

**Advanced Genomics Platform for
Next-Generation Cancer Therapies**



Investor Presentation
June 2019

Forward-Looking Statements

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In some cases, you can identify forward-looking statements because they contain words such as "anticipate," "believe," "contemplate," "continue," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "will," or "would," or the negative of these words or other similar terms or expressions. These statements are only predictions. Personalis has based these forward-looking statements largely on its current expectations and projections about future events and financial trends that it believes may affect its business, financial condition and results of operations. Also, these forward-looking statements represent the Company's estimates and assumptions only as of the date of this presentation. The Company assumes no obligation to update any forward-looking statements after the date of this presentation.

This presentation also contains estimates and information concerning the Company's industry and business, including estimated market size, projected growth rates of the markets in which Personalis participates and the prevalence of certain medical conditions. These data involve a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. The Company has not independently verified the statistical and other industry data generated by independent parties and contained in this presentation and, accordingly, it cannot guarantee their accuracy or completeness. In addition, projections, assumptions and estimates of its future performance and the future performance of the industries in which it operates are necessarily subject to a high degree of uncertainty and risk due to a variety of factors. These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by Personalis.

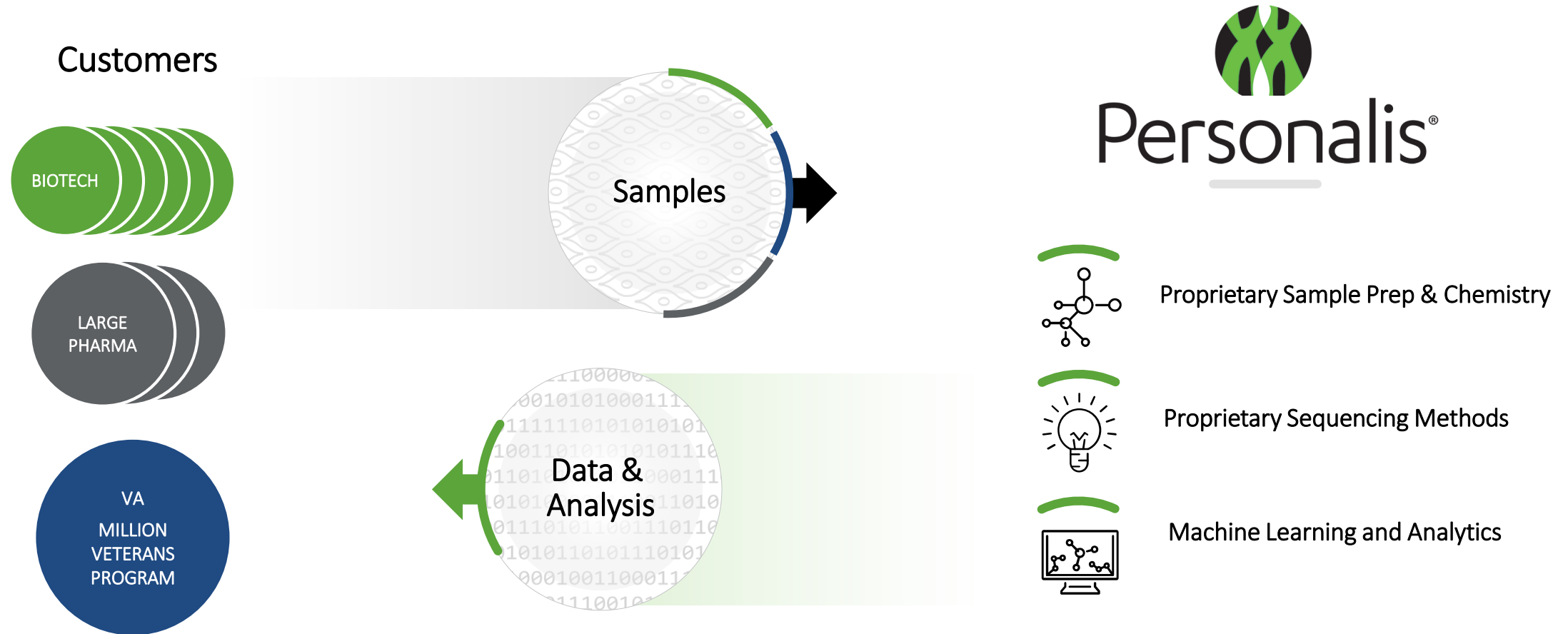
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Cancer drug development is increasingly about data...

