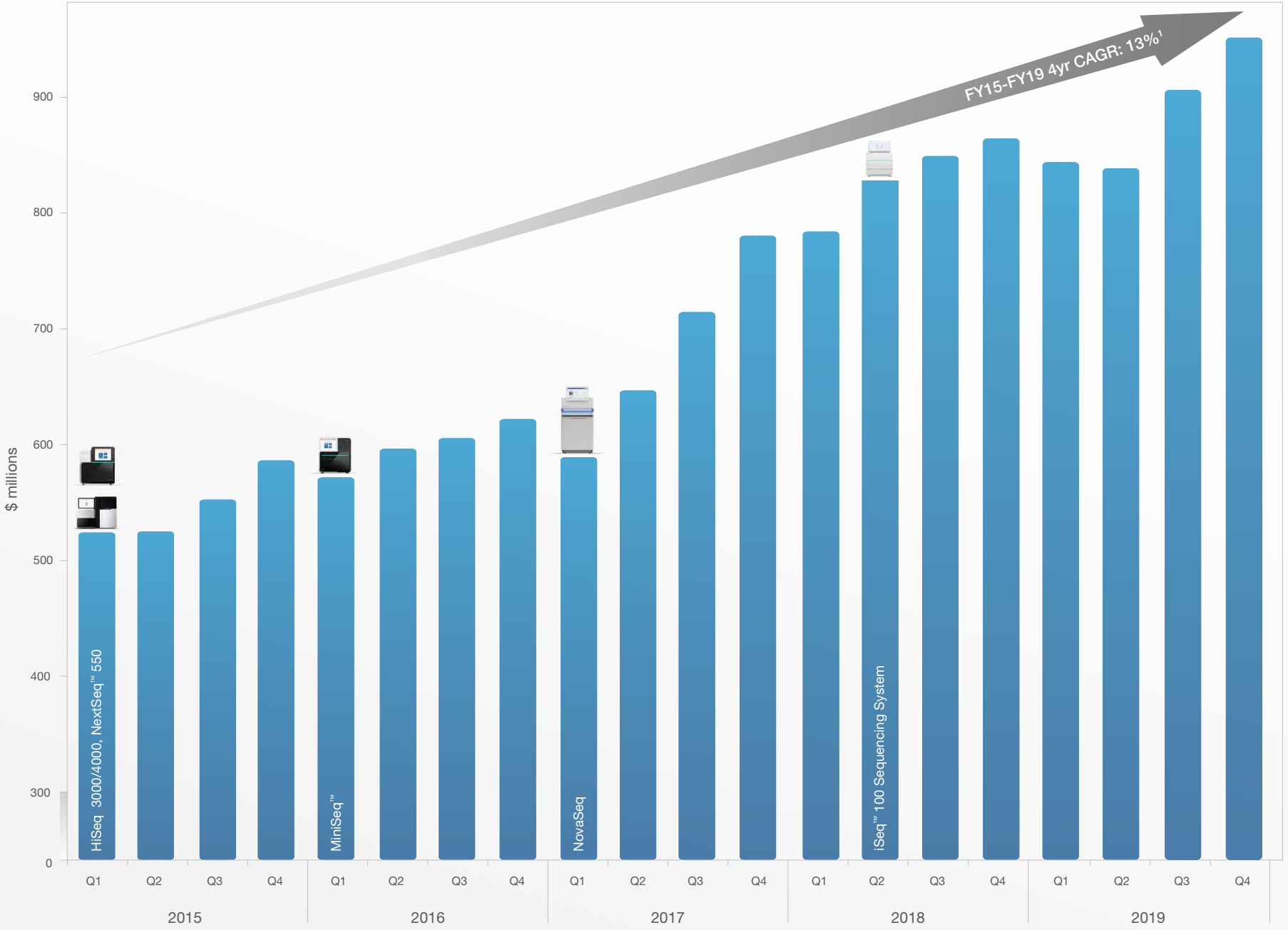
A personal genomics company that has a platform providing personal genetic testing and analysis services. Announced a collaboration to equip its labs with Illumina microarray technologies.

SELECT CUSTOMERS BY SEGMENT

Research | Translational | Clinical | Consumer

Note: Select customer logos and descriptions are included with their respective approvals.
*Excluding HiSeq, this includes all systems that have been shipped to customers and may include some decommissioned or inactive systems.

REVENUE GROWTH



Note: Select system launches indicated above. Quarterly financial information is unaudited.
[1]Historic CAGR is not intended as an indicator of future expectations.

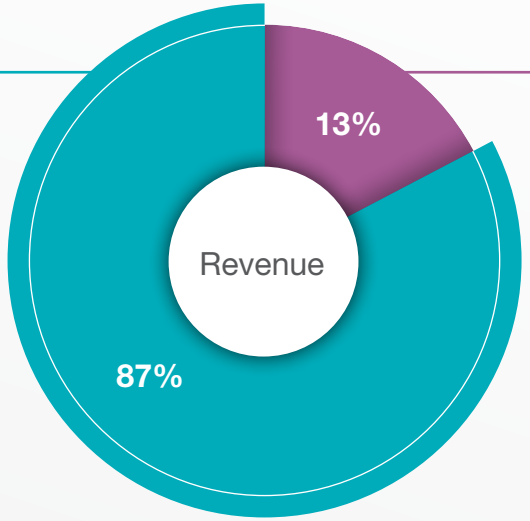
ILLUMINA'S BUSINESS

Illumina's revenues are comprised of two distinct genomic technologies: sequencing and microarrays.

SEQUENCING

When to choose sequencing?

- For analyses of large panels, exomes, or whole genomes
- When the targeted DNA region is not fully known
- When high coverage or "deep sequencing" is required
- When a wide range of applications, from basic science to clinical diagnostics, is required



MICROARRAYS

When to choose microarrays?

- For interrogation of known variants (e.g., single nucleotide polymorphisms)
- For discovery and association in common variations (e.g., polygenic risk scores, genome wide association studies)
- When an answer is required quickly
- When lower cost than sequencing is required

Note: Revenue as of FY19.

HISTORY OF ILLUMINA'S SEQUENCING INNOVATION

2010	2011	2012	2013	2014	2015	2016	2017	2018	2020

High-throughput

HiSeq 2000

Enabled the $10,000 genome

HiSeq 2500

Allowed for Rapid Run Mode to meet higher throughput needs

HiSeq X Ten

Enabled the $1,000 genome

HiSeq 3000/4000

Significantly increased data output

NovaSeq

Most powerful sequencer that is expected to enable the $100 genome

Mid-throughput

NextSeq 500

First benchtop to be powered by 2-channel SBS

NextSeq 550

Combined microarray scanning with NGS

NextSeq™ 550Dx[2]

FDA-regulated and CE-IVD marked for clinical research and IVD assays

NextSeq 1000/2000

First system with super resolution optics and Blue/ Green SBS

Low-throughput

MiSeq™

Benchtop sequencer, gave more scientists access to NGS

MiSeqDx[1]

The first NGS platform to be FDA cleared for IVD testing

MiniSeq

Made NGS simpler (integrated reagent cartridge), smaller, and more accessible

iSeq 100

Most compact NGS system for under $20k

[1] In August 2018, MiSeqDx sequencing system received the approval certificate from the China National Drug Administration (CNDA) and in January 2020, received approval from Japan's Pharmaceuticals and Medical Device Agency (PMDA) as a Class 1 medical device.
[2] In October 2018, NextSeq 550Dx received approval from Japan's PMDA as a Class 1 medical device.

SEQUENCING SYSTEMS AND KEY APPLICATIONS OVERVIEW

	Large WGS (human, plant, animal)	Small WGS (microbe, virus)	Exome Sequencing	Targeted Gene Sequencing	Whole-Transcriptome Sequencing	Gene Expression Profiling with mRNA-Seq	Targeted Gene Expression Profiling
High-throughput							
NovaSeq • Broadest range of applications • Enables lowest price per sample	●		●		●		
HiSeq X Five/Ten • Enabled the $1,000 Genome	●						
HiSeq 2500/4000 • Production-scale sequencing			●		●		
Mid-throughput							
NextSeq 1000/2000 • Incorporates blue/green SBS and super resolution optics		●	●	●	●	●	
NextSeq 500/550 • Flexible output options (mid and high)		●	●	●	●	●	
Low-throughput							
MiSeq • First benchtop sequencer		●		●			
MiniSeq • <1 day turnaround time		●		●			●
iSeq 100 • Most affordable sequencer		●		●			

Note: Only key applications highlighted, which does not reflect each system's entire set of capabilities.

SEQUENCING PORTFOLIO DETAILS

	Instrument Price	Approx $ Price/Gb	Max Output per Run[2]	Max Read Length	Max Reads per Run[2]	Time on Max Runs	Pull-Through Range	Flow Cell Technology	SBS Channels	Installed Base[4]
High-throughput										
NovaSeq 6000 with S4	$985K	$7.00[1] -10.30	6 Tb	2 X 150 bp	20 billion	~44 hrs	$1.1M-$1.2M	Patterned	2	~920
NovaSeq 6000 with S2	$985K	$12	2 Tb	2 X 150 bp	6.6 billion	~36 hrs		Patterned	2	
NovaSeq 6000 with S1	$985K	$13	1 Tb	2 X 150 bp	3.2 billion	~25 hrs		Patterned	2	
NovaSeq 6000 with SP	$985K	$14	800 Gb	2 X 250 bp	1.6 billion	~38 hrs		Patterned	2	
HiSeq X	NA[6]	$8	1.8 Tb	2 X 150 bp	6 billion	< 3 days	NA	Patterned	2	~1,300[5]
HiSeq 4000	NA[6]	$24	1.5 Tb	2 X 150 bp	5 billion	~3.5 days	NA	Patterned	4	
HiSeq 2500	NA[7]	$37	1 Tb	2 X 125 bp[3]	4 billion	~60 hrs[3]	NA	Random	4	
Mid-throughput										
NextSeq 2000 with P3	$335k	$20	300 Gb	2 X 150bp	1 billion	~48 hrs	NA	Patterned	2	NA
NextSeq 1000 with P2	$210k	$30	120 Gb	2 X 150 bp	400 million	~29 hrs	NA	Patterned	2	NA
NextSeq 550	$275K	$40	120 Gb	2 X 150 bp	400 million	~30 hrs	NA	Random	2	~3,600
Low-throughput										
MiSeq	$99K	$108	15 Gb	2 X 300 bp	25 million	~56 hrs	$40K-$45K	Random	4	~7,400
MiniSeq	$49.5K	$218	7.5 Gb	2 X 150 bp	25 million	~24 hrs	$20K-$25K	Random	2	~1,100
iSeq	$19.9K	$500	1.2 Gb	2 X 150 bp	4 million	~19 hrs	NA	Patterned	1	~860

[1] Based on purchase of > 5 instruments.
[2] Assuming two flow cells per run on NovaSeq and HiSeq Series Systems.
[3] Rapid run mode.
[4] As of end of 2019. Excluding HiSeq, this includes all systems that have been shipped to customers and may include some decommissioned or inactive systems.
[5] Combined HiSeq family.
[6] HiSeq X and 4000 instruments are no longer available for sale, but instruments and reagents will be supported through March 31, 2024.
[7] HiSeq 2500 instruments are no longer available for sale, but instruments and reagents will be supported through February 28, 2023.

MICROARRAYS OVERVIEW

Background

What is a microarray?

A microarray, or array, is a DNA chip that can be used to "genotype" multiple regions of a genome.

What is genotyping?

The process of determining genetic variants in the genetic make-up of the DNA.

How are array technologies used?

Array technologies continue to be used in a wide range of applications, including:

- Consumer genomics and health screening
- Agrigenomics
- Research (e.g., methylation testing)

Overview

iScan

The Infinium workflow is run on the iScan system and is a highly robust, highly scalable end-to-end solution with automation compatibility.

- Starter Kit configurations to support the workflow and meet throughput targets.
- Optional Tecan liquid handling robot and Autoloader to support walk-away capabilities.
- Optional Infinium LIMS to implement positive sample tracking and workflow enforcement.

Case Study[1]: NEOGEN

Who?

Neogen genotypes more than 10,000 samples per day for livestock producers worldwide.

How do they use microarrays?

Neogen developed dozens of custom Infinium arrays to evaluate close to 50k markers, which allows livestock producers and breeders to selectively breed for superior animals.

What's the impact?

This is especially important when the desired increases in genetic improvement are for traits that are not highly heritable, such as daughter pregnancy rate, for selecting the best dairy cattle bulls. The results for animal breeders include the elimination of genetic-based diseases.

Key Microarrays

Illumina's portfolio of arrays can analyze from 100 to 5M variants. Select arrays below:

Global Screening Array (GSA)

Built for consumer genomics and clinical research in translational and precision medicine efforts

Infinium XT

Customizable with flexible content, ideal for agrigenomics and low plexity consumer genomics

Methylation EPIC Beadchip

Comprehensive genome-wide methylation coverage for research of genetic disease and oncology

Fast Fact

In FY19, microarrays represented about 13% of revenues.

Genotyping Advantages

- Per sample cost
- Sample throughput
- Robust data management solutions
- Statistical power
- Mature technology

[1]The case study is included with customer approval.

ILLUMINA'S CLINICAL STRATEGY

Enable Innovators

By providing industry-leading technology solutions, we enable our customers to continue to innovate and deliver clinical content, increase awareness, and drive adoption.

Broaden Use

By developing distributable IVD kits in select clinical markets, we will broaden the reach of clinical sequencing. This will lower the barrier to adoption and enable labs of all sizes to run NGS-based samples in-house.

Accelerate Reach

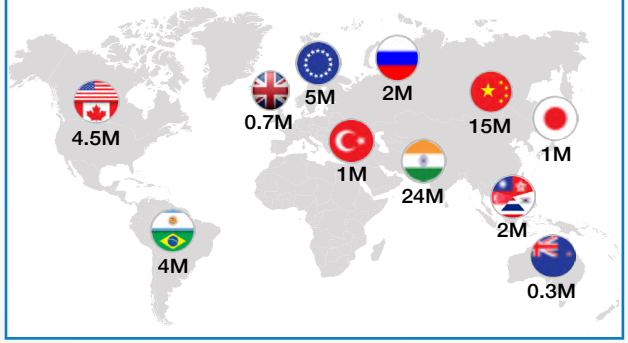
By partnering with leading clinical companies, we can accelerate patient access and increase impact. Working together, we will expand the clinical menu available on Illumina Dx platforms.

FOCUS AREA: NON-INVASIVE PRENATAL TESTING (NIPT)

Opportunity

Non-invasive prenatal testing (NIPT) is a way of examining fetal DNA by taking a sample of blood from a pregnant woman. With 140M babies born globally each year, NIPT represents an exciting global opportunity with many geographies still in early stages of adoption.

World Birth Rates[1]



Strategy

Illumina hopes to facilitate the expansion of coverage to include average risk and enter new geographic markets. Additionally, Illumina is expanding the utility of screening by expanding the limits of NIPT technology to test for genetic abnormalities across the genome.[2]

Case Study

Melody and Ruby's NIPT story[3]

Discussed Risks

Melody, who was pregnant at age 40, discussed with her doctor the genetic malformation risks.

Selected NIPT

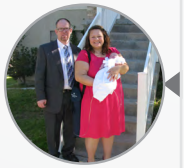
Melody chose to do a NIPT.

