# Fluidigm Corporation

## Q4 and Full Year 2018

March, 2019



# Use of forward-looking statements, trademarks

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including, among others, statements regarding the global market opportunity for Fluidigm, health care trends, and prospects for Fluidigm products in light of such anticipated trends; growing demand for Fluidigm products in mass cytometry and genomics markets; growth in the use of Fluidigm products for new applications, including immunology and cancer research; routine use of mass cytometry in future clinical research settings; potential applications for Fluidigm products in human health care research; recurring revenue growth, including due to recently introduced applications and workflows for Fluidigm products; revenue growth rates and strategic elements designed to achieve such growth; potential new products and product strategies; projected annualized consumables pull-through estimates for company instruments; and anticipated benefits from collaborations and other thirdparty relationships, as well as operational efficiency initiatives. Forward-looking statements are subject to numerous risks and uncertainties that could cause actual results to differ materially from currently anticipated results, including but not limited to challenges inherent in developing, manufacturing, launching, marketing, and selling new products; risks relating to reliance on sales of capital equipment for a significant proportion of revenues in each quarter; potential product performance and quality issues; the possible loss of key employees, customers, or suppliers; intellectual property risks; competition; uncertainties in contractual relationships; Fluidigm research and development, sales, marketing, and distribution plans and capabilities; reduction in research and development spending or changes in budget priorities by customers; interruptions or delays in the supply of components or materials for, or manufacturing of, products; seasonal variations in customer operations; unanticipated increases in costs or expenses; and risks associated with international operations. Information on these and additional risks and uncertainties and other information affecting Fluidigm's business and operating results is contained in the Fluidigm Annual Report on Form 10-K for the year ended December 31, 2017, and in its other filings with the Securities and Exchange Commission including its Quarterly Report on Form 10-Q for the quarter ended September 30, 2018. These forward-looking statements speak only as of the date hereof. Fluidigm disclaims any obligation to update these forward-looking statements except as may be required by law.

\* \* \*

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Fluidigm products are for Research Use Only. Not for use in diagnostic procedures.

# Use of non-GAAP financial information

This presentation has certain financial information in accordance with U.S. GAAP and also on a non-GAAP basis for the three- and twelve-month periods ended December 31, 2018, and December 31, 2017, and for the 2016–2018 fiscal years. Management believes that non-GAAP financial measures, taken in conjunction with GAAP financial measures, provide useful information for both management and investors by excluding certain non-cash and other expenses that are not indicative of the company's core operating results. Management uses non-GAAP measures to compare the company's performance relative to forecasts and strategic plans and to benchmark the company's performance externally against competitors. Non-GAAP information is not prepared under a comprehensive set of accounting rules and should only be used to supplement an understanding of the company's operating results as reported under U.S. GAAP. Fluidigm 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 operating results are presented in the accompanying tables of this presentation.

## Who are we?

Fluidigm is a leading provider of indispensable tools and consumables to power future health care





>500 employees worldwide



\$113m annual revenue



>2,500 scientific publications



>700
issued or pending patents (worldwide)



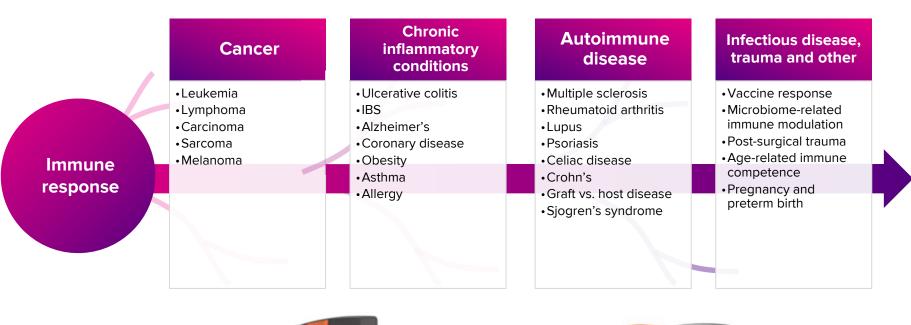
**54.6% • 67.0%** gross margin GAAP • Non-GAAP