... and Personalis is positioned to be a key part of that ecosystem

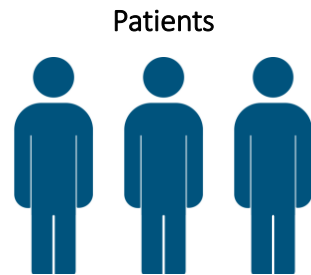
Personalis Provides Proprietary Genomic Information to Customers

Efforts to develop better cancer drugs increase demand for genomic information



Personalis is Transforming the Development of Next-Generation Cancer Therapies

Providing biopharma with more comprehensive molecular data about patient tumors



Tumor Tissue Samples



Comprehensive
Molecular Data

Biopharma First
Model

Rapid Growth

Large Market

~20,000

TUMOR GENES + IMMUNE SYSTEM

45+

BIOPHARMA CUSTOMERS
NO REIMBURSEMENT

2018 REVENUE: **\$37.8MM** (+302% YoY)
1Q'19 REVENUE: **\$14.1MM** (+238% YoY)

WITH CAPITAL EFFICIENT BUSINESS MODEL

\$5 billion

ESTIMATED INITIAL TAM WITH
BIOPHARMA CUSTOMERS¹

Biopharma Customers are Using Molecular Data to Address a Large Opportunity

Significant
End Market

**\$133
Billion**

Annual spend on cancer therapies and supportive care drugs for cancer¹

Biopharma
is Committed

73%

Oncology therapeutics in development rely on biomarker data²

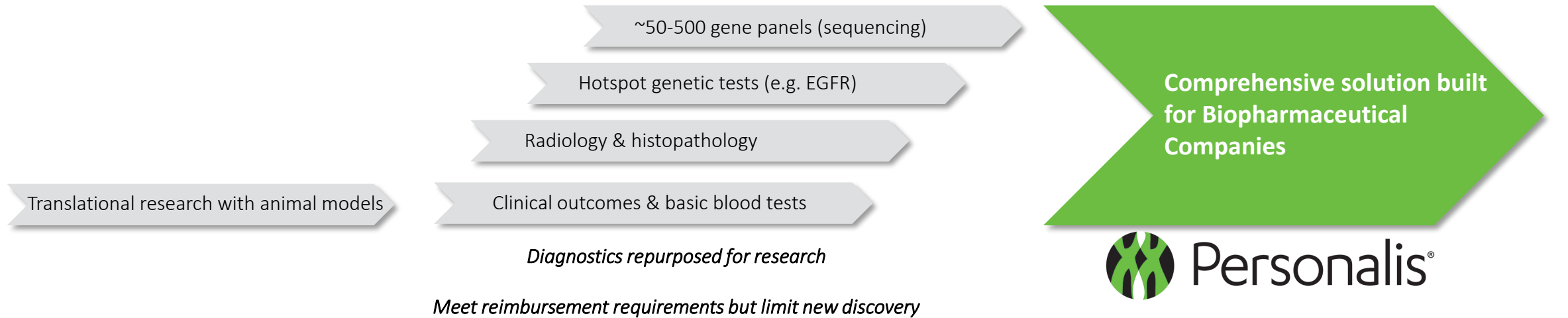
Benefits
are Promising

3x

Increase in probability of success (Phase 1 → Approval) for therapies with biomarkers across all therapeutic types³

Personalis is Purpose-Built for Biopharma

Our comprehensive solution represents the next step in biopharmaceutical research



Platform Leadership Over Generations of Innovation

ACE Exome Technology

Superior sequencing performance for ~20,000 genes

Genome Medicine and Nature Review publications demonstrating leading exome performance