Recieved Results

The doctor informed Melody her test came back positive for trisomy 21, or Down Syndrome.

Planned Ahead

Melody and her family were able to better prepare for additional tests during the pregnancy as well as how to care for their daughter, Ruby.



Outcome

The whole family loves going hiking, including Ruby.

Notable Developments

July 2018: ACOG withdraws practice bulletin 640 that questioned utility of average-risk NIPT.

Sept 2018: Florida Medicaid (~3.4M lives) becomes the first state to cover NIPT in all pregnant women.

Oct 2018: Early results from Dutch TRIDENT-2 show 78% of women asked chose a screen with genome wide information.

Dec 2018: France publishes a reimbursement rate of €363 for NIPT testing to screen for Trisomy 21.

June 2019: Illumina launches VeriSeq NIPT Solution v2, enabling screening for a broader range of rare chromosomal conditions.

Sept 2019: Germany's Federal Joint Committee publishes its decision to cover NIPT for select high-risk pregnancies.

Key Drivers

Reimbursement

In the US, 97% of high-risk pregnancies and 48% of average-risk pregnancies are covered. In the EU, the Netherlands and Belgium cover NIPT for all pregnancies.

Regulatory Approval

With a CE-IVD mark in 2017, VeriSeq NIPT became accessible to 5M annual births. VeriSeq NIPT version 2 is now available in 25 countries and undergoing product registration in more than 11 countries. Illumina will continue to drive towards IVD in the US as well with TruSight NIPT.

Clinical Value of NIPT

Most NIPT today screen for trisomy 21, 18, 13, X and Y. New solutions are driving expansion of testing to all autosomes and microdeletions. Expanding testing provides more clinical utility to the physician, especially for sub-chromosomal events that are equally prevalent independent of maternal age.

[1]World Bank population data, World Bank birth rate (2019)
[2]Abnormalities smaller than chromosomal have not been shown to be linked to maternal age and therefore the prevalence is equal across the population.
[3]The case study is included with patient approval.

PRODUCT OVERVIEW: VeriSeq NIPT v2

A Whole Genome-Based Approach

Illumina's VeriSeq NIPT solutions are based on a whole genome sequencing (WGS) based assay, which uniquely provides millions of counts across the genome instead of being limited to just a few chromosomes. Since information is gathered based on whole fetal genome, this workflow approach lowers test failure rates, improves analysis, and enables all autosomes as well as CNV detection across the genome.

Key Benefits of VeriSeq NIPT v2

Amplification Free

WGS-based NIPT, such as VeriSeq NIPT v2, eliminates the need to amplify the sample. This minimizes contamination risk, reduces time and complexity, and removes the need for pre- and post-PCR space.

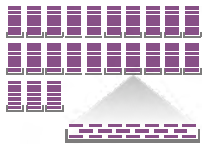
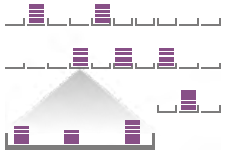
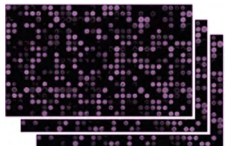
Low Test Failure Rates

VeriSeq solutions use iFACT, an innovative quality control analysis that minimizes "failed" tests and enables more reporting on samples, even those with low fetal fraction.

Expandable Test Menu

The WGS approach of VeriSeq NIPT allows for efficient expansion of test menu. VeriSeq NIPT v2 now offers a genome wide screen, which significantly expands the number of chromosomal abnormalities that are screened relative to basic NIPT.

Overview of Technology Types

	WGS-based	Targeted Sequencing	Targeted Amplified Fluorescence	
				
Examples of Test by Technology Type	IONA, MaterniT21, NIFTY, VeriSeq NIPT v2*	Clarigo, Panorama	Harmony	Vanadis
Select Technology Comparison				
Examples	VeriSeq NIPT v2	Panorama	Harmony	Vanadis
Accuracy	>99%	>99%	>99%	>99%
Amplification Method	None	PCR-based	PCR-based	Rolling circle amplification
First-pass Failures Rate	1.2%	3.8%	~6%	<1%
Turnaround Time	~26 hours	3-4 days	3-4 days	3-4 days
Fetal Fraction	Reports, even for low fetal fraction	Does not report for low fetal fraction	Does not report for low fetal fraction	Does not measure fetal fraction
Test Menu				
Trisomy 21, 18, 13	Yes	Yes	Yes	Yes
Sex Chromosome Aneuploidies	Yes	Yes	Yes	No
Copy Number Variants	≥7Mb	Select Microdeletions	Select Microdeletions	No
All Autosomes	Yes	No	No	No

*Sold under multiple brand names.

FOCUS AREA: GENETIC DISEASES

Opportunity

Whole genome sequencing can help better diagnose and treat rare, undiagnosed or genetic diseases as early transitions to clinical WGS show promising outcomes. Illumina's technology can have a meaningful impact on patient lives and we believe this market will serve as an important proof point for the need to perform WGS versus panels or even exomes as a first-tier test.

>300M Rare Disease Patients[1]

Average 8 Years to Diagnosis in the US & UK[2]

Genetic diseases are responsible for:

19% PICU deaths[3]

50% admissions to pediatric long-term care[4]

60% end-of-life admissions[4]

Case Study

Two brothers' successful diagnosis[5]

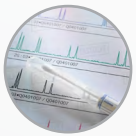
Two brothers (ages 4 and 11) presented with similar phenotypes of profound intellectual disability and seizures.

iHope

Testing performed through Illumina's iHope philanthropic program.

Received Results

Variant identified in a potential new disease gene, PIGS, in both brothers.



GENEMATCHER

Treatment identified

Through an international "matchmaking" program, this new disease was confirmed and vitamin B was identified as a treatment.

Outcome

Both brother's seizures have stopped.

Strategy

Illumina hopes to catalyze and accelerate the adoption of cWGS for RUGD by driving best practices and standardization in cWGS to ensure high quality data.

Notable Developments

Sept 2018: Rady Children's Hospital launches Project Baby Bear with $2M of funding from Medi-Cal to offer rapid WGS for critically-ill newborns.

Jan 2019: CMS' CPT pricing of $5,031 per genome comes into effect for cWGS.

Jan 2019: Illumina and Mayo Clinic partner to develop WGS products for comprehensive genome-wide analysis.

Feb 2019: Illumina joins 8 leading organizations to launch the Medical Genome Initiative, which is focused on expanding access to cWGS to accelerate diagnoses of rare diseases.

July 2019: Florida approved ~$900k in funding to launch cWGS for critically-ill children at Nicklaus Children's Hospital.

July 2019: Blue Shield of California now covers rapid WGS for critically-ill children.

Key Drivers

Reimbursement

In the US, about 60% of total lives are insured for WES and 5% are insured for WGS.

Patient Advocacy and Support

Patients continue to be key advocates who proactively request and seek cWGS for more accurate and timely diagnoses.

[1]Nguengang Wakap, S., Lambert, D.M., Olry, A. et al. Estimating cumulative point prevalence of rare diseases: analysis of the Orphanet database. Eur J Hum Genet 28, 165–173.
[2]https://globalgenes.org/rare-facts/
[3]Hudome SM, Kirby RS, Senner JW, Cunniff C. Contribution of genetic disorders to neonatal Soneda A, Teruya H, Furuya N, et al. Proportion of malformations and genetic disorders among cases encountered at a high-care unit in a children's hospital. Eur J Pediatr 2012;171:301-5
[4]O'Malley M, Hutcheon RG. Genetic disorders and congenital malformations in pediatric long-term care. J Am Med Dir Assoc2007;8:332-4
[5]The case study is included with patient approval.

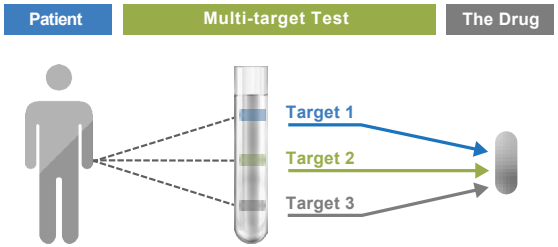
FOCUS AREA: ONCOLOGY

Opportunity

As cancer prevalence and costs rise, the need for effective patient stratification is driving research efforts to identify biomarkers and develop companion diagnostics.

- The number of new cancer cases is expected to increase to 24M per year by 2030[1].
- In 2017, the national economic burden of cancer care in the US was estimated at $137B[2].

The goal is to go from single tests to comprehensive, multigene tests to fuel precision medicine.



Strategy

Illumina is committed to enabling our customers and industry partners to innovate on our technologies. Our goal is to provide each customer, ranging from research to translational to clinical, with targeted solutions that move NGS into the standard of care.

Patient Journey

Overview for clinical testing

Hereditary Disposition

Determine hereditary risk through plasma/ saliva samples using NGS panels.

Screening

Screen for asymptomatic patients with plasma-based samples.

Therapy Selection

Receive optimized cancer treatment with companion diagnostic solutions.

Monitor efficacy and disease progression

Currently using imaging, but NGS panels could complement and eventually become viable alternatives.

Notable Developments

Jan 2019: Illumina announces its TruSight Oncology 500 assay has been granted Breakthrough Device Designation. Illumina is seeking FDA approval of the assay as a CDx.

Mar 2019: Guardant Health's NILE study met its primary endpoint of detecting a similar number of targetable biomarkers in non-small cell lung cancer patients. The median turnaround time was also shorter (9 days vs 15 days).

Mar 2019: MolDx publishes draft LCD to expand coverage of NGS-based LDTs to all advanced solid tumors and select hematological cancers.

April 2019: The NCCN's prostate cancer guideline recommends NGS for MSI testing and as an option for germline testing.

May 2019: GRAIL receives Breakthrough Device Designation for its multi-cancer screening test.

Jan 2020: MolDx finalized LCD for NGS-based LDTs, both tissue and liquid, in patients with advanced solid tumors and hematological cancers.

Key Drivers

Basic Research

The discovery process has only just begun. Basic research is needed to better understand the biology of cancer and discover treatment.

NGS Democratization

By enabling service providers and regulatory approved standardized distributable kits, Illumina is enabling greater access to life enhancing tools for patient care.

Regulatory and Reimbursement

Regulatory approval and reimbursement coverage of both small and large panels remain important for the uptake of companion diagnostics.

[1]International Agency for Research on Cancer as of September 2018.
[2]NIH National Cancer Institute as of February 2018.

PRODUCT OVERVIEW: TRUSIGHT ONCOLOGY

Overview

TruSight Oncology 500 is a next-generation sequencing assay for research use that enables comprehensive genomic profiling (CGP). It combines variant calling, TMB and MSI into a single test that provides reproducible results and works with low sample input.

Illumina TSO500	
Type	Tissue-based
Panel size	1.94Mb
# Genes tested	523
Sample input	40 ng or 5 FFPE slides
Turnaround time	3-4 days
RUO Launch Date	January 2019

Comprehensive Genomic Profiling Benefits

CGP has several benefits over single or "hotspot" tests:

- Requires less sample input
- Allows targeting of a growing number of biomarkers in one test
- Enables a hypothesis neutral approach as opposed to ordering a test for each hypothesis
- Increases utilization of targeted therapies

Opportunity

Unfortunately very few tumors are sequenced (for example, only 8% of tumors have been sequenced globally). Combined with the growing number of clinical trials for immuno-oncology and approved immuno-therapies, CGP is expected to increasingly play a role for cancer treatment.

Products In Development

Companion Diagnostic

Illumina is actively partnering with pharma companies to develop a companion diagnostic (CDx) assay based on TSO500 content (planned to be branded as TSO Comprehensive). The FDA has granted this assay Breakthrough Device Designation, which means the review process will be expedited.

Liquid Biopsy

Illumina has developed a version of TSO500 specifically for liquid biopsy samples. This TSO500 ctDNA assay is expected to be used when there is not enough sample tissue, or as a complementary assay for the tissue assay results.

As part of the development process, we partnered with Frederick National Laboratory (FNL) to establish the clinical utility for liquid biopsies in oncology testing. Using the TSO500 ctDNA, Illumina will work with FNL to:

- Perform a full analytical validation of the TSO500 ctDNA
- Investigate the concordance of ctDNA and tissue-based NGS
- Evaluate plasma specimens from subjects recruited into National Cancer Institute sponsored studies

What is TMB?

TMB stands for tumor mutational burden and it is the measurement of mutations carried by tumor cells. High TMB has been linked to better responses to immunotherapy.

In 2014 and 2015, two studies by MSK first demonstrated the connection between high TMB and response to immunotherapy. The studies showed the relationship for melanoma and non-small cell lung cancer. In January of 2019, MSK conducted another study and confirmed this relationship is true for many cancer types, not just melanoma or non-small cell lung cancer.

[1]Our World in Data: https://ourworldindata.org/cancer
[2]World Health Organization: https://www.who.int/cancer/PRGlobocanFinal.pdf

FOCUS AREA: CONSUMER GENOMICS

Opportunity

Strong interest from individual consumers to learn about their genomics has fueled the growing direct-to-consumer (DTC) genomics market. It's still very early days, with only ~5% penetration[1], and genealogy has been the overwhelmingly most common application. However, in the long term, we expect additional use cases in fitness, nutrition, wellness and health-related applications to drive excitement in consumer genomics.

Expanding Applications

Genealogy | Health | Wellness | Nutrition | Fitness | Entertainment

Strategy

Illumina continues to supports its customers by innovating technologies to make genotyping and sequencing even more affordable for DTC markets.

[1]Estimate according to Morgan Stanley, August 2018.
[2]These 23andMe customer case studies are included with both company and customer approvals.

Case Studies

23andMe customer stories[2]

Be Proactive

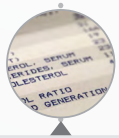
Received Results
Hilary learned she was 38% Ashkenazi Jewish and had a BRCA variant. No one in her family had a history of breast or ovarian cancer.

Consulted Doctor
Additional testing confirmed her positive result for BRCA.

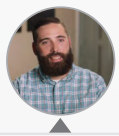
Outcome
Hilary is now proactive about monitoring her health and reducing her risk.

Be Educated

Diagnosed by Doctors
Charlie was diagnosed with ulcerative colitis. Although he was prescribed dozens of medications, nothing really helped him feel fully better.



Studied Results
Charlie discovered that he had a genetic variant associated with celiac disease.



Outcome
Charlie followed-up with his doctor and was diagnosed with celiac disease. He is now on a gluten free diet and feeling better.

Notable Developments

Mar 2018: 23andMe receives FDA authorization for a DTC genetic test for cancer risk. The test reports on three variants in the BRCA1 and BRCA2 genes.

Oct 2018: 23andMe receives FDA authorization to provide pharmacogenetic tests to consumers.

Nov 2018: WeGene will open its lab in Hong Kong, equipped with Illumina microarrays, to service customers in Hong Kong and Southeast Asia.

Jan 2019: 23andMe receives FDA authorization to provide customers with a genetic health risk report for hereditary colorectal cancer syndrome.

Oct 2019: Ancestry introduces two services (array-based and membership-based NGS service) under AncestryHealth to empower individuals to take proactive steps to address potential health risks.

Jan 2020: 23andMe licenses its first drug compound to Spanish drugmaker Almirall.

Jan 2020: 23andMe lays off 100 employees and cited a variety of factors, including privacy concerns, that contributed to the slowing market.