South San Francisco, CA, USA

#### Manufacturing

Singapore • Ontario, Canada • California, USA

# Critical immunology insights needed across disease spectrum







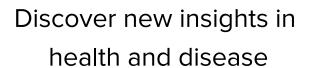


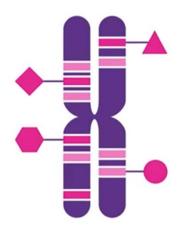




# Powering health care insights







Identify meaningful biomarkers



Accelerate development of more impactful therapies

## Why invest?



#### Large developing markets

Targeting ~\$1.5 billion market

Growing adoption across all research categories

Increasing focus for tools to study multiple disease areas



#### **Proprietary &** innovative technologies with recurring revenue

Premier tools to analyze cells, tissues and bulk/free analytes

Meeting critical needs to study the immunome



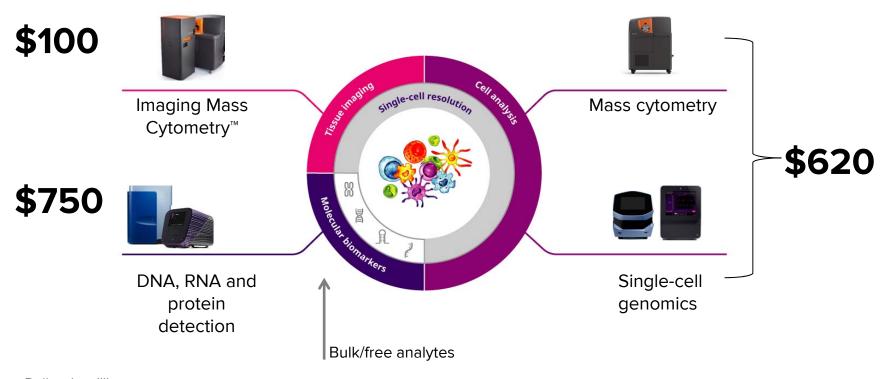
# **Accelerating growth**

New applications driving higher recurring revenue

Executing on an innovative pipeline to drive sustainable growth

# Large developing markets

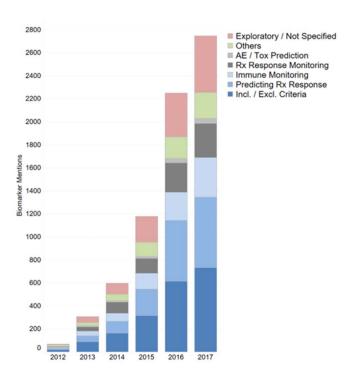
## Market opportunity: ~\$1.5 billion



Dollars in millions.

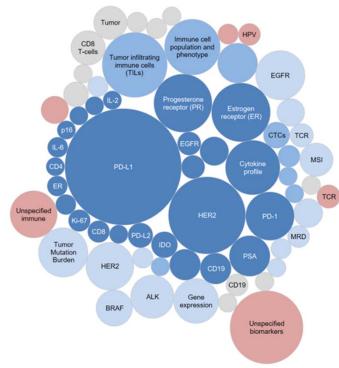
Total addressable market data taken from the following sources: 2018 Fluidigm internal estimates, L.E.K., BCC Research, TriMark. Cell repertoire includes mass cytometry and single-cell genomics; molecular biomarkers based on 2018 genomics market opportunity.

# Immuno-oncology R&D: >\$5 billion, 80% growth



Distribution and Growth of Cumulative Immuno-Oncology Biomarker Mentions by Test Purpose 2014 - 17

- Immuno-oncology (IO) R&D is accelerating
- Biomarker discovery is a key driver.
  - >600 trials, >2,700 unique biomarkers, immune monitoring

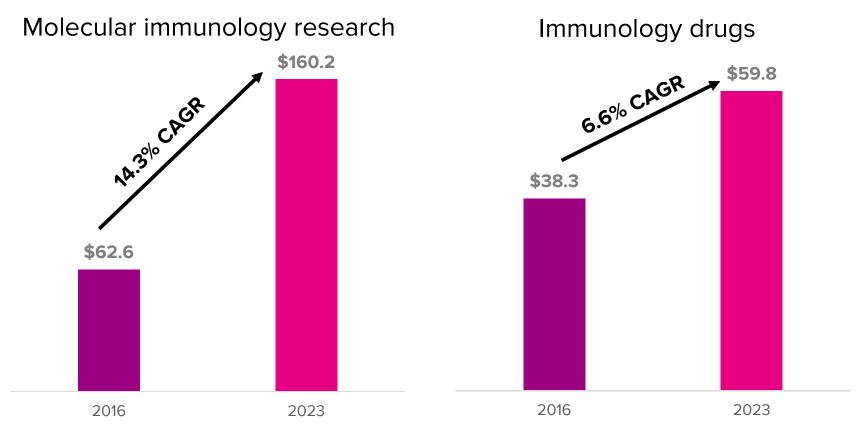


Immuno-Oncology Biomarkers mentioned in at least 5 different clinical trials.

- Top IO biomarkers
  - Tumor-infiltrating immune cells: mentioned 70 times in 61 different trials
  - Immune cell populations/phenotypes: mentioned 60 times in 45 different trials

## Immunology is growing

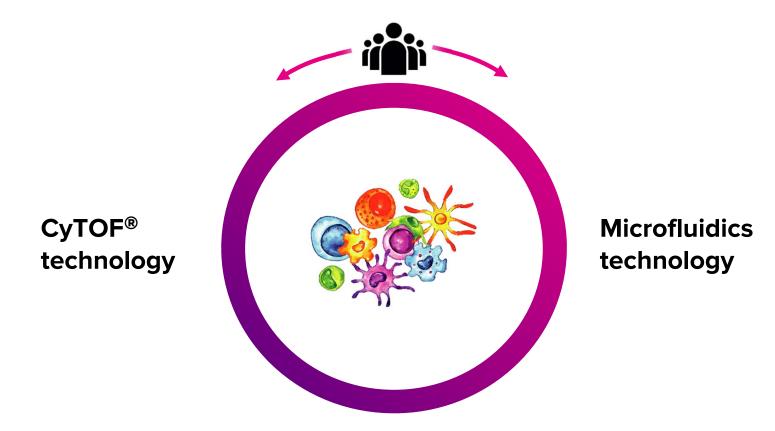
Dollars in billions



Sources: Conference Series Market Analysis – Molecular immunology 2019; GBI Research – Immunology drug market

## Fluidigm's indispensable tools provide new insights

# Unlocking meaningful new insights with multi-omic tools

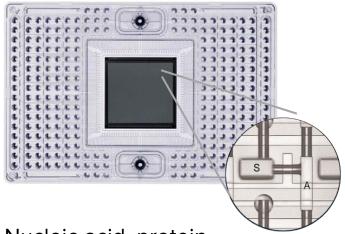


Fluidigm is defining the immunome

# Proprietary and innovative technologies

# Premier tools to address immune function

#### **Microfluidics**



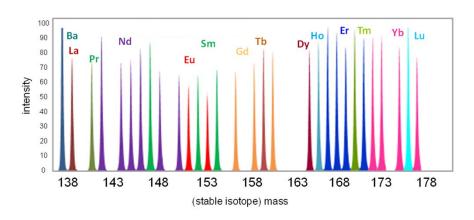
Nucleic acid, protein and microbiome analysis

Reactions are 1,000x smaller

Thousands of experiments in 1 cm2

Integration of entire workflows in a single device

#### **CyTOF technology**



Resolves technical issues of existing technologies

Measures over 40 cellular parameters in a single experiment; used in blood and solid tissue microenvironment at single-cell resolution

Unparalleled capability to measure immune system response to therapeutic intervention

# **Empowering actionable insights**



#### Hyperion<sup>™</sup> Imaging System

Deeply interrogate tumor and tissue microenvironments with 37 markers, all on a single slide.