Launched in 2013

ACE Immunoid

I-O Focused First Gen Platform Technology

Combined exome and transcriptome sequencing using ACE technology

Increased variant specificity and sensitivity

Launched November 2016

ACE Immunoid for Personalized Cancer Therapy

Platform extended for personalized therapy customers

NeoantigenID

Improved turn around time

Device master file with FDA

ACE Immunoid for Biomarkers

Platform extended for biomarker identification

ImmunogenomicsID for tumor and microenvironment

Immunoid NeXT

Universal Cancer Immunogenomics Platform

Complete picture of cancer and immune genomics from a single sample

Applicable across I-O, targeted and personalized therapies

Announced in November 2018

Full commercial launch expected 2019

Diagnostic Panels Utilize Human Tissue But Aren't Comprehensive

Typical Cancer Panels

Narrow Coverage
~50–500 genes
Traditional cancer drivers

NeXT Platform

Comprehensive Coverage
~20,000 genes
Comprising the full human genome

DNA Sequencing

~50–500 Genes

~20,000 Genes for Tumor Tissue DNA



Require Additional Samples

RNA Sequencing

+

Immune Cells TCR-β Only

+

Tumor Infections Human Only

~20,000 Genes for Tumor Tissue RNA

T-cells, B-cells and Innate Immune Cells

Human + Oncoviruses









Proprietary Platform Maximizes Insights from a Single Sample

Patient Tumor Samples Are Often Extremely Limited



Traditional Process

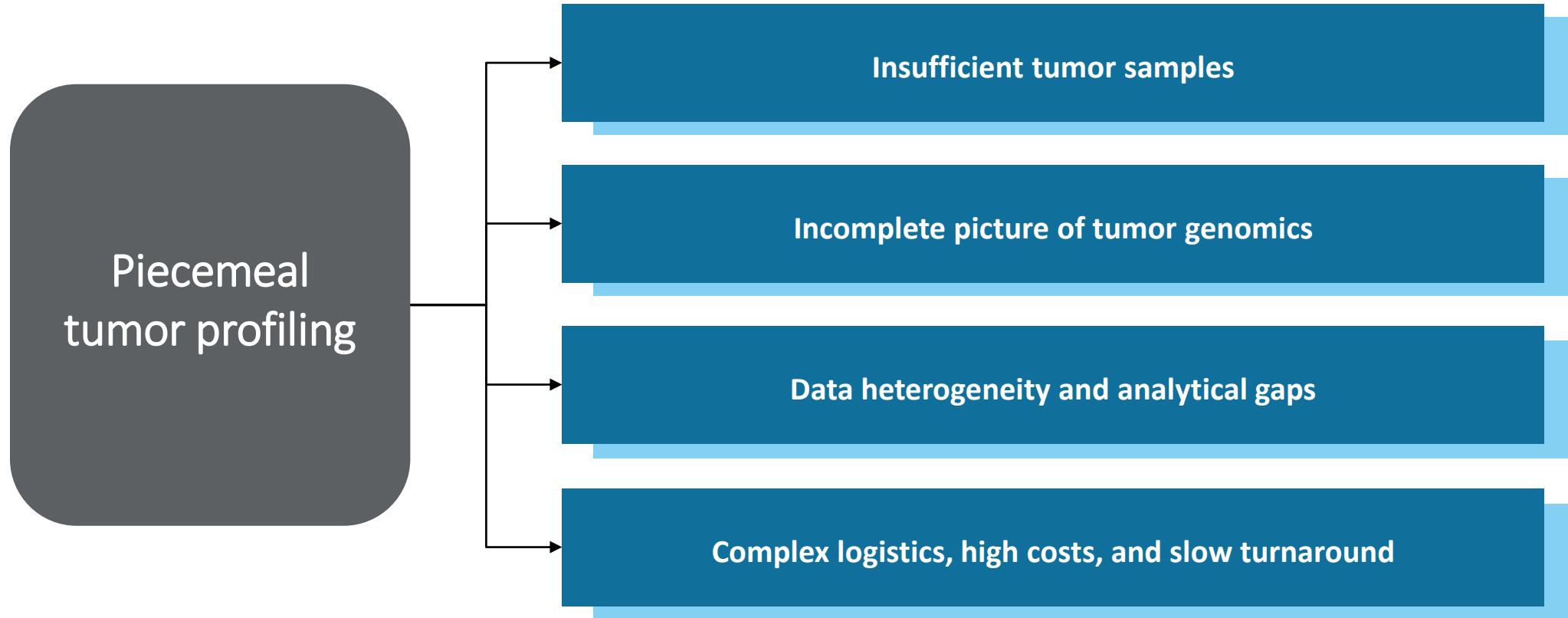
Multiple Samples | Multiple Vendors | Multiple Assays

-  Targeted Therapy Panel (often 50 to 500 genes)
-  Neoantigen Identification from Exome
-  Expression Data from Array
-  TCR / Immune Cell Repertoire
-  MSI-Testing
-  Oncoviral Testing
-  Remaining Sample, if any, Sent to Discovery and Translational Teams
-  HLA-Testing