Key Drivers

Affordability

As technologies have improved, consumer genomic tests have become much more affordable. In 2007, 23andMe launched their first testing service for $999 and in 2020, now offers tests as low as $99.

Access

Until recently, consumer genomic companies had largely been focused on the US market. There has been significant growth and development abroad, notably in Asia Pacific (e.g., China, South Korea, Australia).

FOCUS AREA: POPULATION GENOMICS

Opportunity

Governments and health systems all over the world are recognizing the value of Population Genomics initiatives to improve the quality and efficiency of healthcare systems. Although large-scale population studies often take some time to ramp up to scale, Illumina is excited about the long-term opportunities.

The select following initiatives are expected to be actively sequencing in 2020:

- UK Biobank
- NIH's All of Us Initiative
- Genomics England / NHS

Vision and Strategy

Illumina's vision for Population Genomics is not only to enable one-time population research initiatives but to collaborate with governments and health systems to implement sequencing and incorporate new learnings into the standard of care. By enabling population health system programs, we can work to improve healthcare economics and patient outcomes.

Case Study

Genomics England: 100,000 Genomes Project

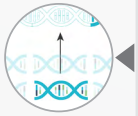
July 5, 2013
NHS launches GEL to sequence 100,000 whole genomes.

July 11, 2014
Selects Illumina to be sequencing provider.

January 11, 2016
First children receive diagnoses through GEL.

March 30, 2017
Whole genome analyses for cancer patients <18 days.

September 6, 2018
NHS announces launch of Genomic Medicine Services.



October 3, 2018
NHS plans to expand to 5M whole genomes sequenced within 5 years.

December 5, 2018
GeL completed sequencing 100,000 whole genomes.

January 13, 2020
GeL and Illumina announced a new agreement to sequence 300k-500k whole genomes by 2025.

Notable Developments

Sept 2018: All of Us selects Baylor, Broad, and UW to serve as the three genome centers. They were awarded $28.6M in funding. NIH also increased the All of Us FY2019 budget by $82M to $376M.

Jan 2019: Hong Kong announces its Genome Project to analyze 20,000 cases, which could lead to WGS of 40,000 to 50,000 genomes.

May 2019: Korea announces plans to sequence 1M individuals by 2029. Phase 1 is expected to start in 2020 and sequence 20,000 samples over 2 years.

June 2019: Intermountain Healthcare and deCODE genetics partner on Heredigene, a population study that plans to sequence 500,000 genomes.

Sept 2019: UK Biobank secures £200M in funding from a consortium which includes the UK government, Wellcome Sanger Institute, and four biopharma companies. The funds will be used to sequence the remaining 450,000 UK Biobank samples (first 50,000 samples were sequenced as part of the Vanguard Project).

Key Drivers

Scalability

With more robust array and high-throughput sequencing technologies, government and health systems can now efficiently and effectively integrate genomic and clinical data of large populations to drive further discovery and innovation.

Clinical Utility

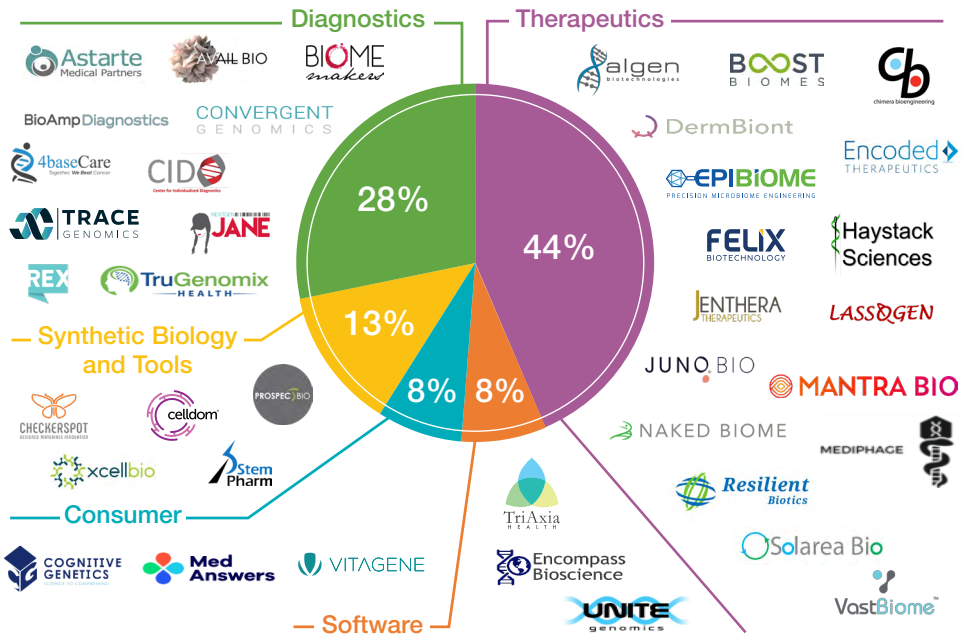
As more discoveries are made in these initiatives, governments will increasingly see the clinical utility and health economic value of genomics.

ILLUMINA ACCELERATOR DEVELOPS AND FOSTERS GENOMIC STARTUPS

Background

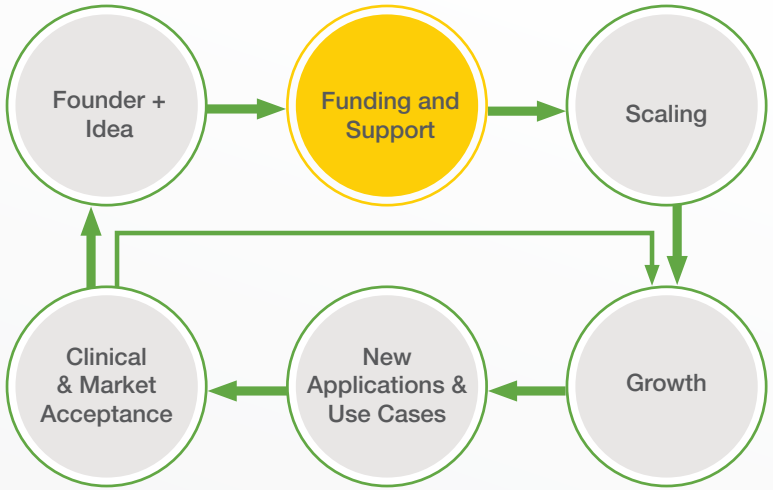
- Illumina Accelerator was founded in 2014 and expanded to Cambridge, UK in July 2019.
- **Mission:** Catalyze new genomics markets by partnering with entrepreneurs to unlock the power of the genome.
- **Leadership:** Mostafa Ronaghi, SVP and Chief Technology Officer, and Amanda Cashin, VP, Illumina Accelerator
- **Progress:** 39 startups have attracted over $190M in VC funding.

Breakout by Investment Area



Goals

- Catalyze new markets and applications for NGS
- Attract VC investment into genomics by creating high quality genomics startups
- Recruit top entrepreneurs into genomics
- Gain technology insights for Illumina R&D



How it Works

Selection – Twice a year, Illumina Accelerator evaluates applications from early stage genomics companies.

Program – Participants spend 6 months onsite for expert support in business and science, and also receive additional services, including capital and lab/office space.

Graduation – Upon graduation, Illumina Accelerator can help startups with additional fundraising. Participants are now part of a close-knit alumni community.

ILLUMINA VENTURES HAS INVESTED IN 14 COMPANIES

illumina VENTURES™

What is Illumina Ventures?

- Illumina Ventures is an independently managed firm focused on early-stage companies that are pioneering new applications of genomics and enabling precision medicine.
- It was launched with an initial $100M investment from Illumina. The balance of the funds has been raised from a mix of corporate, institutional, sovereign, and individual investors.
- **Investment Areas:** Life science tools, clinical diagnostics, therapeutics, and other opportunities to improve human health.
- **First Fund Size:** $230M (includes the $100M investment from Illumina along with $130M from additional investors).

Key Facts

- **Launched: 2016**
- **Founding Partner: Nicholas Naclerio, Ph.D., Illumina's former SVP, Corporate and Venture Development**
- **Portfolio companies have collectively raised over $750M to date**
- **As of December 29, 2019, the remaining commitment is $51M from Illumina**

Portfolio by Current Stage

Seed and Series A

Cernostics is a leader in tissue-based diagnostic testing, providing diagnostic tests with deeper tissue insights.

Cradle Genomics is developing a non-invasive prenatal test that will detect genetic abnormalities more broadly and comprehensively.

Luna DNA enables people to share their health data for medical research for the greater good of the community.

Ribometrix is a platform therapeutics company discovering small molecule drugs that target functional 3D RNA structures to treat human diseases.

SerImmune reveals the components of functional immune repertoires for therapeutic and diagnostic development.

Stilla Technologies focuses on accelerating the development of next-gen genetic tests by providing a ground-breaking and flexible digital PCR solution.

Series B

Biota applies DNA sequencing and data science to explore the earth's subsurface and provide actionable insights to the oil industry for maximizing reservoir production and reducing environmental impact.

DNA Script is a leading company in manufacturing de novo synthetic nucleic acids using an enzymatic technology.

Genome Medical, Inc. is a network of clinical genetics experts integrating genomics into everyday health care.

Kallyope is focused on the identification of new therapeutic and consumer opportunities involving the gut-brain axis, the information highway between our gut and our brain.

NanoCellect develops microfluidic technology for cell based assays.

Series C

Encoded Therapeutics is harnessing the regulatory genome to create next-generation molecular therapies.

SQZ Biotechnologies is a cell therapy company developing novel treatments for multiple therapeutic areas.

Publicly Traded

Twist Bioscience is accelerating science and innovation by leveraging proprietary semiconductor-based synthetic DNA manufacturing process to deliver cost-effective, rapid, high-quality and high throughput gene production.

Note: Quarterly financial information is unaudited.

ILLUMINA LABORATORY SERVICES

Overview

Illumina Laboratory Services (ILS) offer its customers services globally through three locations:

- **ILS - San Diego and Foster City**
  The team based in California, USA supports high throughput NGS for clinical testing (rare and undiagnosed disease, non-invasive prenatal screening, oncology comprehensive genomic profiling) and array genotyping. Samples for the iHope program are also run in ILS - San Diego.
- **ILS - United Kingdom**
  The team based in the UK supports high throughput human genome sequencing and delivered data for the 100K Genomes Project via a contract between Illumina and Genomics England.

Strategy

Illumina Laboratory Services (ILS) is designed to drive adoption of clinical genomic solutions by translating Illumina products for clinical laboratory use and accelerate the adoption of new platforms and products.

Why Customers use ILS

- Genomic experience since 2002
- High throughput, fully automated and LIMS tracked
- CLIA, CAP and ISO certified
- 3 locations and over 300 employees
- Board-certified pathologist, medical geneticists, genetic counselors, Ph.D. scientists
- Lab operations, engineering, software, supply chain, quality, and customer service

Fast Fact

Revenue associated with ILS is included in our Service and Other category.

MANUFACTURING OVERVIEW

Illumina is committed to its manufacturing processes through continual improvement by maintaining the effectiveness of our quality management system and complying with regulatory requirements.

Background

Main Sites: 4

Total sq footage: ~300,000

Global employees: ~1,400

Developing robust manufacturing capabilities is an integral part of Illumina's ability to deliver consistent, high-quality products on-time. Over the past few years, Illumina has begun a series of manufacturing expansion plans to promote business continuity with each site serving a strategic purpose. For instance, San Diego's manufacturing site allows for enhanced interactions and workflows between R&D and manufacturing.

KEY CORPORATE TRANSACTIONS AND PARTNERSHIPS

ACQUISITIONS

Name	Date	Detail
Edico Genome	May 2018	$100M acquisition. Edico's DRAGEN platform will complement and enhance interpretation and reporting capabilities
Verinata Health	Jan 2013	Acquisition of Verinata Health for $350M gives Illumina access to NIPT and IP portfolio
Epicentre Biotechnologies	Jan 2011	Acquisition of Epicentre's Nextera technology to enhance NGS library prep for $90M
Solexa	Nov 2006	Acquisition of Solexa for $650M gives Illumina the technology to enter the NGS space

DIVESTITURES

Name	Date	Detail
Vitrolife	Oct 2018	Licensing and commercialization agreement for exclusive distribution, development and commercialization rights to Illumina's PGT business for IVF in EMEA and Americas for $13M and up to additional $3M
CareDx	May 2018	Licensing and commercialization agreement to be the exclusive worldwide distributor of Illumina's TruSight HLA v1 and v2 and Assign HLA software. In January 2017, CareDx acquired Conexio from Illumina
Verogen	Aug 2017	Illumina partnered with Telegraph Hill Partners to launch Verogen, a forensic genomics spin-off

SELECT RECENT PARTNERSHIPS

Name	Date	Detail
Roche	Jan 2020	To develop and globally commercialize IVD kits on Illumina Dx systems and to add new CDx claims to TSO500
QIAGEN	Oct 2019	To develop and globally commercialize IVD kits, including CDx, on Illumina Dx systems
Adaptive	Sep 2019	To develop immunodiagnostic IVD test kits on the NextSeq 550 Dx System in the U.S.
AnchorDx	Jun 2019	To develop clinical oncology products for the Chinese market on the MiSeq Dx System
Sysmex	Jan 2019	To commercialize an oncology IVD panel in Japan. Sysmex's 114 gene panel will run on NextSeq550 Dx System
PierianDx	Jan 2019	To support variant interpretation and reporting for select Illumina oncology products
GeneSeeq	Jun 2018	To develop an oncogene detection kit and accelerate the commercialization of NGS testing in cancers across China
BMS	Apr 2018	To add companion diagnostic claims to TruSight Oncology 500 in support of BMS oncology portfolio
Bayer (prev. Loxo)	Apr 2018	To develop a pan-cancer CDx for NTRK gene fusions. The CDx will seek FDA approval on the NextSeq 550Dx platform
Loxo (subsidiary of Eli Lilly)	Apr 2018	To develop a CDx for RET gene alterations in thyroid and lung cancers. The CDx will seek FDA approval on the NextSeq 550Dx platform