Helios<sup>™</sup>, a CyTOF system

Comprehensively interrogate cell phenotype and function using 40+ markers, all from a single tube.



## C1<sup>™</sup> and Polaris<sup>™</sup> systems

Define unique cell populations using the widest set of single-cell workflows commercially available.



## Juno<sup>™</sup> and Biomark<sup>™</sup> systems

Efficiently detect genomic and proteomic biomarkers with workflow scalability and panel flexibility.

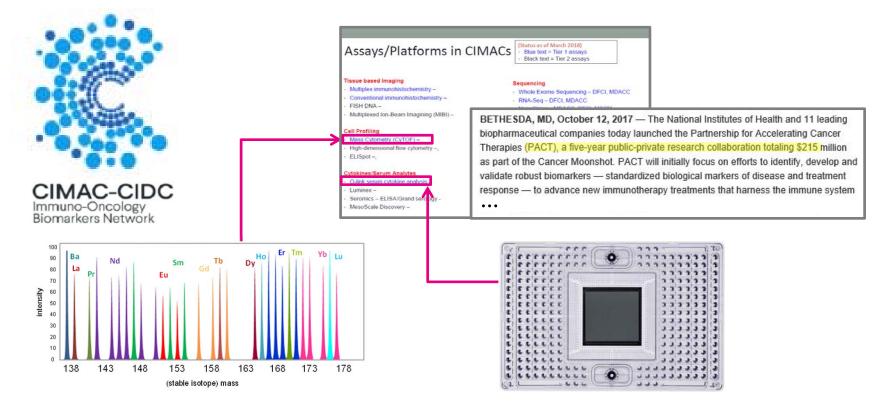
#### Tissues Cells Bulk/free analytes

# Mass cytometry in more than 50% of Comprehensive Cancer Centers



Reflects adoption momentum of our technology

# NCI and 11 biopharma companies catalyze immune profiling

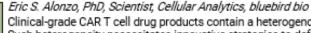


#### Fluidigm technology powers Tier 1 assays at CIMAC-CIDC

## Characterizing cell therapy







Clinical-grade CAR T cell drug products contain a heterogenous mixture of phenotypically and functionally distinct cells. Such heterogeneity necessitates innovative strategies to define biomarkers that may predict responses to CART cell therapy. We improved biomarker characterization of our CART cell drug products by combining high dimensional mass cytometry with global gene expression analysis. These strategies identified multiple distinct memory T cell populations that may be associated with positive outcomes in CAR T cell therapy.



Cell Rep. Author manuscript; available in PMC 2018 Jun 4. Published in final edited form as:

Cell Rep. 2018 May 15: 23(7): 2130-2141. dol: 10.1016/j.celrep.2018.04.051

PMCID: PMC5986286 NIHMSID: NIHMS970659 PMID: 29768210

Engineered Tumor-Targeted T Cells Mediate Enhanced Anti-Tumor Efficacy Both Directly and through Activation of the Endogenous Immune System

Mauro P. Avanzi, 1.4 Oladapo Yeku, 1.4.5.\* Xinghuo Li, 3 Dinali P. Wijewarnasuriya, 3 Dayenne G. van Leeuwen, 1 Kenneth Cheung, 1 Hyebin Park, 1 Terence J. Purdon, 1 Anthony F. Daniyan, 1 Matthew H. Spitzer, 2 and Renier J. Brentiens 1.3.1

Utilizing CyTOF analysis, we found that 19m28mz-mIL18 CAR T cells were not only capable of migration, and persistence in the bone marrow, but also induced endogenous CD8 T cells, macrophages, and DCs toward a more effective anti-tumor phenotype. Enhanced survival of mice inoculated with high