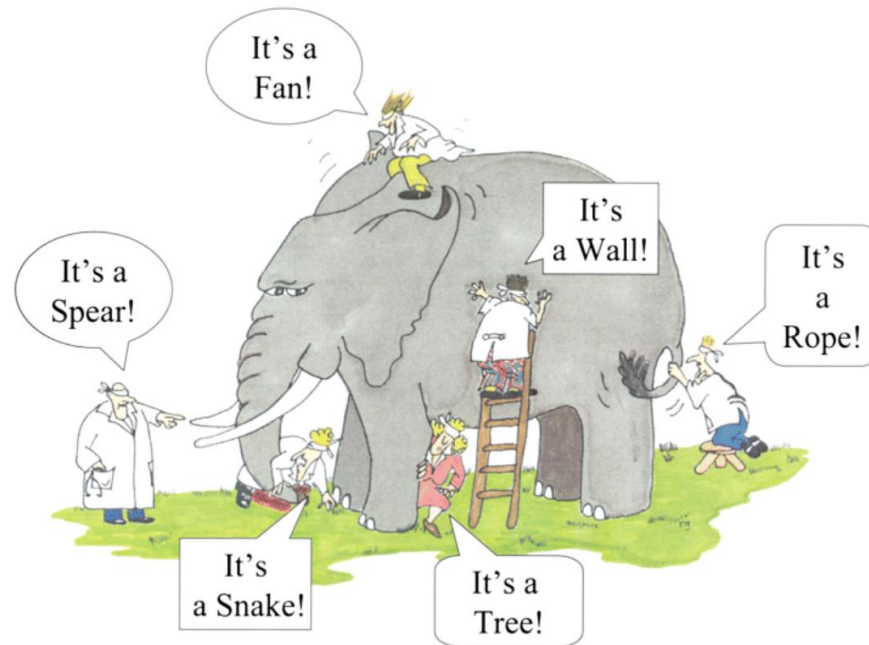


**Comprehensive Data with a Limited Sample
Higher Success Rate and Lower Costs**

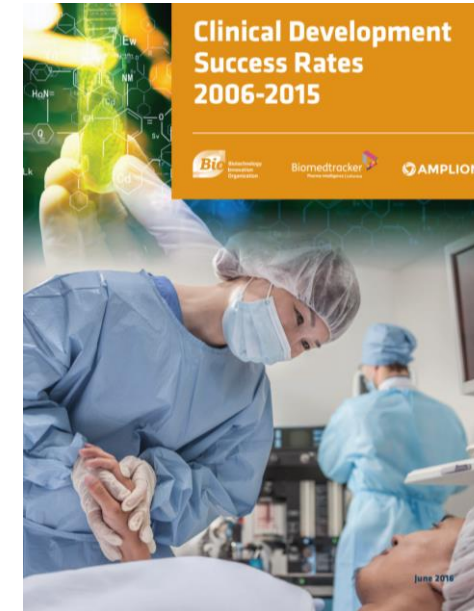
Patching Together a Profiling Solution with Multiple Offerings is Challenging...



...Leading to an Incomplete Picture of Cancer and Low Rates of Success



Viewing a singular aspect of tumor biology limits conclusions







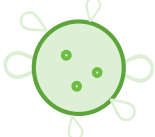
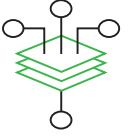



5.1%

The likelihood of FDA approval from Phase I clinical trial for oncology developmental candidates¹

Proprietary Assay and Analytics for the Many Elements of Tumor Biology

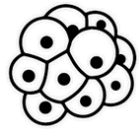
ImmunID NeXT

	DNA & RNA Coverage over 20,000 genes	Neoantigens	Tumor Escape & Immuno-modulators	HLA Type & Mutations	Immune Repertoire	MSI	Oncoviruses	Immunocellular Deconvolution	Diagnostic Report
									
Proprietary Assay & Content	ACE assay technology enhances accuracy	ACE assay technology Proprietary mass spec data	ACE assay technology	Proprietary design to enhance accuracy	Proprietary design boosts CDR3	Enhancement in MSI regions not covered by exomes	Proprietary design	Proprietary RNA signatures*	Boost >1000X in clinical footprint for clinical grade coverage
Proprietary Analytics & Validation	Validated analytics for DNA and RNA mutations True TMB	Proprietary neural networks	Integrated DNA & RNA analytics	Validated high accuracy algorithms	Analytics for TCR and BCR	Both canonical and exome based MSI computation Clinical validation*	Sensitive and specific detection*	Immune cell signature scores*	Clinically validated analytics and reporting*

Personalis customers can select features of the platform to meet their particular needs. An * denotes next-generation feature in development.