PRESS RELEASES

13-Jan-20	Partners with Roche To Broaden Patient Access to Genomic Testing
10-Jan-20	Files Patent Infringement Suit Related to BGI in Sweden and UK
2-Jan-20	Termination of Merger Agreement with PACB
7-Oct-19	Partners with QGEN to Deliver NGS IVD Tests
30-Sept-19	Co-Develop Genomic Secondary Analysis Tools with Broad Institute
9-Sept-19	Names Joydeep Goswami SVP of Corporate Development and Strategic Planning
16-Jul-19	Expands Genomics Accelerator to Cambridge, UK
28-Jun-19	Files Patent Infringement Suit Related to BGI in Switzerland, Turkey, and US
17-Jun-19	Wins Infringement Suit Against Ariosa Diagnostics, Inc.
4-Jun-19	Introduces Expanded Version of VeriSeq NIPT Solution
15-May-19	Files Patent Infringement Suit Against BGI in Denmark
29-Mar-19	Files Patent Infringement Suit Against BGI in Germany
26-Mar-19	Partners with Lundbeck Foundation Geogenetics Center
6-Feb-19	Names Susan E. Siegel to Board of Directors
6-Dec-18	Announces New Genotyping Array and Scientific Contribution to Support All of Us
1-Nov-18	Announces Acquisition of PACB for $1.2B
30-Oct-18	Launches TruSight Oncology 500 to Power Pan-Cancer Tumor Profiling
28-Sep-18	Announces Conversion Period for Convertible Senior Notes due 2019 and due 2021
27-Aug-18	Receives Approval of MiSeqDx System in China
16-Aug-18	Announces Pricing of Convertible Senior Notes
15-Aug-18	To Offer $650 Million Convertible Senior Notes
15-May-18	Acquires Edico Genome to Accelerate Genomic Data Analysis
13-Apr-18	Announces Collaboration with BMS to Develop CDx for IO Therapies
10-Apr-18	To Partner with Loxo Oncology on NGS-Based Pan-Cancer CDx
12-Mar-18	Names Dr. Phil Febbo Chief Medical Officer
26-Jan-18	Awarded $26.7M in Patent Suit Against Ariosa Diagnostics, Inc.
8-Jan-18	Agreement with TMO to Provide Access to Ion AmpliSeq Technology
8-Jan-18	Launches iSeq 100 Sequencing System
4-Jan-18	Partners with KingMed Diagnostics to Develop NGS Tech for Chinese FDA Approval
11-Dec-17	Names Aimee Hoyt Chief People Officer
29-Nov-17	Opens Commercial and Customer Training Center in France
21-Nov-17	Wins Infringement Suit Against Premaitha Health plc and Ariosa Diagnostics, Inc.
15-Nov-17	Introduces NextSeq 550Dx System and Expanded Use of MiSeqDx System
8-Nov-17	Names Gary S. Guthart, Ph.D., to Board of Directors
16-Oct-17	Releases NovaSeq S4 Flow Cell and NovaSeq Xp Workflow
7-Sep-17	Files New Patent Infringement Suit Against Premaitha Health plc
24-Aug-17	Launches Forensics Genomics Company, Verogen, with Telegraph Hill Partners
29-Jun-17	Announces FDA-approved NGS Cancer CDx Test Kit
26-Jun-17	Genomics England Adopts BaseSpace Variant Interpreter
22-May-17	Names Mark Van Oene Chief Commercial Officer
10-Apr-17	Launches the VeriSeq NIPT Solution in Europe
3-Apr-17	Donates Somatic Interpretations to CIViC
28-Feb-17	Announces the iHope Network
20-Feb-17	Names John W. Thompson to Board of Directors
30-Jan-17	Debuts VeriSeq Analysis Software for NIPT
27-Jan-17	Names Caroline Dorsa to Board of Directors
12-Jan-17	Collaborates with NRGene to Develop New Cattle Breeding Tools
9-Jan-17	Partners with Philips to Offer Integrated Genomics Solutions for Oncology
9-Jan-17	Partners with IBM to Standardize Genomic Data Interpretation
9-Jan-17	Launch with Bio-Rad a Solution for Single-Cell Genomic Sequencing

Quarterly Press Releases

29-Jan-20	Reports Q4 and FY19 Results
24-Oct-19	Reports Q3 2019
29-Jul-19	Reports Q2 2019
11-Jul-19	Announces Preliminary Q2 2019 Results
25-Apr-19	Reports Q1 2019
29-Jan-19	Reports Q4 and FY18 Results
23-Oct-18	Reports Q3 2018
30-Jul-18	Reports Q2 2018
24-Apr-18	Reports Q1 2018
30-Jan-18	Reports Q4 and FY17 Results
24-Oct-17	Reports Q3 2017
1-Aug-17	Reports Q2 2017
25-Apr-17	Reports Q1 2017
31-Jan-17	Reports Q4 and FY16 Results
1-Nov-16	Reports Q3 2016
10-Oct-16	Announces Preliminary Q3 2016 Results
26-Jul-16	Reports Q2 2016
3-May-16	Reports Q1 2016
18-Apr-16	Announces Preliminary Q1 2016 Results
2-Feb-16	Reports Q4 and FY15 Results

CORPORATE SOCIAL RESPONSIBILITY

We plan to publish our first Corporate Social Responsibility report in 2020.

Accelerating Patient Access

iHope

The iHope Program is a philanthropic program that provides access to clinical whole genome sequencing to patients who are financially unable to obtain appropriate genetic testing. iHope aims to reduce the diagnostic odyssey, increase awareness of the power of cWGS and build momentum for its use as a first line test for families with children facing RUGD.

Key Achievements

- To date, over 500 cases have been processed by the program.
- Up to 50% of the cases have resulted in a change in clinical management.
- The iHope program has reached 27 clinical sites worldwide.

Empowering Communities

~2,500
Employees Volunteered

~14,000
Total Volunteer Hours

$310,000
Employee Donations

150+
Giving Back Events

Protecting Our Environment

Sustainable Design for Environment

- Completed pilot product environmental life cycle assessment (LCA)

Water Conservation Projects

- Saved 25M gallons of fresh water for >$45k in annual savings
- Reduced annual water consumption by 20% at our i3 campus

Carbon Emission Reduction

- Installed 3.5 MW fuel cell system at SD HQ
- Solar power installations introduced at San Diego (U.S.), Foster City (U.S.), and Cambridge (UK)

Energy Conservation Projects

- Implemented Tesla battery storage system
- Reduced energy consumption for annual savings of >$500k

Composting Project

- Diverted ~1 ton of food each month from landfill
- Reduced 99kg of methane gas per month

MEMBER OF
Dow Jones Sustainability Indices
In collaboration with SAM a RobecoSAM brand

Note: Empowering Communities statistics reflect contributions from 2019 only.

OUR PEOPLE

Overview

Illumina is committed to building, innovating, and winning as an inclusive team. With more than 7,700 global employees and 20 offices across 8 countries, our cultural values continue to be key to the company's success.

Innovation is in our DNA

We are relentless in the creation of great products

We collaborate deeply

We move fast and embrace change

We are open





Strategy

Illumina will cultivate an agile, innovative workplace built to deliver exceptional performance. We will be recognized as a leading employer for top talent driven by our humanistic mission, culture of care, commitment to diversity & inclusion and development of extraordinary leaders.

Culture of Care

To ensure employees know how much they are valued, Illumina has implemented several policies to demonstrate our Culture of Care.

Compassion and care time off
100% of pay for 30 days

Medical and sick leave support
100% base pay for 12 weeks

Flexible time off
Paid time off without accrual limits

Health and Lifestyle allowance
$500 for health, lifestyle and well-being

Universal variable compensation program
100% of employees eligible for bonus pay

Progressive, personalized benefits
Programs for fertility, expert second opinions, and genomic resources

Notable Awards

- Glassdoor Employees' Choice Best Place to Work (2019)
- Computerworld Best Place to Work in IT (2019, 2018, 2017)
- Corporate Equality Index's Best Places to Work for LGBTQ (2020)
- Forbes' The World's Most Innovative Companies (2018, 2017, 2016, 2015, 2014)
- Forbes' Most Just Companies (2019)
- Member of Bloomberg Gender-Equality Index (2020, 2019)

EXECUTIVE TEAM

Francis deSouza

President and CEO

Francis deSouza was appointed President & CEO of Illumina in 2016 and is responsible for directing all aspects of company strategy, planning, and operations. He initially joined the company as President in 2013, and led Illumina's business units and core functions responsible for envisioning, developing and producing the company's products.

Previously, Mr. deSouza served as President of Products and Services at Symantec Corporation, where he was responsible for driving the vision for the company's market-leading portfolio and served in a variety of executive roles. He joined Symantec through the acquisition of IMlogic, where he was co-founder and CEO.

Prior to joining IMlogic, Mr. deSouza was co-founder and CEO of Flash Communications, a provider of corporate instant messaging that was acquired by Microsoft. Following the acquisition, he joined Microsoft and led the team responsible for the development of the company's enterprise real-time collaboration offerings. Currently, he is a member of the Board of Directors for The Walt Disney Company.

Sam Samad

SVP, Chief Financial Officer

Sam Samad joined Illumina in 2017 and holds the role of SVP and Chief Financial Officer with responsibility for the company's finance, accounting, investor relations, internal audit, treasury, facilities and global information systems functions.

Before joining Illumina, Mr. Samad held several senior leadership positions at Cardinal Health including Senior Vice President and Corporate Treasurer, leading all tax and treasury functions. During his tenure as Treasurer, he also had operational and financial responsibility for Cardinal Health's China business. Prior to that, Mr. Samad served as Senior Vice President and Chief Financial Officer for Cardinal Health's $85B pharmaceutical segment, among other leadership roles. Prior to Cardinal Health, Mr. Samad spent thirteen years at Eli Lilly and Company, in a variety of sales and finance roles, both domestically and internationally, including his role as Chief Financial Officer of the Canada affiliate prior to leaving Eli Lilly. Samad started his career at Pepsico Inc.

Mr. Samad is a member of the Board of Directors for IDEXX Laboratories, Inc., a global leader in veterinary diagnostics, veterinary practice software and water microbiology testing and is also a member of the Board of Visitors at the Owen Graduate School of Management.

Omead Ostadan

SVP, Chief Product and Marketing Officer

Omead Ostadan is Chief Product and Marketing Officer for Illumina. A member of Illumina's executive management team, Mr. Ostadan is responsible for all aspects of Product Management and Marketing. Mr. Ostadan joined Illumina in 2007 as Vice President of Marketing and built the company's marketing organization during a period of tremendous growth and diversification. In 2011 Mr. Ostadan assumed the role of Senior Vice President of Product Development and in 2015 his role expanded to include the company's Global Operations and Quality functions.

Prior to joining Illumina, Mr. Ostadan was Vice President of Marketing at Solexa Inc., where he played a central role in the development of the company's product and commercial strategy. Prior to joining Solexa Inc. in 2005, Mr. Ostadan held a variety of marketing roles at Applied Biosystems over a nearly 10 year span, including responsibility for managing the company's high throughput sequencing platforms.

EXECUTIVE TEAM

Charles Dadswell
SVP, General Counsel

Charles Dadswell is Senior Vice President, General Counsel and Secretary to the Board of Directors of Illumina, where he has worldwide responsibility for global legal and intellectual property matters. He is also Chief Compliance Officer and President of the Illumina Foundation.

Before joining Illumina, Mr. Dadswell was Vice President, General Counsel for North and Latin America and Corporate Director of Global Intellectual Property at the French diagnostic company bioMerieux. He was previously General Counsel of BioDelivery Sciences International, a specialty pharmaceutical company. Prior to that appointment, Mr. Dadswell, spent 15 years at Glaxo, GlaxoWellcome and GlaxoSmithKline, in a variety of positions and oversaw US intellectual property procurement and enforcement. Prior to joining Glaxo, he was a patent attorney for Proctor & Gamble. Previous to that Mr. Dadswell worked for Glaxo as a hospital sales representative.

Dr. Phil Febbo
SVP, Chief Medical Officer

Dr. Phil Febbo was appointed as Chief Medical Officer in March 2018. In this role, he is responsible for developing and executing the Company's medical strategy to drive genomic testing into healthcare practice. Dr. Febbo has a successful track record of translational research, clinical excellence, and for embedding molecular insights into clinical care.

Before joining Illumina, Dr. Febbo served as CMO of Genomic Health. Before Genomic Health, Dr. Febbo was a Professor of Medicine and Urology at the UCSF.

Before joining the faculty of UCSF as an associate professor in 2010, Dr. Febbo worked at Duke University Medical Center's Institute of Genome Sciences and Policy. He completed his internal medicine residency at the Brigham and Women's Hospital, and his fellowship in oncology at the Dana-Farber Cancer Institute. After, he was an Attending Physician in the Genitourinary Oncology Center at Dana-Farber, Instructor at Harvard Medical School, as well as a post-doctoral fellow at Dana-Farber and the Whitehead Institute Center for Genomic Research of MIT (now the Broad Institute).

Joydeep Goswami, PhD
SVP, Corporate Development and Strategic Planning

Joydeep Goswami is Senior Vice President of Corporate Development and Strategic Planning where he responsible for driving planning, strategic partnerships and acquisitions.

Most recently, he served as the President of Thermo Fisher Scientific's Clinical NGS and Oncology business unit, where he oversaw efforts that drove the adoption of NGS in clinical oncology, research and reproductive health. Goswami has held senior leadership roles across the pharma/biotech, diagnostics and research tool continuum, previously serving at companies such as Life Technologies and Invitrogen, in addition to Thermo Fisher Scientific. He has led teams across various functions, including sales, marketing, R&D and other support functions. Mr. Goswami served as President, Asia Pacific and Japan while at Thermo Fisher Scientific and created the Stem Cells and Regenerative Medicine Business Unit at Invitrogen. Additionally, he spent five years at McKinsey, where he specialized in strategy for pharmaceutical, medical technology and technology companies.

Aimee Hoyt
SVP, Chief People Officer

Aimee Hoyt is Senior Vice President and Chief People Officer at Illumina, where she is responsible for all aspects of the company's HR strategies. Ms. Hoyt has a successful track record for leading workforce transformation, driving business growth and creating high-impact teams.

Previously, she has held senior positions at some of the world's best-known technology companies including Hewlett-Packard, Cisco and Sun Microsystems.

Most recently, Ms. Hoyt was the Chief Human Resources Officer at Rackspace, a leading managed cloud computing company, in San Antonio, Texas. She led the HR team and was responsible for helping build, align and develop high-performing global teams. During her tenure, Rackspace was recognized as one of Fortune's 100 Best Companies to Work For, Top 30 Best Places in Tech and Great Places to Work for Millennials.

EXECUTIVE TEAM

Bob Ragusa
SVP, Global Quality and Operations

Bob Ragusa is Senior Vice President of Global Quality & Operations for Illumina where he is responsible for the company's operations serving clinical and research customers. His organization includes the Manufacturing, Supply Chain, Quality, and Life Cycle Management global teams who are committed to ensure high product quality and customer satisfaction.

Prior to joining Illumina, Mr. Ragusa was Executive Vice President of Engineering and Global Operations at Accuray, a radiation oncology company, where he and his team were responsible for the development, manufacturing and distribution of innovative precision treatment solutions. Mr. Ragusa served as Senior Vice President of Global Operations for Applied Biosystems from 1997 until 2005.

Mr. Ragusa currently serves on Board of Directors for Twist Biosciences.

Mostafa Ronaghi, PhD
SVP, Chief Technology Officer

Mostafa Ronaghi, Ph.D., joined Illumina in August 2008. As Senior Vice President and Chief Technology Officer, he is responsible for leading internal research and technology development (RTD) and is co-founder of Illumina Accelerator, the world's first business accelerator focused solely on creating an innovation ecosystem for the genomics industry.

Mr. Ronaghi, an experienced entrepreneur, most recently led the formation internally at Illumina of GRAIL Bio. Previously, Ronaghi co-founded several companies including: Avantome, a sequencing company acquired by Illumina in 2008; NextBio, a search engine for life science data acquired by Illumina in 2013; ParAllele Bioscience acquired by Affymetrix; and Pyrosequencing AB, which was renamed to Biotage in 2003, and had a successful IPO in 2000 on the Stockholm Stock Exchange.

Mr. Ronaghi was a principal investigator at Stanford University from 2002 until 2008 and focused on development of novel tools for molecular diagnostic applications. He serves on the board of directors of BaseHealth and Clear Labs. He is also a member of the Scientific Advisory Board of GRAIL Bio.

Susan Tousi
SVP, Product Development

Susan Tousi is Senior Vice President of Product Development at Illumina, where she is responsible for global engineering, consumables, sequencing applications, software and informatics development efforts, ensuring Illumina's scientists and engineers continue the culture of innovation and product excellence that has been a hallmark of Illumina.