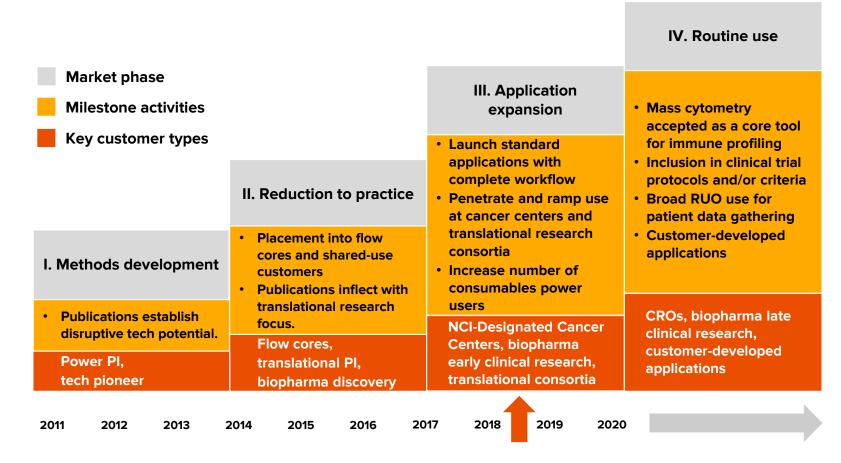
Source: Cell Reports

# Strong adoption across new markets

Research is growing: 600+ mass cytometry publications

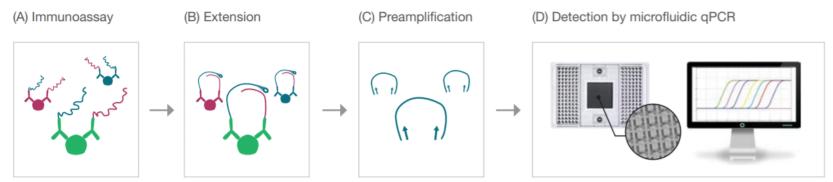
Full year 2018: 200+ new publications

Leading indication of big pharma/biotech trends



# Providing precision medicine research insights on the proteome with microfluidics

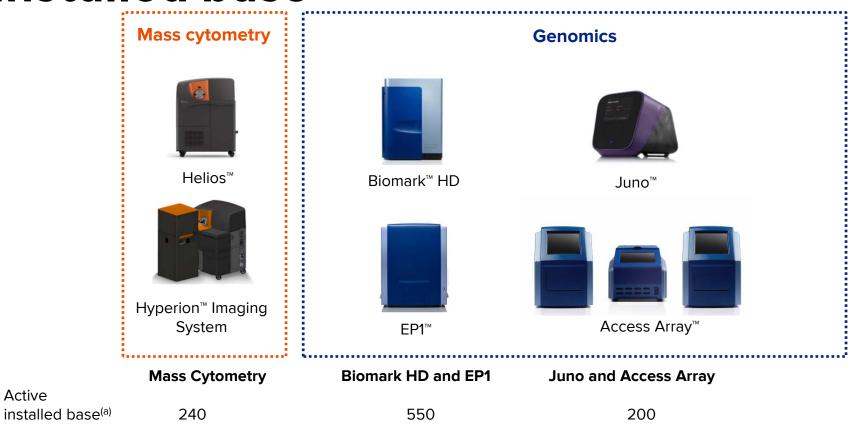
#### High-plex, high-throughput, protein expression on a microfluidic PCR platform



- Measure expression of >90 proteins across ≥90 samples per run
- Requires only 1 microliter of blood or serum
- Innovative dual recognition, DNA-coupled methodology provides exceptional readout specificity, enabling high multiplex, rapid throughput biomarker analysis without compromising on data quality.
- 14 panels that enable 1300+ market screening across disease areas such as cardiology, cancer immunology, neurology, & inflammation

# Accelerating growth with recurring revenue

# Annual pull-through of active installed base



\$44,000 to \$50,000

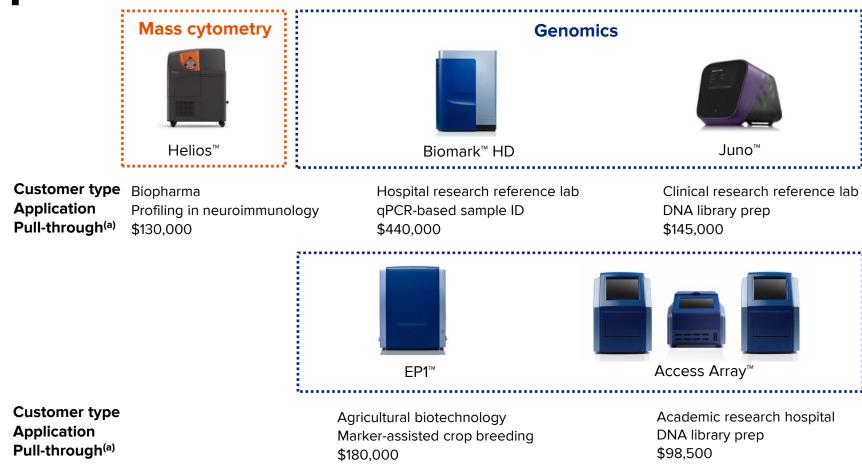
Pull-through(b)

\$25,000 to \$30,000

<sup>\$73,000</sup> to \$78,000 (a) Approximate active installed base as of December 31, 2018

<sup>(</sup>b) Projected annualized consumables pull-through per active instrument per year for 2019

# Annual high-pull-through customer profiles



<sup>(</sup>a) Actual consumables approximate pull-through per active instrument in the last 12 months

# New applications driving recurring revenue

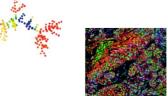
## Content

- Maxpar® Human Immune Monitoring Panel
- Advanta<sup>™</sup> Sample ID Genotyping Panel
- Advanta IO Gene Expression Assay



#### **Software**

- HALO<sup>®</sup>, HALO Al<sup>™</sup>, and HALO Link<sup>™</sup>, Phenomap<sup>™</sup>, histoCAT<sup>™</sup>, GemStone<sup>™</sup>, MCD<sup>™</sup> Viewer
- Cytobank cloud-based data analysis
- CopyCount-CNV<sup>™</sup> for real-time PCR CNV analysis
- GO Immuno-Oncology Workbench for cohort analysis and variant annotation