Differentiated Analytics Driven by Proprietary Content

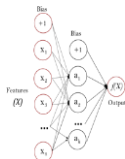
Engineered cell lines train neural networks to make predictions



Genetically engineered cell lines



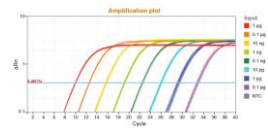
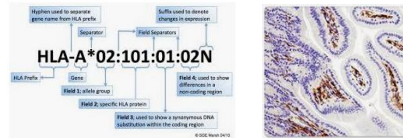
Mass spectrometry



Neural networks

Neoantigen prediction

Sequencing approach validated with orthogonal technologies



HLA, IHC, QPCR...

Foundation for regulatory compliance

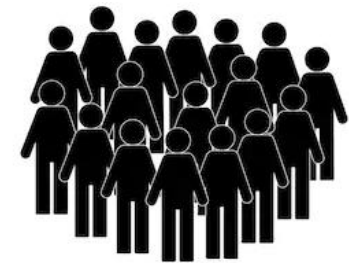
Clinical & research collaborations



PARKER INSTITUTE
for CANCER IMMUNOTHERAPY

Demonstrate clinical utility of the platform

Growing database from patient samples

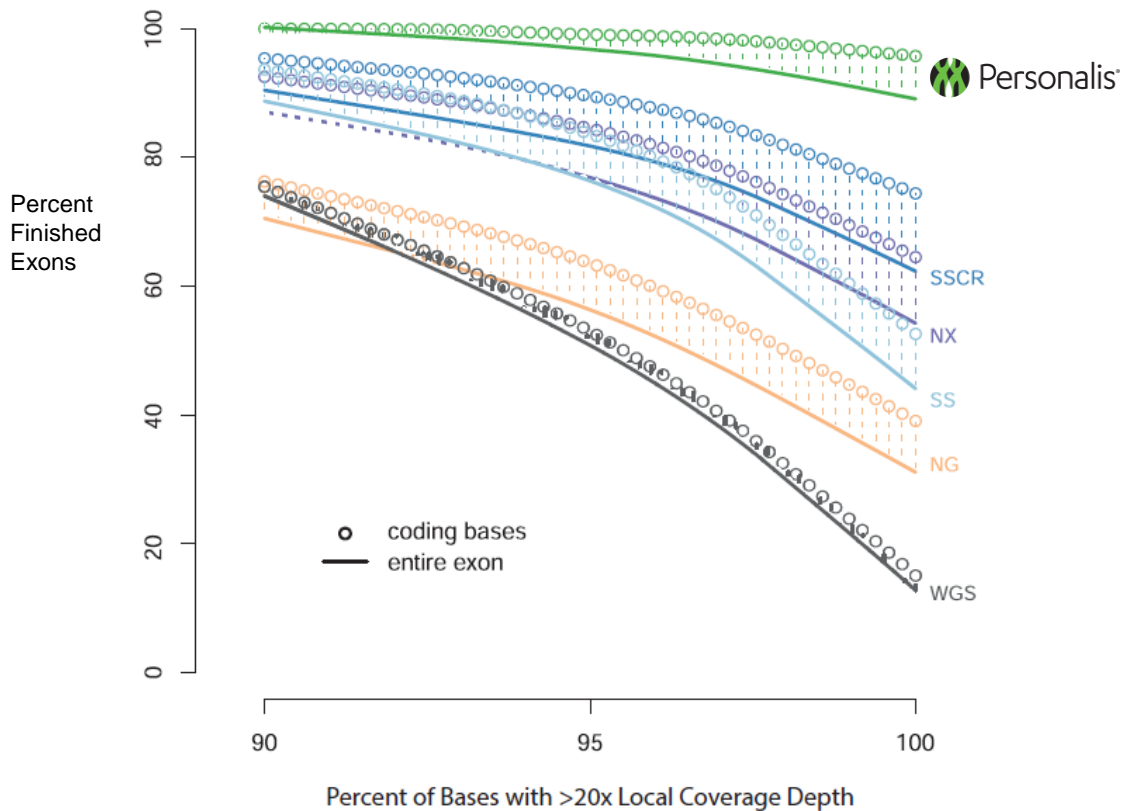


Provides customer with additional information and opportunity for discovery of unique drug targets