Ms. Tousi has more than 25 years of R&D and business leadership at Fortune 100 technology companies and within the life sciences industry. Formerly, Ms. Tousi was as a Corporate Vice President and General Manager for Eastman Kodak's Consumer Inkjet Systems organization. Prior to joining Kodak, she was an R&D program manager for Phogenix Imaging LLC, a joint venture start-up of Hewlett-Packard and Kodak. She previously spent 10 years with Hewlett-Packard in technical and management roles. Ms. Tousi played a significant role in the 2017 launch of the NovaSeq Series at Illumina and in 2018 was elected to the National Academy of Engineers for this effort to make genomics accessible and increasing throughput and enabling the path to the $100 human genome.

Ms. Tousi serves as a trustee at the world renowned La Jolla Playhouse.

Mark Van Oene
SVP, Chief Commercial Officer

Mark Van Oene is Senior Vice President and Chief Commercial Officer for Illumina, a position he has held since 2017. He is responsible for the development and implementation of the company's commercial strategy and is responsible for world-wide sales, services and marketing.

Mr. Van Oene was previously Illumina's Senior Vice President of the Americas region and subsequently named interim Chief Commercial Officer in late 2016. He joined Illumina in 2006 as Regional Account Manager for Canada. In 2008, he assumed the role of Senior Director of Sales for the Americas and was promoted to Vice President with responsibility for global sales in 2012. In early 2014, Mr. Van Oene was named the General Manager for the Americas region, advancing to Senior Vice President in April 2016.

Prior to Illumina, Mr. Van Oene was Director, Genotyping Services for Ellipsis Biotherapeutics.

Note: Please refer to Illumina's company website for the complete list of the management team.

BOARD OF DIRECTORS

Jay Flatley
Chairman

Mr. Flatley led Illumina as CEO from 1999 until 2016 and now serves as Chairman of the Board of Directors. He oversaw the company's expansion from microarrays into next-generation sequencing with the acquisition of Solexa in 2006, and from research into clinical and applied markets. Under his leadership, Illumina was named multiple times to the Deloitte & Touche Fast 50 and Fast 500 lists, as well as to the Forbes 25 Fastest-Growing Tech Companies (2007, 2009 and 2010), the Fortune 100 Fastest-Growing Companies (2010 and 2011) lists, and recognition by MIT Technology Review as the World's Smartest Company in 2014.

Mr. Flatley chairs the Board of Directors for Illumina. In addition to his work at Illumina, he serves on the Boards of Directors at Coherent, Denali, Iridia and on the Board of Trustees for The Salk Institute and is an Advisory Board member for UC San Diego's Moores Cancer Center.

Francis deSouza

Refer to biography on page 29.

Frances Arnold, PhD

Dr. Arnold has been a director since 2016. She is the recipient of numerous honors, including most recently the 2018 Nobel Prize for Chemistry. Dr. Arnold manages a research group at the California Institute of Technology and is the Dick and Barbara Dickinson Professor of Chemical Engineering, Bioengineering and Biochemistry at the California Institute of Technology and Director of the Donna and Benjamin M. Rosen Bioengineering Center. Dr. Arnold's laboratory focuses on protein engineering by directed evolution, with applications in alternative energy, chemicals, and medicine. Dr. Arnold serves as a director Alphabet Inc. and Provivi, Inc., a privately-held biopesticide company.

Caroline Dorsa

Ms. Dorsa has been a director since January 2017. Ms. Dorsa served as EVP and CFO of Public Service Enterprise Group Incorporated, a NYSE-listed diversified energy company, from April 2009 until her retirement in October 2015, and served on its Board of Directors from 2003 to April 2009. She has served as SVP, Global Human Health, Strategy and Integration at Merck, SVP and CFO of Gilead Sciences, and SVP and CFO of Avaya. From 1987 to January 2007, Ms. Dorsa held several leadership positions at Merck & Co., Inc., including VP and Treasurer, Executive Director of U.S. Customer Marketing, and Executive Director of U.S. Pricing and Strategic Planning. Ms. Dorsa also serves on the Board of Directors of Biogen and Intellia Therapeutics, and is on the Board of Trustees of the Goldman Sachs ETF Trust, the Goldman Sachs MLP and Energy Renaissance Fund and the Goldman Sachs MLP Income Opportunities Fund.

Gary S. Guthart, PhD

Gary S. Guthart, Ph.D. has been director since December 2017. Dr. Guthart is currently President and Chief Executive Officer of Intuitive Surgical, a global leader in the field of robotic-assisted minimally invasive surgery. He joined Intuitive Surgical in April 1996 and has served as the Chief Executive Officer since January 2010. In July 2007, he was promoted to President, having assumed the role of Chief Operating Officer in February 2006. Prior to joining Intuitive Surgical, Dr. Guthart was part of the core team developing foundation technology for computer enhanced-surgery at SRI International (formerly Stanford Research Institute). Dr. Guthart served as a member of the Board of Directors of Affymetrix, Inc. from May 2009 until its acquisition by Thermo Fisher Scientific Inc. in March 2016.

Robert S. Epstein, MD

Dr. Epstein has been a director since November 2012. Dr. Epstein is an epidemiologist who worked in public health and academia before joining the private sector. From 2010 to 2012, Dr. Epstein was Chief R&D Officer and President of Medco-UBC, a 2,400 person global research organization focused on conducting personalized medicine, health economics, drug safety, outcomes, and comparative effectiveness research on behalf of the biopharmaceutical, medical device, and diagnostics industries. Prior to this role, Dr. Epstein was Medco's Chief Medical Officer for 13 years, where he led formulary development, clinical guideline development, drug information services, personalized medicine program development, and client analytics and reporting. Dr. Epstein serves on the Board of Directors of Fate Therapeutics, Inc. and Veracyte, Inc. and privately-held companies Intellos LLC and Proteus Digital Health. Dr. Epstein has published more than 75 peer-reviewed medical articles and book chapters and serves as a reviewer for several influential medical journals, including the NEJM and JAMA.

Philip Schiller

Mr. Schiller has been a director since July 2016. Mr. Schiller rejoined Apple Inc. in April 1997 and assumed his current position as Senior Vice President, Worldwide Marketing in February 2002 and is a member of Apple's executive team responsible for the company's product marketing, developer relations, business marketing, education marketing, international marketing, and App Store programs. He has helped Apple create and market some of the best-selling products in the world including the Mac, iPod, iTunes, iPhone, the App Store, Apple TV, and the Apple Watch. Prior to rejoining Apple, Mr. Schiller was Vice President of Product Marketing at Macromedia, Inc. from 1995 to 1997 and Director of Product Marketing at FirePower Systems, Inc. from 1993 to 1995. Prior to that, Mr. Schiller spent six years at Apple in various marketing positions.

BOARD OF DIRECTORS

Sue Siegel

Ms. Siegel most recently served as GE's Chief Innovation Officer and CEO of GE Ventures where she oversaw investment in startups, created and scaled new companies, and commercialized GE's intellectual property. She joined GE in 2012 as CEO of healthymagination and built GE Ventures. Prior to joining GE, Ms. Siegel led investments at MDV, a Silicon Valley-based venture capital firm. She also previously served as President and Board Member of Affymetrix (acquired by TMO).

Current board directorships include Align Technology and MIT's The Engine. She serves on advisory boards including: University of California's Innovation Council, Harvard Partners' Healthcare Innovation, RAND Health Care, B&W's Hospital Scientific Advisory Board, Stanford Medicine Board of Fellows, and USC Marshall School of Business Board of Leaders. She is a Henry Crown Fellow of the Aspen Institute and is a member of Women Corporate Directors and of YPO-Gold.

John W. Thompson

John W. Thompson has been a director since 2017. He brings executive leadership experience having served as chief executive officer roles at Virtual Instruments and Symantec as well as 28 years of prior leadership experience at IBM where he held senior roles in sales, marketing, software development and as general manager of IBM Americas. He is chairman of the board at Microsoft and has served on the corporate boards of Symantec, NIPSCO (Northern Indiana Public Service Company), Fortune Brands, Seagate Technologies, and United Parcel Service (UPS). Mr. Thompson is a member of the board of trustees for the Wetlands America Trust and formerly a member of the national board of Teach for America. In addition, he has served on several government commissions including the Financial Crisis Inquiry Commission, the National Infrastructure Advisory Council, and the Silicon Valley Blue Ribbon Task Force on Aviation Security and Technology.

Committee Composition

	Audit	Compensation	Nominating and Corporate Governance	Science and Technology	Financial Expert	Class*
Jay Flatley				■		2021
John W. Thompson	■				■	2021
Francis deSouza						2019
Frances Arnold, PhD			■	■		2019
Caroline Dorsa	■	■			■	2020
Robert S. Epstein, MD		■	■			2020
Gary S. Guthart, PhD		■		■		2021
Philip Schiller			■	■		2020
Sue Siegel	■					2022

*Listed class refers to the year of term expiration.

■ Chair ■ Member

ETHICS ADVISORY BOARD

Illumina is committed to building our company with integrity and ethical business behavior.

What is Illumina's Ethics Advisory Board?

Since 2008, Illumina convened an Ethics Advisory Board (EAB) to ensure Illumina acts ethically and justly in its business operations. The EAB meets as necessary, but at least yearly, to advise and provide recommendations regarding ethical issues involving Illumina's existing, emerging, and prospective products, services, and processes both from a research and clinical perspective. This includes providing strategic advice to Illumina regarding emerging ethical issues, policies, and regulations relevant to the genomic industry.

Morris Foster, Ph.D.
Chairman

Morris is a medical anthropologist who is Vice President for Research at Old Dominion University. His research in medical anthropology has focused on the involvement of communities and groups in genetic studies, on the relationship between race and genetics and on the utility of personal genomic information.

Jeffrey Botkin, M.D., M.P.H.

Jeff is a Professor of Pediatrics at the University of Utah and an Adjunct Professor of Human Genetics. He is also the Associate Vice President for Research Integrity at the University of Utah and was formerly the Chief of the Division of Medical Ethics and Humanities in the Department of Internal Medicine. His research and publications are focused on research ethics, genetic testing for cancer susceptibility, newborn screening, and prenatal diagnosis.

Dov Fox, J.D.

Dov is Professor of Law at the University of San Diego, where he directs the Center for Health Law Policy & Bioethics. His research considers matters of genome privacy, DNA forensics, cognitive neuroscience, and FDA regulation. His latest book is Birth Rights and Wrongs: How Medicine and Technology and Remaking Reproduction and the Law (Oxford University Press).

Leslie Biesecker, M.D.

Les is a clinical and molecular geneticist and is the chief of the Medical Genomics and Metabolic Genetics Branch at the National Human Genome Research Institute (NHGRI) of the National Institutes of Health. Dr. Biesecker directs the NIH ClinSeq project with goals to improve medical care for patients and provide generalized knowledge about genetic disease.

Nita Farahany, J.D., Ph.D.

Nita is a Professor of Law & Philosophy at Duke University, and the Director of Duke Science & Society program. She is a leading scholar on the ethical, legal, and social implications of biosciences and emerging technologies, particularly those related to neuroscience and behavioral genetics.

Alastair Kent OBE

Alastair was the executive director of Genetic Alliance UK (alliance of 200+ support groups for patients and families with rare and genetic disorders) for almost 25 years.

Since retiring from Genetic Alliance UK Alastair has continued to work on behalf of patients and families affected by rare and genetic diseases. He is currently co-chair of the UK Rare Disease Policy Board at the Department of Health and Social Care and Chair of the Rare Diseases Advisory Group for NHS England.

ANALYST COVERAGE AND TOP INVESTORS

Sell-side Coverage

Please note that any opinions, estimates or forecasts regarding Illumina's performance made by these analysts are theirs alone and do not represent opinions, forecasts or predictions of Illumina or its management. Illumina does not, by its reference below or distribution, imply its endorsement of or concurrence with such information, conclusions or recommendations.

Firm	Analyst
Bank of America	Derik de Bruin, PhD
Barclays	Jack Meehan, CFA
BTIG	Sung Ji Nam
Canaccord Genuity	Max Masucci
Citi	Patrick Donnelly
Cowen and Company	Doug Schenkel
Evercore ISI	Vijay Kumar
First Analysis Securities Corp	Joseph Munda
Guggenheim Securities	David Westenberg, CFA
J.P. Morgan	Tycho W. Peterson
Janney Montgomery Scott	Paul Knight, CFA
Leerink Partners	Puneet Souda
Piper Sandler	William R. Quirk, CFA
Robert W. Baird & Co.	Catherine Schulte
Stifel	Dan Arias
UBS	Daniel Brennan, CFA
Wells Fargo	Dan Leonard
Wolfe Research	Steve Beuchaw

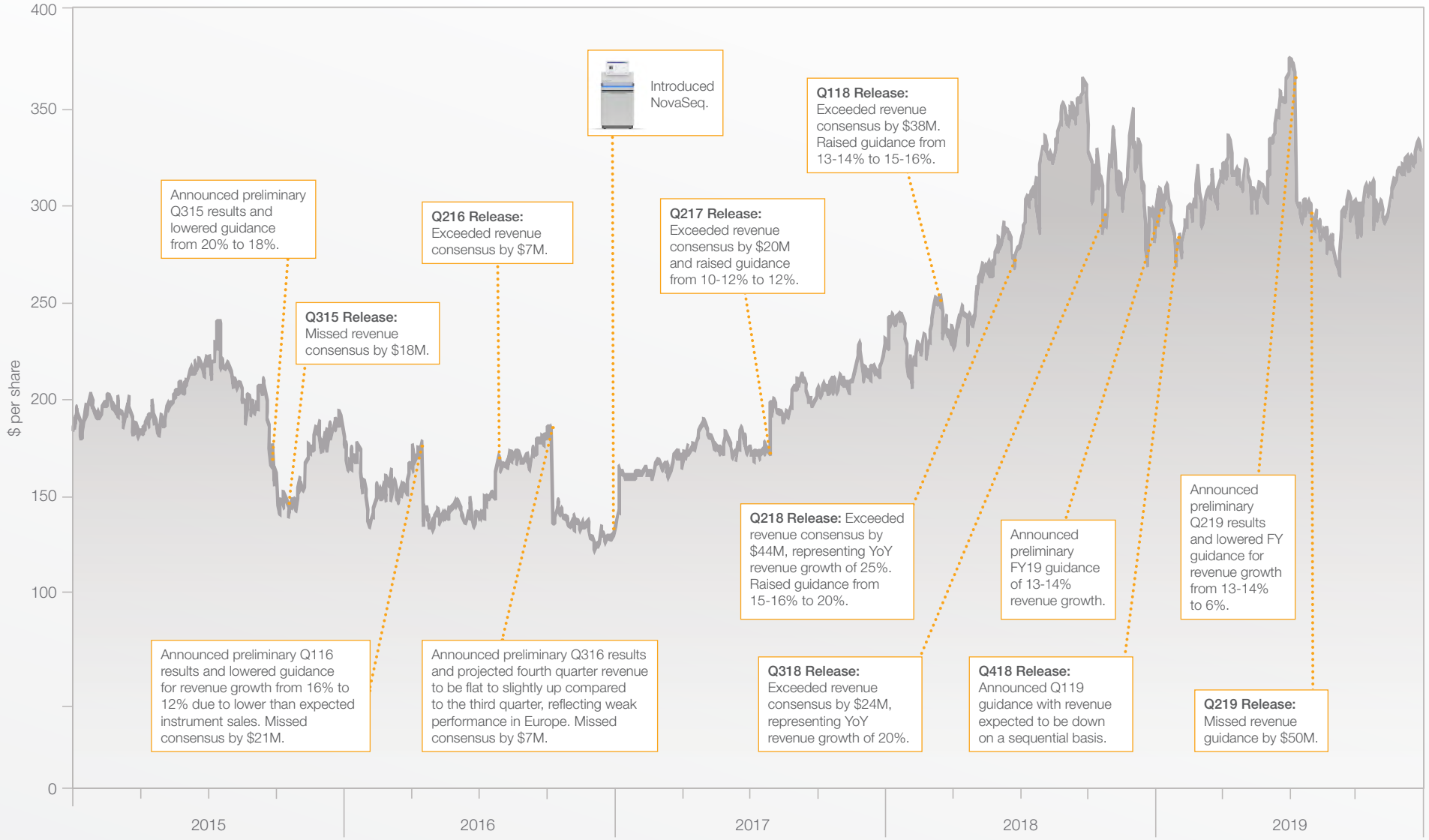
Largest Investors

The following list reflects Illumina's top investors as of the most recently available filings (9/30/2019).