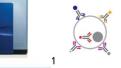


#### Workflows

• Enhancements in user interface, protocols, tube loading, automation

1 2











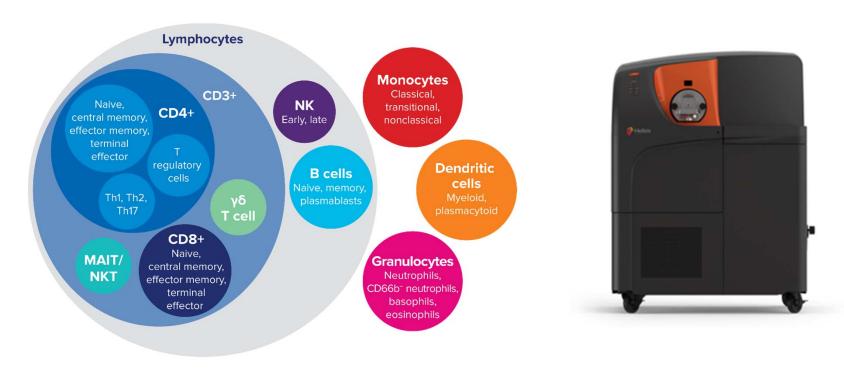
Acquire

Analyze

Report

# Revolutionizing human immune profiling

Maxpar Human Immune Monitoring Panel Kit

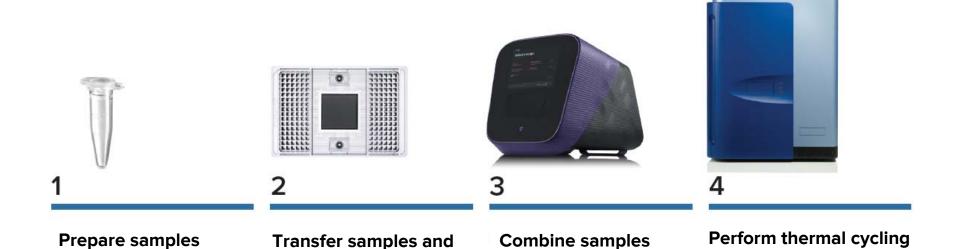


29 markers

1 tube

5-minute data analysis

# **Advanta IO Gene Expression Assay**



and assays in the IFC

using the automated

Juno system.

assays to the

circuit (IFC).

integrated fluidic

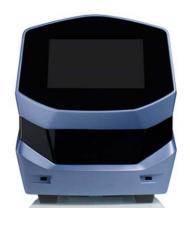
and reagents.

and real-time data

acquisition using

Biomark HD.

# Single-cell genomics



#### **New applications:**

- Multimodal single-cell assay to measure T-ATAC
- Full-length single-cell mRNA sequencing
- REAP-seq protocol for multi-omic single-cell analysis

#### **Precise**

Discover differences in heterogeneous populations with single-cell accuracy.

#### **Simple**

Easily isolate and process individual cells with a streamlined workflow and intuitive interface.

#### Fast

Minimize hands-on time with an automated cell-todata workflow.

#### **Flexible**

Explore applications for analyzing DNA, RNA and chromatin, or build your own applications with Script Hub™.



# Long-term recurring revenue growth



#### Instruments

Revenue from adoption of instruments across a broad product portfolio and variety of technology platforms



#### **Consumables**

Recurring revenue from content, software and workflows used with installed instruments

**Double-digit growth** 



#### **Service**

Recurring revenue from active, installed instruments

## Why invest?



#### Large developing markets

Targeting ~\$1.5 billion market

Growing adoption across all research categories

Increasing focus for tools to study multiple disease areas



#### **Proprietary &** innovative technologies with recurring revenue

Premier tools to analyze cells, tissues and bulk/free analytes

Meeting critical needs to study the immunome



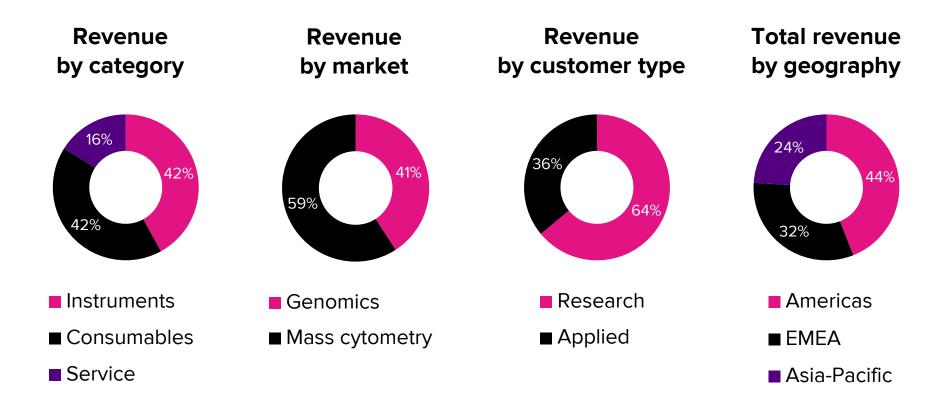
# **Accelerating growth**

New applications driving higher recurring revenue

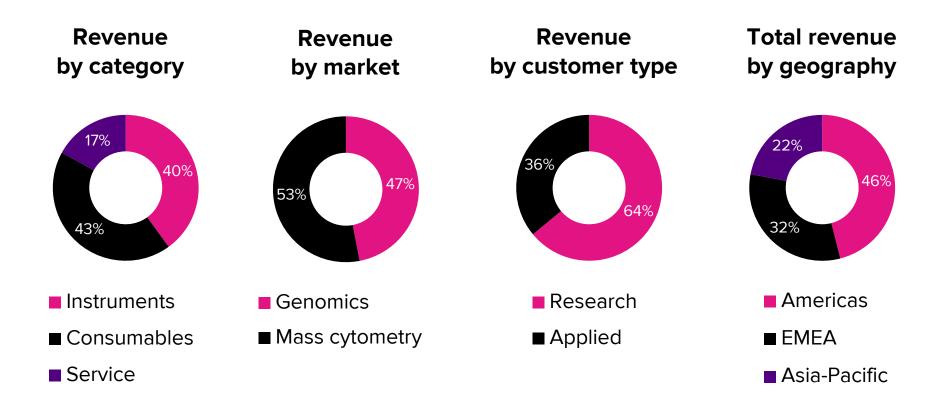
Executing on an innovative pipeline to drive sustainable growth