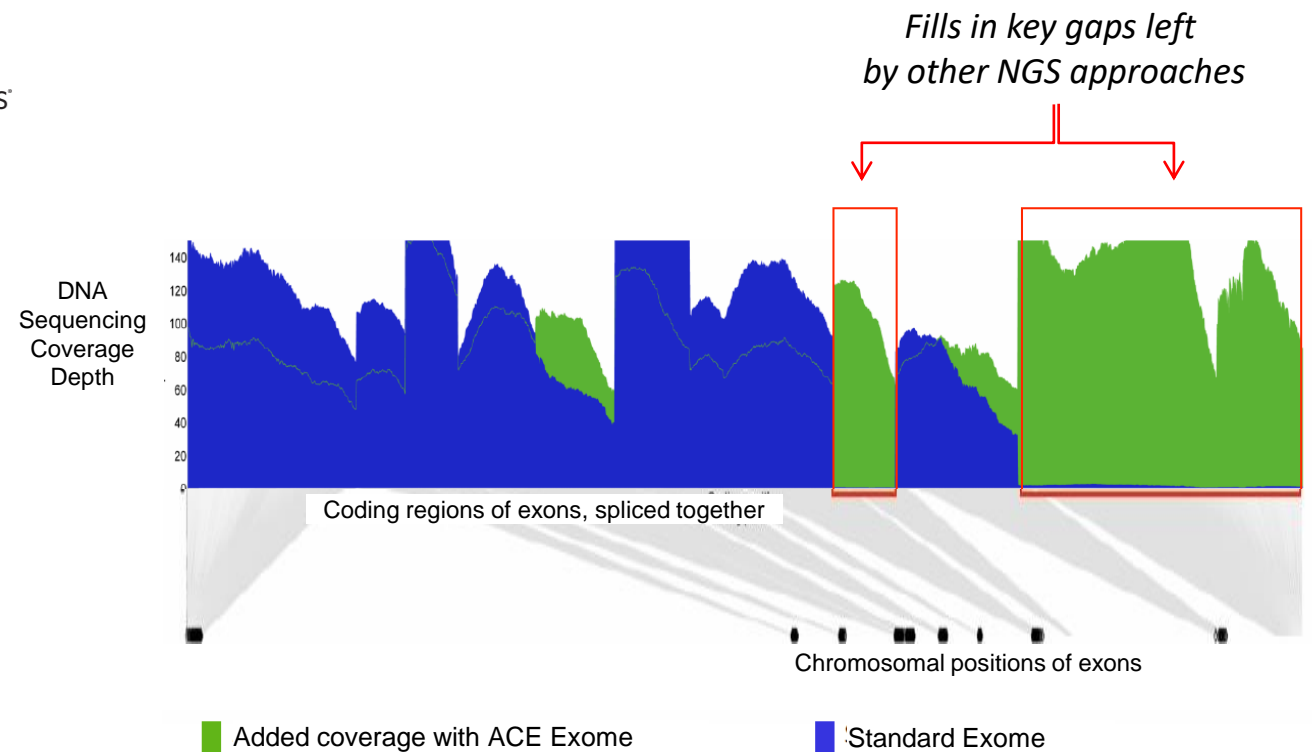
Proprietary Sequencing Methods Achieve Superior Coverage and Gene Finishing