Holder	9/30/2019 Position
Baillie Gifford & Co.	17,257,903
The Vanguard Group, Inc.	11,381,715
Capital Research Global Investors	7,907,604
BlackRock Institutional Trust Company, N.A.	7,869,881
State Street Global Advisors (US)	6,034,606
Jennison Associates	4,837,210
Edgewood Management	4,775,096
Sands Capital Management	3,532,234
Norges Bank Investment Management (NBIM)	3,121,826
Morgan Stanley Investment Management Inc.	2,814,766
Geode Capital Management	2,323,436
Nuveen	2,311,254
Viking Global Investors LP	1,926,956
Jackson Square Partners	1,665,707
Invesco Capital Management	1,561,899
Franklin Advisers, Inc.	1,500,056
Invesco Advisers, Inc.	1,437,356
Capital World Investors	1,373,643
Sumitomo Mitsui Trust Bank, Limited	1,315,437
Brown Advisory	1,178,319

STOCK PRICE PERFORMANCE

This chart captures ILMN stock price performance for the past 5+ years, including a comparison of reported quarterly revenue results to consensus. Note that the company does not, as a matter of routine, issue quarterly revenue guidance.



Note: All guidances refer to FY guidances unless otherwise noted. Stock price performance as of December 29, 2019.

CONVERTIBLE DEBT

What is convertible debt?

A hybrid security with both bond and equity features. Convertible debt, like bonds, pays interest over its life, which corporations can deduct for tax purposes. However, unlike traditional bonds, there is a conversion price at which the bondholders can choose to convert their debt into equity shares at a predetermined conversion rate, upon meeting certain criteria.

Why has Illumina issued convertible debt?

Illumina has chosen to issue convertible debt for several reasons, including but not limited to:

- Attractive financing opportunity in a low-interest rate environment
- Lower cash coupon than equivalent straight debt allows for Illumina to preserve cash for the business
- Does not require credit ratings and provides Illumina with more flexibility with regards to financial and negative concerns

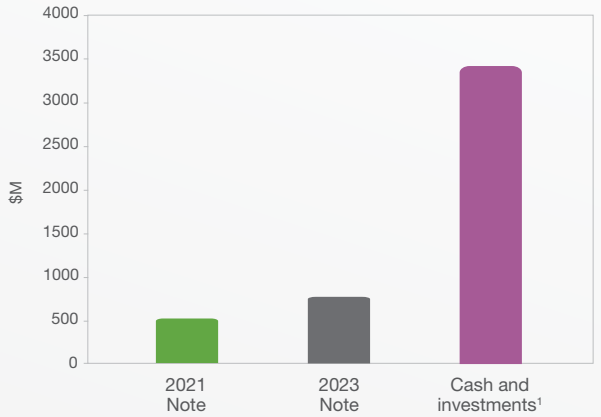
Will Illumina continue to issue convertible debt?

Illumina will monitor market conditions to evaluate which type of debt is the most attractive structure at time of issuance.

Portfolio of Convertible Debt

	2021 Note	2023 Note
Principal Amount	$517.5M	$750.0M
Issue Date	June 11, 2014	August 21, 2018
Coupon	0.5%	0.0%
Maturity	June 15, 2021	August 15, 2023
Conversion Price[2]	$254.34	$457.77
Conversion Rate[3]	3.9318 shares	2.1845 shares
Use of Proceeds	General corporate purposes including repurchasing 2016 Notes ($600M outstanding principal)	General corporate purposes and share repurchases
Status	Dilutive effect included in diluted share count in 2019	N/A

Cash Balance vs Convertible Debt as of Q419



Fast Fact

As of December 29, 2019, the 2021 and 2023 Notes are not convertible.

In Q219, Illumina repaid $632M of 2019 Notes that matured on June 15, 2019.

[1] Includes cash, cash equivalents, and short term investments.
[2] Current conversion price per share of common stock. Notes become convertible when the last reported sale price of shares, for at least 20 trading days during the 30-day trading period specified in each indenture, exceeds 130% of the conversion price.
[3] Current conversion rate of shares of common stock per $1,000 principal amount.

Note: Quarterly financial information is unaudited.

CAPITAL ALLOCATION

Overview

Illumina is committed to delivering shareholder value with strong financials and disciplined capital allocation. Capital deployments are carefully managed across strategic M&A, internal investments, debt management, and stock buybacks.

STRATEGIC M&A

Illumina acquires technologies that further lower the barriers to adoption of sequencing. In the case of Edico, acquiring Edico's DRAGEN technology to integrate into our standard sequencing workflow allows customers to accelerate their genomic data analysis while spending less time on compute infrastructure.

Please refer to page 25 for additional information on Illumina's key corporate transactions.

SHARE REPURCHASE

Share repurchases are generally used to offset dilution from employee grants, but may also be used opportunistically. On February 6, 2019, our Board of Directors authorized a new share repurchase program, which supersedes all prior and available repurchase authorizations, to repurchase $550 million of outstanding common stock.

INTERNAL INVESTMENTS

Illumina invests nearly 20% of revenue in R&D, prioritizing areas that drive continued adoption in genomics. For instance, recent innovations have ranged from enhancements to Nextera DNA library prep to new flow cell release on NovaSeq.

In addition to R&D projects, Illumina also invests across the company to support growth, which includes initiatives such as facilities expansion, IT software and hardware, and production support.

DEBT MANAGEMENT

As of FY19, Illumina has $3.4B in cash, cash equivalents, and short term investments and a debt principal amount of $1.3B. Please refer to page 37 for additional information on Illumina's convertible debt portfolio.

Share Repurchase Program

	Q218	Q318	Q418	Q119	Q219	Q319	Q419
Shares Repurchased	-	0.3M	0.3M	0.2M	-	0.7M	0.2M
New Authorization	$150M			$550M			
Remaining Balance	$250M	$147M	$49M	$488M	$488M	$289M	$226M

Note: Quarterly financial information is unaudited.

FINANCIALS FAQ

Q. What is included in 'Sequencing Revenue'?

Sequencing Consumables: Sales of single-use reagents and flow cells necessary to perform runs on our sequencing instruments. Customers must use Illumina reagents and flow cells on Illumina instruments. Also includes our suite of library prep offerings. Unlike our reagents/flow cells, customers do not need to use Illumina library prep before sequencing on Illumina instruments.

Generally, revenue is recognized upon delivery to the end customer.

Sequencing Instruments: Sales of our "Seq" product line to customers. Customers use these instruments for a broad range of applications including whole-genome, de novo, exome, RNA sequencing, and targeted resequencing of specific gene regions and genes.

Generally, revenue is recognized upon delivery to the end customer.

Sequencing Services:

- Extended warranties and maintenance contracts for our Sequencing instruments.
- Sequencing services performed at our in-house labs for a fee. Revenue from our partnership with Genomics England is included here.
- Revenue and IP fees for Verinata test send outs from NIPT customers.
- IVD licensing and milestone revenue, i.e., Roche, Qiagen, BMS, Loxo.
- Informatics revenue (BaseSpace and DRAGEN product lines).

Generally, revenue from instrument service contracts is recognized evenly over the contract term; and revenue from other sequencing services, at the time the sequencing analysis data is made available to the customer. Revenue from development and licensing agreements generally includes upfront and periodic licensing fees, contract research and development services, and payments for development and regulatory milestones. Revenue for these agreements is recognized when each distinct performance obligation is satisfied.

Q. What is included in 'Microarray Revenue'?

Microarray Consumables: Primarily consists of our Infinium product line and used on our Microarray instruments.

Microarray Instruments: Primarily consists of sales of our iScan system, which is used for genotyping DNA.

Also includes ancillary equipment used to automate workflows, such as AutoLoaders and Tecan robots. We source this equipment from third parties.

Microarray Services

- Extended warranties and maintenance contracts for our Microarray instruments.
- Array genotyping services performed at our in-house lab for a fee.

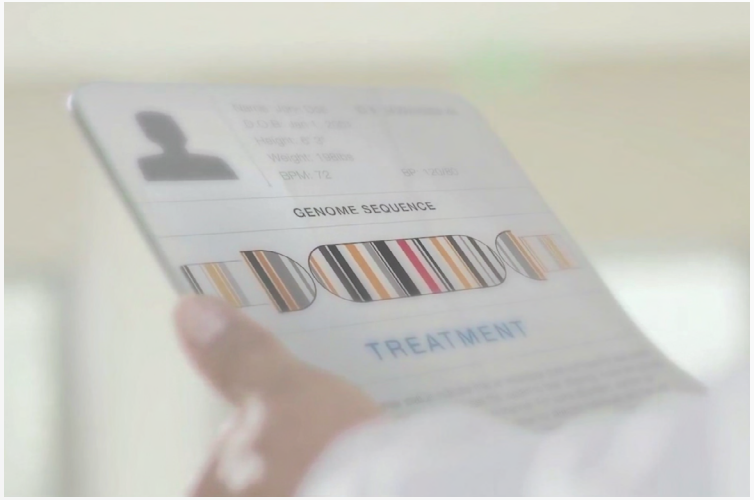
Generally, revenue from instrument service contracts is recognized evenly over the contract term; and revenue from other microarray services, at the time the genotyping analysis data is made available to the customer.

Note: Quarterly financial information is unaudited.

	2019
(in millions)	Q4 19
SEQUENCING	
Consumables	$572
Instruments	141
Service & Other	124
Total Sequencing	**$837**
% Revenue	**88%**

MICROARRAYS	
Consumables	$93
Instruments	6
Service & Other	17
Total Microarrays	**$116**
% Revenue	**12%**

All amounts in tables are rounded to the nearest millions, except as otherwise noted. As a result, certain amounts may not recalculate using the rounded amounts provided.



FINANCIALS FAQ

Q. What is included in 'Other Income (Expense)'?

Total other income (expense) reflects interest income, interest expense, and other income (expense), net.

Illumina's interest expense consists primarily of accretion of discount on our convertible senior notes.

Other income (expense), net, consists primarily of mark-to-market adjustments and impairments from our strategic investments.

Q. How should we think about 'Taxes'?

Our effective tax rate may vary from the U.S. federal statutory tax rate due to the change in the mix of earnings in tax jurisdictions with different statutory rates, benefits related to tax credits, and the tax impact of non-deductible expenses and other permanent differences between income before income taxes and taxable income.

The GAAP tax rate was 11% in Q419 vs 6% in Q418. The non-GAAP tax rate was 19% in Q419 vs 16% in Q418.

Q. What is 'Net Loss Attributable to Non-controlling Interests'?

Prior to April 25, 2019, we owned 50% of the outstanding shares of Helix and consolidate their results in our financial statements. This line on our P&L represents the net loss associated with Helix that is attributable to other investors, and as such, is added back to Consolidated Net Income to calculate Net Income Attributable to Illumina Stockholders.

	2019
(in millions, except per share amounts)	Q4 19
Income from operations	$268
Other income (expense), net	1
Income before income taxes	269
Provision for income taxes	30
Consolidated Net income	239
Net loss attributable to noncontrolling interests	-
Net income attributable to Illumina stockholders	**$239**
Earnings per share attributable to Illumina Stockholders (a):	
Basic	$1.63
Diluted	$1.61
Shares used in computing earnings per common share:	
Basic	147
Diluted	148

All amounts in tables are rounded to the nearest millions, except as otherwise noted.
As a result, certain amounts may not recalculate using the rounded amounts provided.

(a) Our consolidated VIEs' losses are included in the Company's consolidated basic and diluted earnings per share computations based on Illumina's weighted average common shares as a percentage of the VIEs' weighted average common shares.

Note: Quarterly financial information is unaudited.

FINANCIALS

Balance Sheet

	2017				2018				2019			
(in millions)	Q1 17	Q2 17	Q3 17	Q4 17	Q1 18	Q2 18	Q3 18	Q4 18	Q1 19	Q2 19	Q3 19	Q4 19
ASSETS												
Current assets:												
Cash and cash equivalents	$981	$1,219	$1,354	$1,225	$1,560	$1,344	$1,346	$1,144	$2,270	$1,943	$1,815	$2,042
Short-term investments	797	674	687	920	813	1,168	2,043	2,368	1,345	1,230	1,351	1,372
Accounts receivable, net	368	372	383	411	400	395	433	514	457	470	541	573
Inventory	299	309	327	333	350	362	374	386	412	420	417	359
Prepaid expenses and other current assets	72	69	54	91	71	68	66	78	61	93	98	105
Total current assets	2,517	2,643	2,805	2,980	3,194	3,337	4,262	4,490	4,545	4,156	4,222	4,451
Property and equipment, net	734	837	862	931	983	1,036	1,060	1,075	852	854	875	889
Operating lease right-of-use assets	-	-	-	-	-	-	-	-	574	558	555	555
Goodwill	771	771	771	771	775	831	831	831	831	824	824	824
Intangible assets, net	207	196	185	175	168	205	195	185	175	162	152	145
Deferred tax assets, net	83	103	117	88	100	108	86	70	87	69	88	64
Other assets	286	308	306	312	322	334	325	308	326	350	373	388
Total assets	**$4,598**	**$4,858**	**$5,046**	**$5,257**	**$5,542**	**$5,851**	**$6,759**	**$6,959**	**$7,390**	**$6,973**	**$7,089**	**$7,316**
LIABILITIES AND STOCKHOLDERS' EQUITY												
Current liabilities:												
Accounts payable	$142	$175	$158	$160	$151	$149	$156	$184	$137	$139	$143	$149
Accrued liabilities	386	378	381	432	388	422	450	513	473	473	476	516
Build-to-suit lease liability	192	124	124	144	21	21	22	-	-	-	-	-
Long-term debt, current portion	1	5	2	10	620	625	1,107	1,107	631	-	-	-
Total current liabilities	721	682	665	746	1,180	1,217	1,735	1,804	1,241	612	619	665
Operating lease liabilities	-	-	-	-	-	-	-	-	718	698	691	695
Long-term debt	1,055	1,169	1,180	1,182	710	723	860	890	1,112	1,120	1,131	1,141
Other long-term liabilities	212	212	222	360	364	343	352	359	212	211	209	202
Redeemable noncontrolling interest	59	80	124	125	215	217	218	61	37	-	-	-
Stockholders' equity	2,551	2,715	2,855	2,844	3,073	3,351	3,594	3,845	4,070	4,332	4,439	4,613
Total liabilities and stockholders' equity	**$4,598**	**$4,858**	**$5,046**	**$5,257**	**$5,542**	**$5,851**	**$6,759**	**$6,959**	**$7,390**	**$6,973**	**$7,089**	**$7,316**

Note: Quarterly financial information is unaudited.