# Financials

## Q4 2018 revenue profile



## Full year 2018 revenue profile



## Mass cytometry business

#### **Recent progress**

#### New products

 Maxpar Human Immune Monitoring Panel Kit and reporting software

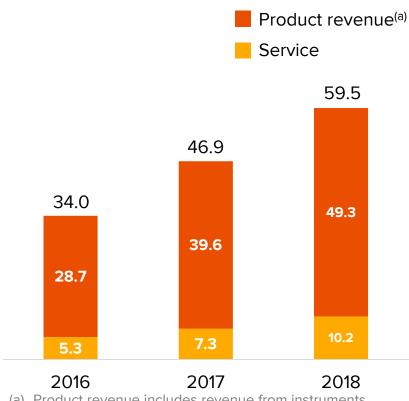
#### Partnerships

- Entered into distribution agreement with University of Zurich for histoCAT software
- Established Mass Cytometry Center of Excellence
- Co-marketing agreement with Visiopharm® to expand and simplify Imaging Mass Cytometry™ data analysis
- Co-marketing agreement with Indica Labs to simplify Imaging Mass Cytometry data analysis

#### Publications

 Over 600 publications at 2018 year-end vs. 400 at 2017 year-end; 20 imaging publications

#### Revenue, \$m



(a) Product revenue includes revenue from instruments and consumables

## **Microfluidics business**

#### **Recent progress**

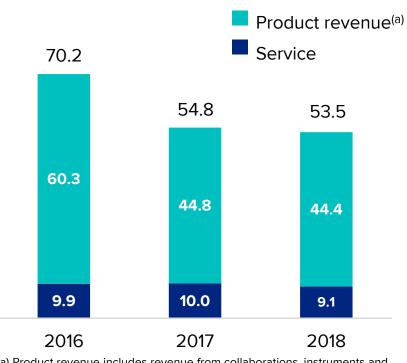
#### New products

- Advanta Sample ID Genotyping Assay
- C1: T-ATAC-seq application
- C1: Lower cost, full-length mRNA sequencing application
- C1: Two single-cell total RNA sequencing applications

#### Collaborations

- Agreement with Genomenon® to co-market evidence-based genomic panel design service
- Agreement with GenomOncology to provide a Comprehensive Immuno-Oncology Gene Expression Workflow for Biomark HD system
- Agreement with DNA Software to provide CopyCount-CNV software for Biomark HD system.

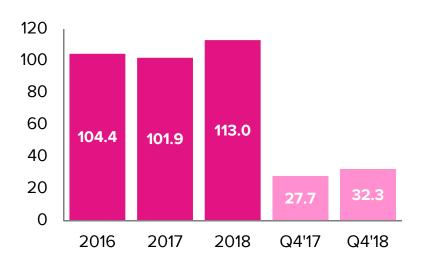
#### Revenue, \$m



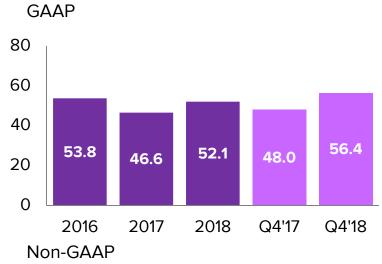
(a) Product revenue includes revenue from collaborations, instruments and consumables

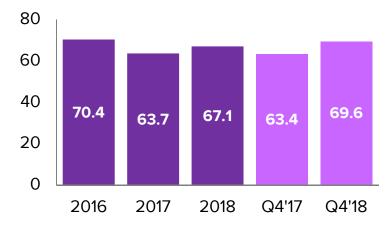
# Revenue and product margin

Revenue (\$, m)<sup>(a)</sup>

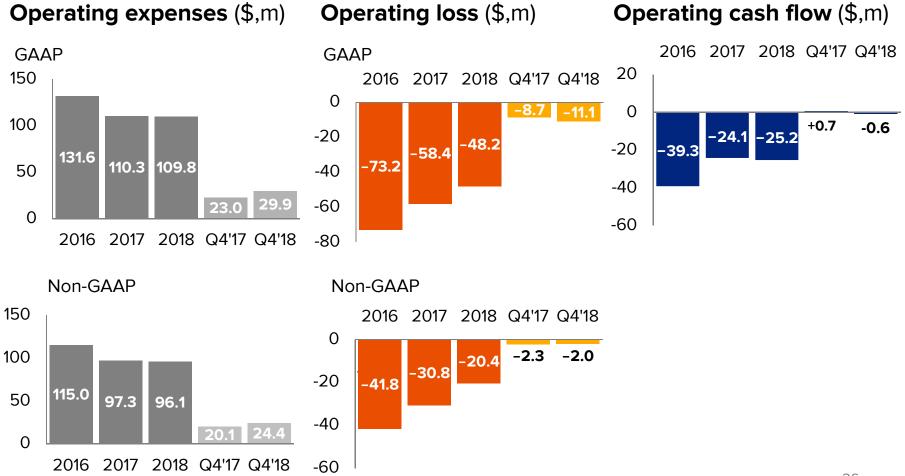


Product margins (%)