Coverage, depth and accuracy are key in oncology

Superior sequencing performance¹



Coverage of difficult-to-sequence gene regions

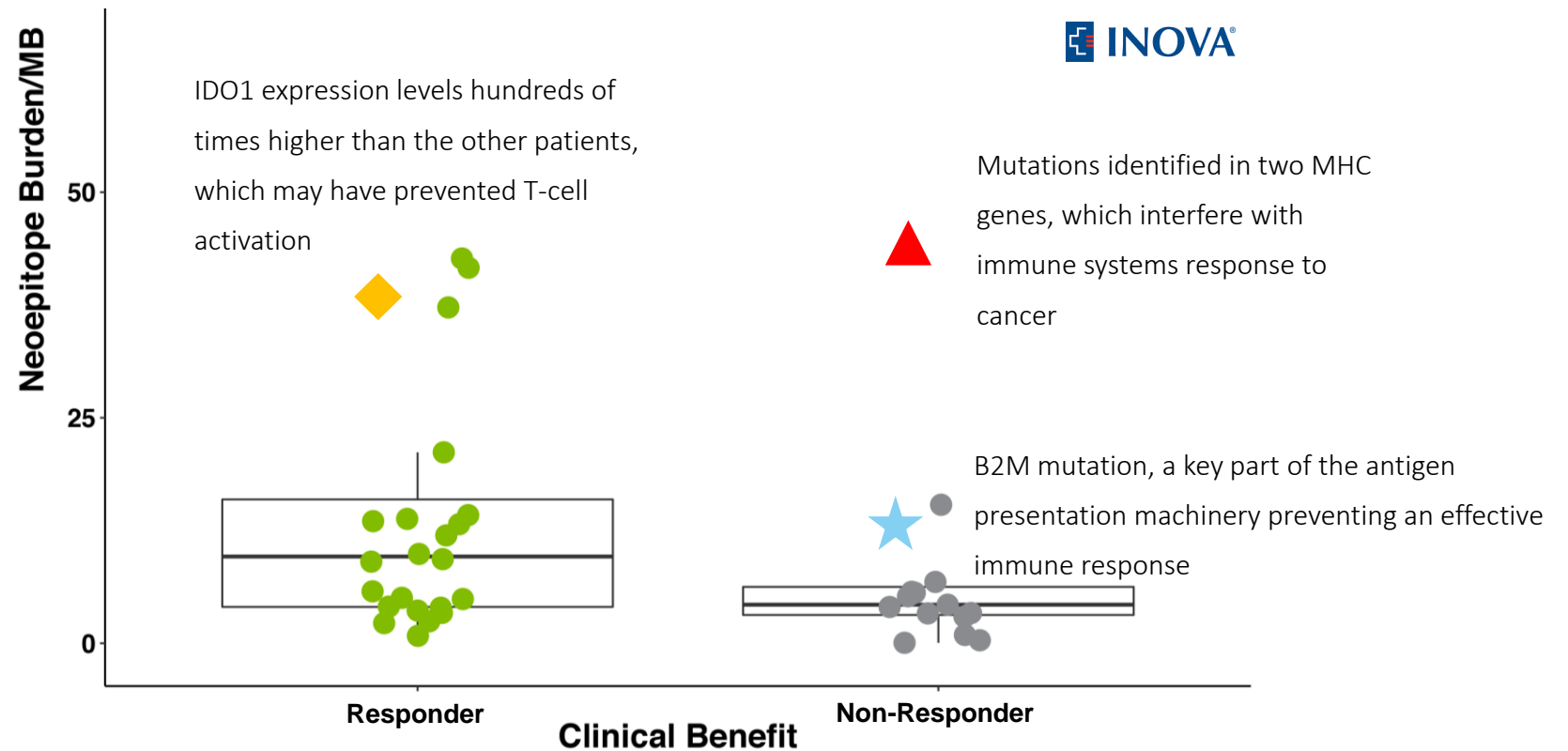


Comprehensiveness Allows Customers to Understand Why Patients Respond

At an average cost of ~\$60,000 per patient in oncology clinical trials,¹ understanding why patients do or don't respond is critical

Improve enrollment criteria in clinical trials

Discover new biological mechanisms underlying therapeutic response and tumor resistance