FINANCIALS

Income Statement (GAAP)

	2017					2018					2019				
(in millions, except per share amounts and %)	Q1 17	Q2 17	Q3 17	Q4 17	FY 17	Q1 18	Q2 18	Q3 18	Q4 18	FY 18	Q1 19	Q2 19	Q3 19	Q4 19	FY 19
Revenue:															
Product revenue	$491	$543	$596	$659	$2,289	$628	$673	$710	$738	$2,749	$667	$704	$746	$812	$2,929
Service and other revenue	107	119	118	119	463	154	157	143	129	584	179	134	161	141	614
Total revenue	**$598**	**$662**	**$714**	**$778**	**$2,752**	**$782**	**$830**	**$853**	**$867**	**$3,333**	**$846**	**$838**	**907**	**953**	**3,543**
Cost of revenue:															
Cost of product revenue	166	168	173	172	679	174	181	184	198	738	182	196	195	230	802
Cost of service and other revenue	53	50	50	55	208	62	65	62	70	260	71	59	55	55	240
Amortization of acquired intangible assets	11	10	9	9	39	8	9	10	9	35	9	10	9	6	34
Total cost of revenue	**$230**	**$228**	**$232**	**$236**	**$926**	**$244**	**$255**	**$256**	**$277**	**$1,033**	**$262**	**$265**	**259**	**291**	**1,076**
Gross profit	**$368**	**$434**	**$482**	**$542**	**$1,826**	**$538**	**$575**	**$597**	**$590**	**$2,300**	**$584**	**$573**	**648**	**662**	**2,467**
Operating expense:															
Research and development	145	130	134	137	546	137	151	159	176	623	169	166	151	161	647
Selling, general and administrative (b)	171	161	167	175	674	183	197	197	217	794	211	202	189	233	835
Total operating expense	**$316**	**$291**	**$301**	**$312**	**$1,220**	**$320**	**$348**	**$356**	**$393**	**$1,417**	**$380**	**$368**	**340**	**394**	**1,482**
Income from operations	52	143	181	230	606	218	227	241	197	883	204	205	308	268	985
Other income (expense), net	451	(2)	(6)	(6)	437	3	5	(9)	13	11	29	141	(38)	1	133
Income before income taxes	503	141	175	224	1,043	221	232	232	210	894	233	346	270	269	1,118
Provision for income taxes	155	21	23	166	365	24	32	44	12	112	9	53	36	30	128
Consolidated Net income	348	120	152	58	678	197	200	188	198	782	224	293	234	239	990
Net loss attributable to noncontrolling interests	19	8	11	10	48	11	9	11	12	44	9	3	-	-	12
Net income attributable to Illumina stockholders	**$367**	**$128**	**$163**	**$68**	**$726**	**$208**	**$209**	**$199**	**$210**	**$826**	**$233**	**$296**	**$234**	**$239**	**$1,002**
Net income attributable to Illumina stockholders for earnings per share	**$366**	**$128**	**$163**	**$68**	**$725**	**$208**	**$209**	**$199**	**$210**	**$826**	**$233**	**$296**	**$234**	**$239**	**$1,002**
Earnings per share attributable to Illumina Stockholders (a):															
Basic	$2.50	$0.87	$1.12	$0.47	$4.96	$1.42	$1.42	$1.35	$1.43	$5.63	$1.58	$2.01	$1.59	$1.63	$6.81
Diluted	$2.48	$0.87	$1.11	$0.46	$4.92	$1.41	$1.41	$1.33	$1.41	$5.56	$1.57	$1.99	$1.58	$1.61	$6.74
Shares used in computing earnings per common share:															
Basic	146	146	146	146	146	147	147	147	147	147	147	147	147	147	147
Diluted	147	147	148	148	148	148	148	149	149	149	149	149	148	148	149
Gross Margin	62%	66%	68%	70%	66%	69%	69%	70%	68%	69%	69%	68%	72%	70%	70%
R&D as % of revenue	24%	20%	19%	18%	20%	18%	18%	19%	20%	19%	20%	20%	17%	17%	18%
SG&A as % of revenue	29%	24%	24%	23%	25%	23%	24%	23%	25%	24%	25%	24%	21%	24%	24%
Operating Expenses as % of revenue	53%	44%	42%	40%	44%	41%	42%	42%	45%	43%	45%	44%	38%	41%	42%
Operating Margin	9%	22%	25%	30%	22%	28%	27%	28%	23%	26%	24%	25%	34%	28%	28%
Tax Rate	31%	15%	13%	74%	35%	11%	14%	19%	6%	13%	4%	15%	13%	11%	11%

All amounts in tables are rounded to the nearest millions, except as otherwise noted. As a result, certain amounts may not recalculate using the rounded amounts provided.
(a) Our consolidated VIEs' losses are included in the Company's consolidated basic and diluted earnings per share computations based on Illumina's weighted average common shares as a percentage of the VIEs' weighted average common shares.
(b) Legal contingencies of $8M and $(8)M for Q1 2017 and Q2 2017, respectively, were reclassified to selling, general and administrative expenses.

Note: Quarterly financial information is unaudited.

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Income Statement (non-GAAP)

	2017					2018					2019				
(in millions, except per share amounts and %)	Q1 17	Q2 17	Q3 17	Q4 17	FY 17	Q1 18	Q2 18	Q3 18	Q4 18	FY 18	Q1 19	Q2 19	Q3 19	Q4 19	FY 19
Revenue	$598.2	$662.4	$714.0	$777.7	$2,752.3	$782.0	$830.3	$853.4	$866.8	$3,332.5	$845.6	$838.4	$906.6	$952.8	$3,543.4
Gross profit	397.2	443.7	491.3	551.4	1,883.5	546.1	583.5	606.6	599.2	2,335.4	593.2	582.6	657.1	668.5	2,501.3
Research and development expense	139.5	130.4	133.7	135.0	538.6	136.7	150.7	158.7	175.9	622.0	168.9	166.1	148.8	160.7	644.5
Selling, general and administrative expense	153.2	166.6	165.9	172.2	658.0	179.0	196.7	196.9	212.8	785.4	194.6	193.7	181.0	211.9	781.2
Income from operations	104.5	146.6	191.6	244.1	686.8	230.4	236.1	251.0	210.6	928.1	229.7	222.7	327.3	295.8	1,075.6
Consolidated net income	81.4	113.4	152.3	201.9	549.0	203.3	203.0	215.6	184.3	806.2	228.5	197.2	286.4	252.3	964.4
Net loss attributable to noncontrolling interests	12.8	7.9	10.9	10.2	41.8	10.7	9.5	11.2	12.5	43.9	8.5	3.1	-	-	11.6
Net income attributable to Illumina stockholders	94.2	121.3	163.3	212.1	590.8	214.0	212.5	226.8	196.8	850.1	237.0	200.3	286.4	252.3	976.1
Diluted EPS attributable to Illumina stockholders	0.64	0.82	1.11	1.44	4.00	1.45	1.43	1.52	1.32	5.72	1.60	1.35	1.93	1.70	6.57
Helix and GRAIL dilution (benefit)	0.07	0.05	0.07	0.06	0.25	(0.04)	0.03	0.05	0.05	0.09	0.05	0.01	-	-	0.05
Tax rate	24.4%	25.1%	21.6%	18.0%	21.5%	12.9%	15.9%	17.3%	16.3%	15.6%	8.7%	17.3%	15.8%	18.5%	15.3%

All amounts in tables are rounded to the nearest one hundred thousands, except as otherwise noted. As a result, certain amounts may not recalculate using the rounded amounts provided.

Note: Quarterly financial information is unaudited.

FINANCIALS

Reconciliation between GAAP and non-GAAP Results

	2017					2018					2019				
(in millions, except per share amounts)	Q1 17	Q2 17	Q3 17	Q4 17	FY 17	Q1 18	Q2 18	Q3 18	Q4 18	FY 18	Q1 19	Q2 19	Q3 19	Q4 19	FY 19
GAAP earnings per share attributable to Illumina stockholders - diluted	$2.48	$0.87	$1.11	$0.46	$4.92	$1.41	$1.41	$1.33	$1.41	$5.56	$1.57	$1.99	$1.58	$1.61	$6.74
Costs of revenue (b)	0.20	0.07	0.06	0.06	0.39	0.05	0.06	0.07	0.06	0.23	0.06	0.07	0.06	0.04	0.23
Research and development costs (b)	0.03	-	-	0.01	0.04	-	-	-	-	0.01	-	-	0.01	0.01	0.02
Selling, general, and administrative costs (b)	0.09	(0.05)	0.01	0.03	0.07	0.03	-	-	0.03	0.06	0.12	0.05	0.05	0.14	0.36
Other (income) expense, net (b)	(3.04)	0.05	0.06	0.05	(2.88)	-	-	0.13	(0.02)	0.12	(0.06)	(0.84)	0.34	0.08	(0.47)
Incremental non-GAAP tax expense (c)	0.93	(0.03)	(0.05)	(0.05)	0.80	(0.02)	(0.02)	(0.05)	(0.01)	(0.10)	(0.03)	0.11	(0.09)	(0.09)	(0.11)
Income tax (benefit) expense (b)	(0.05)	(0.09)	(0.08)	0.88	0.66	(0.02)	(0.02)	0.04	(0.15)	(0.16)	(0.06)	(0.03)	(0.02)	(0.09)	(0.20)
Non-GAAP earnings per share attributable to Illumina stockholders - diluted (a)	$0.64	$0.82	$1.11	$1.44	$4.00	$1.45	$1.43	$1.52	$1.32	$5.72	$1.60	$1.35	$1.93	$1.70	$6.57
GAAP net income attributable to Illumina stockholders	$367	$128	$163	$68	$726	$208	$209	$199	$210	$826	$233	$296	$234	$239	$1,002
Costs of revenue (b)	29	10	9	9	57	8	9	10	9	35	9	10	9	6	34
Research and development costs (b)	5	-	-	2	7	-	-	-	-	1	-	-	2	1	3
Selling, general, and administrative costs (b)	13	(6)	2	3	11	4	-	-	5	9	17	8	8	21	54
Other (income) expense, net (b)	(448)	7	9	8	(425)	-	-	19	(3)	17	(9)	(125)	51	13	(70)
Incremental non-GAAP tax expense (c)	136	(5)	(8)	(7)	117	(3)	(3)	(7)	(2)	(15)	(4)	16	(15)	(14)	(16)
Income tax (benefit) expense (b)	(8)	(13)	(12)	129	98	(3)	(3)	6	(22)	(23)	(9)	(5)	(3)	(14)	(31)
Non-GAAP net income attributable to Illumina stockholders (a)	$94	$121	$163	$212	$591	$214	$212	$227	$197	$850	$237	$200	$286	$252	$976
(in millions, except percentages)															
GAAP tax provision %	30.8%	15.2%	12.9%	74.1%	35.0%	10.6%	13.9%	19.0%	5.8%	12.5%	3.9%	15.4%	13.2%	11.1%	11.4%
GAAP tax provision	$155	$21	$23	$166	$365	$24	$32	$44	$12	$112	$9	$53	$36	$30	$128
Incremental non-GAAP tax expense (c)	(138)	5	8	7	(117)	3	3	7	2	15	4	(16)	15	14	16
Excess tax benefit from share-based compensation (d)	8	13	12	21	52	3	3	5	22	34	9	5	3	14	31
U.S. Tax Reform (e)	-	-	-	(150)	(150)	-	-	(11)	-	(11)	-	-	-	-	-
Non-GAAP tax provision	$25	$39	$43	$44	$150	$30	$38	$45	$36	$150	$22	$42	$54	$58	$175
Non-GAAP tax provision %	24.4%	25.1%	21.6%	18.0%	21.5%	12.9%	15.9%	17.3%	16.3%	15.6%	8.7%	17.3%	15.8%	18.5%	15.3%

All amounts in tables are rounded to the nearest millions, except as otherwise noted. As a result, certain amounts may not recalculate using the rounded amounts provided.

(a) Non-GAAP net income attributable to Illumina stockholders and diluted earnings per share attributable to Illumina stockholders exclude the effect of the pro forma adjustments as detailed above. Non-GAAP net income attributable to Illumina stockholders and diluted earnings per share attributable to Illumina stockholders are key components of the financial metrics utilized by the company's board of directors to measure, in part, management's performance and determine significant elements of management's compensation. Management has excluded the effects of these items in these measures to assist investors in analyzing and assessing our past and future core operating performance.

(b) Refer to pages 44-45 for the components of these amounts.

(c) Incremental non-GAAP tax expense reflects the tax impact of the non-GAAP adjustments listed.

(d) Amount represents tax deductions taken in excess of stock compensation cost.

(e) In accordance with the Tax Cuts and Jobs Act enacted on December 22, 2017 (U.S. Tax Reform), amount for 2017 primarily represents the provisional estimate of the one-time transition tax on earnings of certain foreign subsidiaries that were previously tax deferred, and the impact of revaluing our U.S. deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future. The 2018 amount represents the discrete tax expense associated with updating our 2017 estimates of the impact of U.S. Tax Reform.

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Reconciliation between GAAP and Non-GAAP Results

	2017					2018					2019				
(in millions)	Q1 17	Q2 17	Q3 17	Q4 17	FY 17	Q1 18	Q2 18	Q3 18	Q4 18	FY 18	Q1 19	Q2 19	Q3 19	Q4 19	FY 19
GAAP gross profit	$368	$434	$482	$542	$1,826	$538	$575	$597	$590	$2,300	$584	$573	$648	$662	$2,467
Amortization of acquired intangible assets (b)	11	10	9	9	39	8	9	10	9	35	9	10	9	6	34
Impairment (b)	18	-	-	-	18	-	-	-	-	-	-	-	-	-	-
Non-GAAP gross profit (a)	$397	$444	$491	$551	$1,883	$546	$584	$607	$599	$2,335	$593	$583	$657	$668	$2,501
GAAP research and development expense	$145	$130	$134	$137	$546	$137	$151	$159	$176	$623	$169	$166	$151	$161	$647
Restructuring (c)	-	-	-	(2)	(2)	-	-	-	-	(1)	-	-	(2)	(1)	(3)
Impairment	(5)	-	-	-	(5)	-	-	-	-	-	-	-	-	-	-
Non-GAAP research and development expense	$140	$130	$134	$135	$539	$137	$151	$159	$176	$622	$169	$166	$149	$160	$644
GAAP selling, general and administrative expense (d)	$171	$161	$167	$175	$674	$183	$197	$197	$217	$794	$211	$202	$189	$233	$835
Amortization of acquired intangible assets	(2)	(2)	(2)	(1)	(6)	(1)	-	-	-	(2)	(1)	-	-	(1)	(2)
Acquisition-related gain (expense), net (e)	1	-	-	-	1	-	-	-	(2)	(2)	(16)	(8)	(7)	(12)	(43)
Performance-based compensation related to GRAIL series B financing (f)	(10)	-	-	-	(10)	-	-	-	-	-	-	-	-	-	-
Legal contingencies	(8)	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Restructuring (c)	-	-	-	(2)	(2)	(3)	-	-	(3)	(5)	-	-	(1)	(8)	(9)
Non-GAAP selling, general and administrative expense	$152	$167	$165	$172	$657	$179	$197	$197	$212	$785	$194	$194	$181	$212	$781
GAAP operating profit	$52	$143	$181	$230	$606	$218	$227	$241	$197	$883	$204	$205	$308	$268	$985
Cost of revenue	29	10	9	9	57	8	9	10	9	35	9	10	9	6	34
Research and development costs	5	-	-	2	7	-	-	-	-	1	-	-	2	1	3
Selling, general, and administrative costs	19	(6)	2	3	17	4	-	-	5	9	17	8	8	21	54
Non-GAAP operating profit (a)	$105	$147	$192	$244	$687	$230	$236	$251	$211	$928	$230	$223	$327	$296	$1,076
GAAP other income (expense), net	$451	$(2)	$(6)	$(6)	$437	$3	$5	$(9)	$13	$11	$29	$141	$(38)	$1	$133
Non-cash interest expense	7	8	8	8	30	8	7	11	15	41	14	14	10	11	49
Strategic investment related (gain) loss, net	(2)	(1)	1	-	(2)	(8)	(7)	8	(18)	(24)	(8)	(103)	43	2	(66)
Gains on deconsolidation (g)	(453)	-	-	-	(453)	-	-	-	-		(15)	(39)	-	-	(54)
Loss (gain) on contingent value right (h)	-	-	-	-	-	-	-	-	-	-	-	3	(2)	-	1
Non-GAAP other income (expense), net (a)	$3	$5	$3	$2	$12	$3	$5	$10	$10	$28	$20	$16	$13	$14	$63

All amounts in tables are rounded to the nearest millions, except as otherwise noted. As a result, certain amounts may not recalculate using the rounded amounts provided.