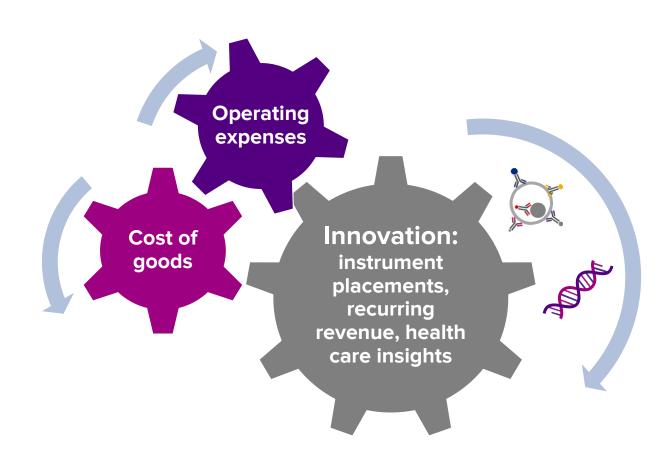


# Operating expense, operating loss and operating cash flow



#### **Operational efficiencies**

#### **Driving productivity**



#### Q4 selected financial information

Statement of operations data, GAAP (in millions)	Q4 2018	Q4 2017
Total revenue	\$32.3	\$27.7
Year-over-year growth	+17%	
Quarter-over-quarter growth	+12%	
Loss from operations (GAAP)	(11.1)	(8.7)
Net loss (GAAP)	(14.8)	(10.5)
Net loss per share, basic and diluted (GAAP)	(0.36)	(0.27)
Statement of operations data, non-GAAP (in millions)	Q4 2018	Q4 2017
Total revenue	\$32.3	\$27.7
Loss from operations (non-GAAP)	(2.0)	(2.3)
Net loss (non-GAAP)	(2.4)	(3.0)
Net loss per share, basic and diluted (non-GAAP)	(0.06)	(0.08)
Balance sheet data (in millions)	as of December 31, 2018	
Cash, cash equivalents and short- and long-term investments	\$95.4	
Convertible notes, net	\$172.1 <sup>(a)</sup>	

<sup>(</sup>a) 2018 2.75% convertible notes due 2034 will be retired in March 2019

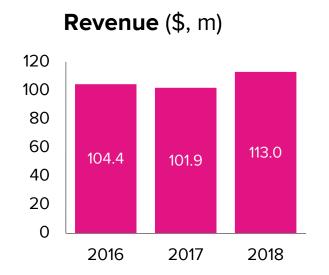
## Full year 2018 selected financial information

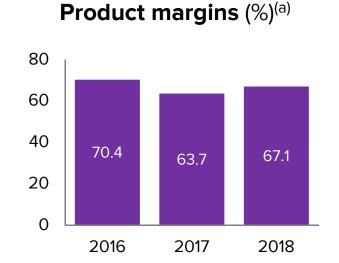
Statement of operations data, GAAP (in millions)	YTD Q4 2018	YTD Q4 2017		
Total revenue	\$113.0	\$101.9		
Year-over-year growth	+11%			
Loss from operations (GAAP)	(48.2)	(58.4)		
Net loss (GAAP)	(59.0)	(60.5)		
Net loss per share, basic and diluted (GAAP)	(1.49)	(1.84)		
Statement of operations data, non-GAAP (in millions)	YTD Q4 2018	YTD Q4 2017		
Total revenue	\$113.0	\$101.9		
Loss from operations (non-GAAP)	(20.4)	(30.8)		
Net loss (non-GAAP)	(20.7)	(30.2)		
Net loss per share, basic and diluted (non-GAAP)	(0.52)	(0.91)		
Balance sheet data (in millions)	as of December 31, 2018			
Cash, cash equivalents and short- and long-term investments	\$95.4			
Convertible notes, net	\$172.1 <sup>(a)</sup>			

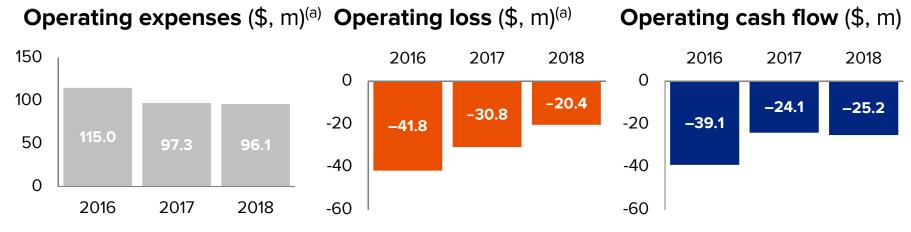
<sup>(</sup>a) 2018 2.75% convertible notes due 2034 will be retired in March 2019

# **Supplemental financials**

#### Three-year financials







# Reconciliation of GAAP to non-GAAP 2016-2018 years product margins

(in thousands)		Twelve Months Ended December 31,						
	2	2016		2017		2018		
Product margin (GAAP)	\$	47,893	\$	39,360	\$	48,789		
Amortization of developed technology (a)		11,200		11,200		11,200		
Depreciation and amortization (b)		2,211		2,165		1,979		
Stock-based compensation expense (b)		1,347		1,077		853		
Product margin (Non-GAAP)	\$	62,651	\$	53,802	\$	62,821		
Product margin percentage (GAAP)		53.8%		46.6%		52.1%		
Product margin percentage (Non-GAAP)		70.4%		63.7%		67.1%		

<sup>(</sup>a) represents amortization of developed technology in connection with the DVS acquisition