(a) Non-GAAP gross profit, included within non-GAAP operating profit, is a key measure of the effectiveness and efficiency of manufacturing processes, product mix and the average selling prices of the company's products and services. Non-GAAP operating profit, and non-GAAP other income (expense), net, exclude the effects of the pro forma adjustments as detailed above. Management has excluded the effects of these items in these measures to assist investors in analyzing and assessing past and future operating performance.

(b) Amounts are recorded in cost of revenue.

(c) Amounts consist primarily of employee and lease exit costs related to the restructuring that occurred in Q3 2019, Q1 2018, and Q4 2017.

(d) Legal contingencies of $8M and $(8)M for Q1 2017 and Q2 2017, respectively, were reclassified to selling, general and administrative expenses.

(e) Amounts for 2019 and 2018 consist of expenses related to the Pacific Biosciences acquisition which was terminated on January 2, 2020. Amount for 2017 consists of changes in fair value of contingent consideration.

(f) Amounts represents performance-based stock which vested as a result of the financing in Q1 2017. The impact to net income and diluted earnings per share attributable to Illumina stockholders presented on pg 44 is net of attribution to noncontrolling interests. .

(g) Amount for Q2 2019 consists of the gain recognized as a result of the Helix deconsolidation. Amount for Q1 2019 consists of a $15 million gain that resulted from the settlement of a contingency related to the deconsolidation of GRAIL in Q1 2017.

(h) Amounts consist of mark-to-market adjustments related to our contingent value right received from Helix.

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Cash Flow

	2017					2018					2019				
(in millions)	Q1 17	Q2 17	Q3 17	Q4 17	FY 17	Q1 18	Q2 18	Q3 18	Q4 18	FY 18	Q1 19	Q2 19	Q3 19	Q4 19	FY 19
Net cash provided by operating activities (b)	$168	$178	$235	$294	$875	$255	$295	$292	$300	$1,142	$198	$143	$267	$443	$1,051
Net cash (used in) provided by investing activities	163	36	(97)	(315)	(214)	12	(536)	(940)	(349)	(1,813)	988	79	(219)	(104)	745
Net cash (used in) provided by financing activities	(86)	23	(5)	(109)	(176)	67	30	650	(153)	594	(60)	(549)	(172)	(115)	(897)
Effect of exchange rate changes on cash and cash equivalents	1	1	2	1	5	1	(5)	-	-	(4)	-	-	(4)	3	(1)
Net (decrease) increase in cash and cash equivalents	246	238	135	(129)	490	335	(216)	2	(202)	(81)	1,126	(327)	(128)	227	898
Cash and cash equivalents, beginning of period	735	981	1,219	1,354	735	1,225	1,560	1,344	1,346	1,225	1,144	2,270	1,943	1,815	1,144
Cash and cash equivalents, end of period	$981	$1,219	$1,354	$1,225	$1,225	$1,560	$1,344	$1,346	$1,144	$1,144	$2,270	$1,943	$1,815	$2,042	$2,042
Calculation of free cash flow:															
Net cash provided by operating activities (b)	$168	$178	$235	$294	$875	$255	$295	$292	$300	$1,142	$198	$143	$267	$443	$1,051
Purchases of property and equipment	(83)	(69)	(82)	(76)	(310)	(90)	(77)	(64)	(65)	(296)	(56)	(47)	(49)	(57)	(209)
Free cash flow (a)	$85	$109	$153	$218	$565	$165	$218	$228	$235	$846	$142	$96	$218	$386	$842

(a) Free cash flow, which is a non-GAAP financial measure, is calculated as net cash provided by operating activities reduced by purchases of property and equipment. Free cash flow is useful to management as it is one of the metrics used to evaluate our performance and to compare us with other companies in our industry. However, calculation of free cash flow may not be comparable to similar measures used by other companies.
(b) Net cash provided by operating activities in Q2 2019 was reduced by an $84 million payment of the accreted debt discount related to the conversions of our 2019 Notes.

Note: Quarterly financial information is unaudited.

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Supplementary Data

	2017					2018					2019				
(in millions)	Q1 17	Q2 17	Q3 17	Q4 17	FY 17	Q1 18	Q2 18	Q3 18	Q4 18	FY 18	Q1 19	Q2 19	Q3 19	Q4 19	FY 19
CONSUMABLES															
Sequencing Consumables	$322	$342	$384	$436	$1,484	$422	$460	$472	$470	$1,824	$481	$497	$525	$572	$2,075
Microarrays Consumables	69	64	71	82	287	88	85	83	96	353	75	74	75	93	317
Total Consumables	391	406	455	518	1,771	510	545	555	566	2,177	556	571	600	665	2,392
% Revenue	65%	61%	64%	67%	64%	65%	66%	65%	65%	65%	66%	68%	66%	70%	68%
INSTRUMENTS															
Sequencing Instruments	$95	$131	$129	$132	$487	$112	$124	$138	$161	$535	$105	$129	$142	$141	$517
Microarrays Instruments	5	6	12	9	31	6	4	17	11	37	6	4	4	6	20
Total Instruments	100	137	141	141	518	118	128	155	172	572	111	133	146	147	537
% Revenue	17%	21%	20%	18%	19%	15%	15%	18%	20%	17%	13%	16%	16%	15%	15%
TOTAL PRODUCT REVENUE	**$491**	**$543**	**$596**	**$659**	**$2,289**	**$628**	**$673**	**$710**	**$738**	**$2,749**	**$667**	**$704**	**$746**	**$812**	**$2,929**
SERVICE & OTHER															
Sequencing	78	77	80	87	322	96	106	109	104	416	113	$102	$138	$124	$476
Microarrays	29	42	38	32	141	58	51	34	25	168	66	32	23	17	138
Total Service & Other	**107**	**119**	**118**	**119**	**463**	**154**	**157**	**143**	**129**	**584**	**179**	**134**	**161**	**$141**	**$614**
% Revenue	**18%**	**18%**	**17%**	**15%**	**17%**	**20%**	**19%**	**17%**	**15%**	**18%**	**21%**	**16%**	**18%**	**15%**	**17%**
TOTAL REVENUE	**$598**	**$662**	**$714**	**$778**	**$2,752**	**$782**	**$830**	**$853**	**$867**	**$3,333**	**$846**	**$838**	**$907**	**$953**	**$3,543**
SEQUENCING															
Consumables	$322	$342	$384	$436	$1,484	$422	$460	$472	$470	$1,824	$481	$497	$525	$572	$2,075
Instruments	95	131	129	132	487	112	124	138	161	535	105	129	142	141	517
Service & Other	78	77	80	87	322	96	106	109	104	416	113	102	138	124	476
Total Sequencing	**$495**	**$550**	**$593**	**$655**	**$2,293**	**$630**	**$690**	**$719**	**$735**	**$2,775**	**$699**	**$728**	**$805**	**$837**	**$3,068**
% Revenue	**83%**	**83%**	**83%**	**84%**	**83%**	**81%**	**83%**	**84%**	**85%**	**83%**	**83%**	**87%**	**89%**	**88%**	**87%**
MICROARRAYS															
Consumables	$69	$64	$71	$82	$287	$88	$85	$83	$96	$353	$75	$74	$75	$93	$317
Instruments	5	6	12	9	31	6	4	17	11	37	6	4	4	6	20
Service & Other	29	42	38	32	141	58	51	34	25	168	66	32	23	17	138
Total Microarrays	**$103**	**$112**	**$121**	**$123**	**$459**	**$152**	**$140**	**$134**	**$132**	**$558**	**$147**	**$110**	**$102**	**$116**	**$475**
% Revenue	**17%**	**17%**	**17%**	**16%**	**17%**	**19%**	**17%**	**16%**	**15%**	**17%**	**17%**	**13%**	**11%**	**12%**	**13%**

Financial Data Available

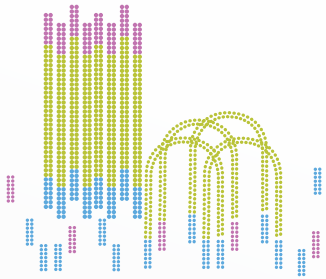
For those interested in receiving a copy of the Financial Data in Excel spreadsheets, please reach out directly to the Investor Relations team.

All amounts in tables are rounded to the nearest millions, except as otherwise noted. As a result, certain amounts may not recalculate using the rounded amounts provided.

Note: Quarterly financial information is unaudited.

APPENDIX

SEQUENCING WORKFLOW



1 Library preparation

- Before sequencing can take place, a sequencing library needs to be created which contains the DNA (or RNA) of interest to the experiment.
- During the library generation process, adapters will be added (usually via a process called ligation) onto both ends of the molecules of interest.
- These adapters are what enable cluster generation as well as what provide a unique barcode to uniquely identify libraries that may have been pooled together for sequencing.
- As such, many libraries may be pooled together to enable efficient use of the output of a single sequencing run.

2 Cluster Growth/ Generation

- Once prepared, libraries (or pools of libraries) are loaded into a flow cell in preparation for sequencing.
- Before clustering, libraries need to be denatured. Most Illumina systems use NaOH for library denaturation; however for iSeq, this process is automated and is performed inside the cartridge by the sequencer.
- Once denatured, DNA fragments can be captured on surface-bound oligos that are complementary to the library adaptors. Each fragment is then amplified into distinct, clonal clusters through bridge amplification.

3 Sequencing

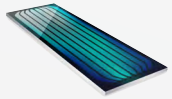
- Once a flow cell is clustered, sequencing can commence. First, all the molecules within a cluster are orientated into the same direction and denatured to allow the sequence primer (complementary to the adapters) to anneal.
- With the primer annealed, a polymerase enzyme is introduced and begins incorporating fluorescently labeled nucleotides (ddATP, ddGTP, ddCTP, ddTTP) which are complementary DNA bases of interest in the clusters.
- These ddNTPs are specially designed to halt synthesis after a single base is incorporated to ensure the synthesis of new strands is synced and the same length at the end of each cycle.
- At this point, the instrument excites the fluorescent labels on the newly incorporated nucleotide and captures an image of the flow cell. This image allows identification of the first base in the cluster.
- Illumina sequencing uses reversible termination that can turn a ddNTP into a regular dNTP, which allows the sequencing process to repeat and proceed one nucleotide at a time instead of being permanently halted.
- This process is repeated continuously, allowing identification of one base of the cluster each time the process repeats.

4 Data Analysis

- During sequencing, primary analysis is done on the instrument. This converts the images of the clusters into intensities and base calls.
- Post sequencing, secondary analysis begins. This involves additional software to generate alignments and then variant detection. Illumina offers this capability via its BaseSpace Sequence Hub.
- Once the variants have been identified during secondary analysis, tertiary analysis allows for annotation, filtering, and interpretation.

What is a flow cell?

A flow cell is a glass slide with fluidic channels or lanes, where the sequencing chemistry occurs.



Statement regarding use of non-GAAP financial measures

The company reports non-GAAP results for diluted net income per share, net income, gross margins, operating expenses, operating margins, other income, and free cash flow in addition to, and not as a substitute for, or superior to, financial measures calculated in accordance with GAAP. The company's financial measures under GAAP include substantial charges such as amortization of acquired intangible assets, non-cash interest expense associated with the company's convertible debt instruments that may be settled in cash, and others that are listed in the itemized reconciliations between GAAP and non-GAAP financial measures included in this press release. Management has excluded the effects of these items in non-GAAP measures to assist investors in analyzing and assessing past and future operating performance. Additionally, non-GAAP net income attributable to Illumina stockholders and diluted earnings per share attributable to Illumina stockholders are key components of the financial metrics utilized by the company's board of directors to measure, in part, management's performance and determine significant elements of management's compensation.

The company encourages investors to carefully consider its results under GAAP, as well as its supplemental non-GAAP information and the reconciliation between these presentations, to more fully understand its business. Reconciliations between GAAP and non-GAAP results are presented in the tables of this release.

Use of forward-looking statements

This release contains forward-looking statements that involve risks and uncertainties, including our financial outlook and guidance for fiscal 2020 and our expectations and beliefs regarding future conduct and growth of the business and the markets in which we operate. Among the important factors that could cause actual results to differ materially from those in any forward-looking statements are: (i) changes in the rate of growth in the markets we serve; (ii) the volume, timing and mix of customer orders among our products and services; (iii) our ability to adjust our operating expenses to align with our revenue expectations; (iv) our ability to manufacture robust instrumentation and consumables; (v) the success of products and services competitive with our own; (vi) challenges inherent in developing, manufacturing, and launching new products and services, including expanding or modifying manufacturing operations and reliance on third-party suppliers for critical components; (vii) the impact of recently launched or pre-announced products and services on existing products and services; (viii) our ability to further develop and commercialize our instruments and consumables, to deploy new products, services, and applications, and to expand the markets for our technology platforms; (ix) our ability to obtain regulatory clearance for our products from government agencies; (x) our ability to successfully partner with other companies and organizations to develop new products, expand markets, and grow our business; (xi) our ability to successfully identify and integrate acquired technologies, products, or businesses; and (xxii) the application of generally accepted accounting principles, which are highly complex and involve many subjective assumptions, estimates, and judgments, together with other factors detailed in our filings with the Securities and Exchange Commission, including our most recent filings on Forms 10-K and 10-Q, or in information disclosed in public conference calls, the date and time of which are released beforehand. We undertake no obligation, and do not intend, to update these forward-looking statements, to review or confirm analysts' expectations, or to provide interim reports or updates on the progress of the current quarter.

Illumina • 1.800.809.4566 toll-free (US) • +1.858.202.4566 tel • www.illumina.com

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