<sup>(</sup>b) represents expense associated with cost of product revenue

## Reconciliation of GAAP to non-GAAP 2016-2018 years operating expenses

	Twelve Months Ended December 31,					
(in thousands)	2	2016	2	2017	2	2018
Operating expenses (GAAP)	\$	131,627	\$	110,342	\$	109,813
Stock-based compensation expense (a)		(12,511)		(8,015)		(10,170)
Depreciation and amortization (a)		(4,051)		(4,926)		(3,393)
Loss on disposal of property and equipment (a)		(87)		(135 <u>)</u>		(141)
Operating expenses (Non-GAAP)	\$	114,978	\$	97,266	\$	96,109

<sup>(</sup>a) represents expense associated with research and development, selling, general and administrative activities

## Reconciliation of GAAP to non-GAAP 2016-2018 years loss from operations

(in thousands)	Twelve Months Ended December 31,				
	2016		2017		2018
Loss from operations (GAAP)	\$ (73,190)	\$	(58,360)	\$	(48,164)
Stock-based compensation expense	13,858		9,092		11,023
Amortization of developed technology (a)	11,200		11,200		11,200
Depreciation and amortization (b)	6,262		7,091		5,372
Loss on disposal of property and equipment (b)	 87		135		141
Loss from operations (Non-GAAP)	\$ (41,783)	\$	(30,842)	\$	(20,427)

<sup>(</sup>a) represents amortization of developed technology in connection with the DVS acquisition

<sup>(</sup>b) represents expense associated with research and development, selling, general and administrative activities

## Reconciliation of GAAP to non-GAAP Q4 2018 and 2017 product margins

#### ITEMIZED RECONCILIATION BETWEEN GAAP AND NON-GAAP PRODUCT MARGIN

(in thousands)	Three	e Months En	ded Dece	mber 31,
	2018		2017	
Product margin (GAAP)	\$	15,310	\$	11,037
Amortization of developed technology (a)		2,800		2,800
Depreciation and amortization (b)		488		538
Stock-based compensation expense (b)		303		223
Product margin (Non-GAAP)	\$	18,901	\$	14,598
Product margin percentage (GAAP)		56.4%		48.0%
Product margin percentage (Non-GAAP)		69.6%		63.4%

<sup>(</sup>a) represents amortization of developed technology in connection with the DVS acquisition

<sup>(</sup>b) represents expense associated with cost of product revenue

## Reconciliation of GAAP to non-GAAP Q4 2018 and 2017 operating expenses and loss from operations

#### ITEMIZED RECONCILIATION BETWEEN GAAP AND NON-GAAP OPERATING EXPENSES

(in thousands)	Three Months Ended December 31,					
	2018 20					
Operating expenses (GAAP)	\$	29,929	\$	23,021		
Stock-based compensation expense (a)		(4,663)		(1,772)		
Depreciation and amortization (a)		(760)		(976)		
Loss on disposal of property and equipment (a)		(141)		(134)		
Operating expenses (Non-GAAP)	\$	24,365	\$	20,139		

#### ITEMIZED RECONCILIATION BETWEEN GAAP AND NON-GAAP LOSS FROM OPERATIONS

(in thousands)	Three Months Ended December 31,						
		2018		2017			
Loss from operations (GAAP)	\$	(11,118)	\$	(8,734)			
Stock-based compensation expense		4,966		1,995			
Amortization of developed technology (b)		2,800		2,800			
Depreciation and amortization (a)		1,248		1,514			
Loss on disposal of property and equipment (a)		141_		134			
Loss from operations (Non-GAAP)	\$	(1,963)	\$	(2,291)			

<sup>(</sup>a) represents expense associated with research and development, selling, general and administrative activities

<sup>(</sup>b) represents amortization of developed technology in connection with the DVS acquisition

## Reconciliation of GAAP to non-GAAP Q4 2018 and 2017 net loss and net loss per share

(in	thousands,	except	per share	amounts)

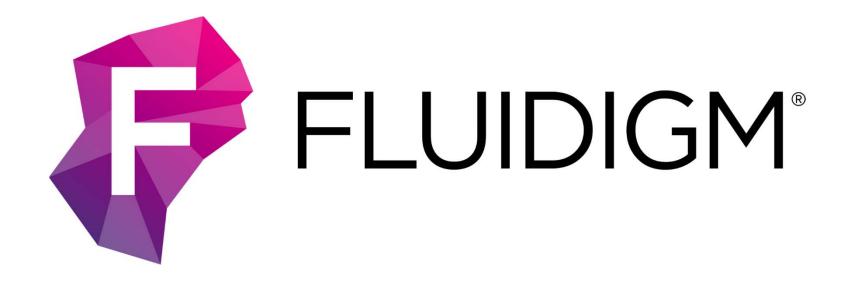
#### Three Months Ended December 31,

	2018		2017	
Net loss (GAAP)	\$	(14,775)	\$	(10,456)
Stock-based compensation expense		4,966		1,995
Amortization of developed technology (a)		2,800		2,800
Depreciation and amortization		1,248		1,457
Interest expense (b)		4,069		1,514
Benefit from acquisition related income taxes (c)		(835)		(433)
Loss on disposal of property and equipment	1	141		134
Net loss (Non-GAAP)	\$	(2,386)	\$	(2,989)
Shares used in net loss per share calculation -				
basic and diluted (GAAP and Non-GAAP)		41,489		38,704
Net loss per share - basic and diluted (GAAP)	\$	(0.36)	\$	(0.27)
Net loss per share - basic and diluted (Non-GAAP)	\$	(0.06)	\$	(0.08)

<sup>(</sup>a) represents amortization of developed technology in connection with the DVS acquisition

<sup>(</sup>b) represents interest expense, primarily on convertible debt

<sup>(</sup>c) represents the tax impact on the purchase of intangible assets in connection with the DVS acquisition



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