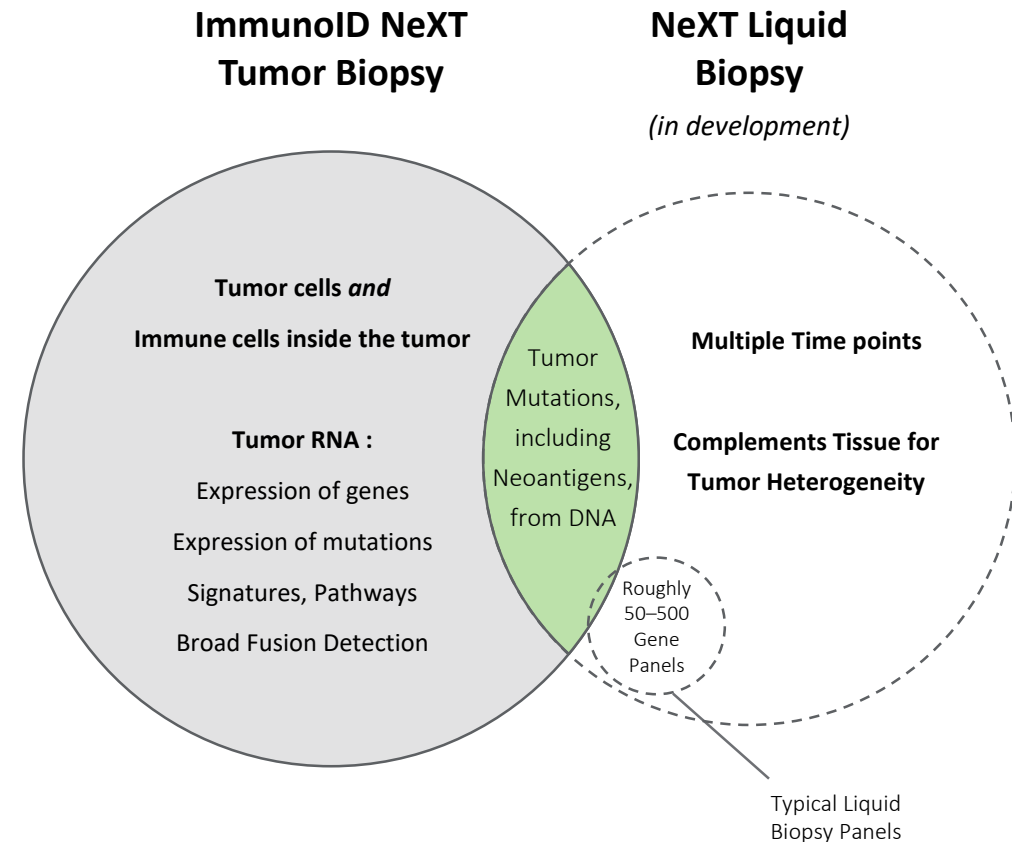


Developing Liquid Biopsy Capabilities to Complement Tissue Sample Insights

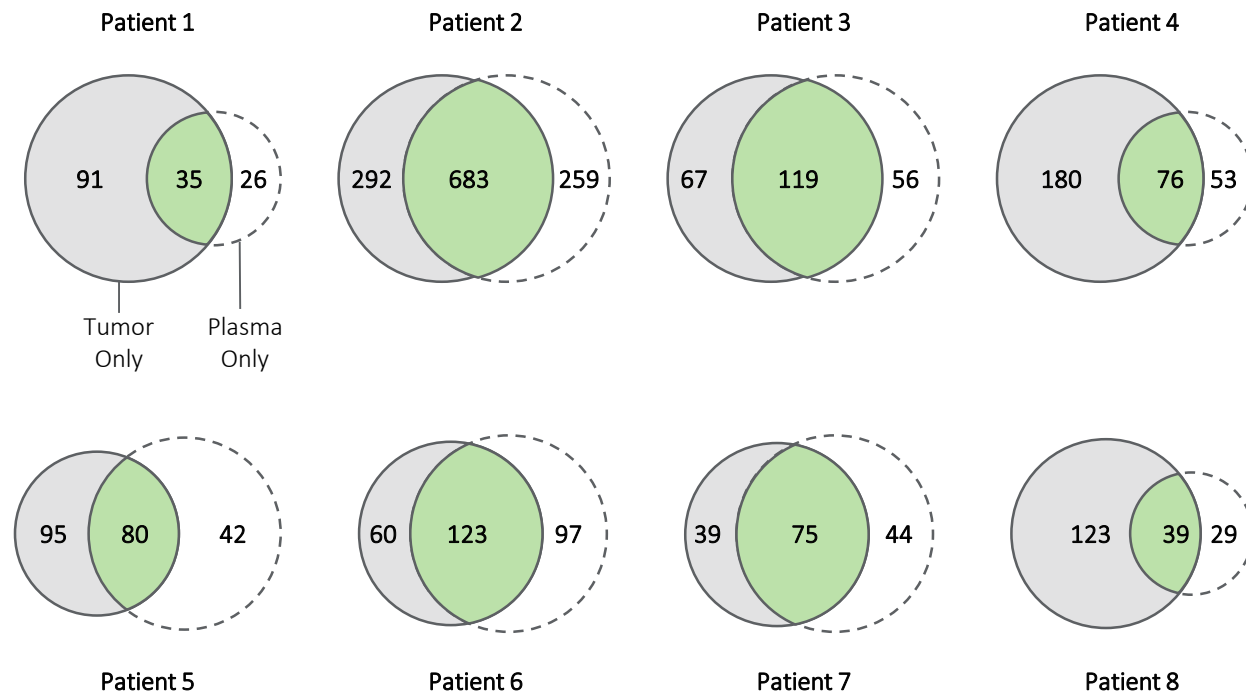
Purpose-built for pharma clinical research

~ 20,000 genes in both tissue and liquid biopsy versions

Tissue is critical for immune cells and RNA, but cfDNA complements with new insights and serial time points



Mutations Found in Tissue Samples and cfDNA are Important for Drug Development



Numbers indicate variants detected in the tumor only, plasma only, or in both.

Our Customer Applications – Biopharma Companies



Immunotherapies

*Platform provides comprehensive insights on tumor **and** immune biology*



Targeted Therapies

Patient's genomic and immune profile critical for pharma R&D



Personalized Cancer Therapies

*Information we provide can be used to design **individually tailored** therapies*

Enterprise Commercial Strategy - Land and Expand Case Study



First pilot order of 10 samples in 2015



To date has used multiple versions of our platform

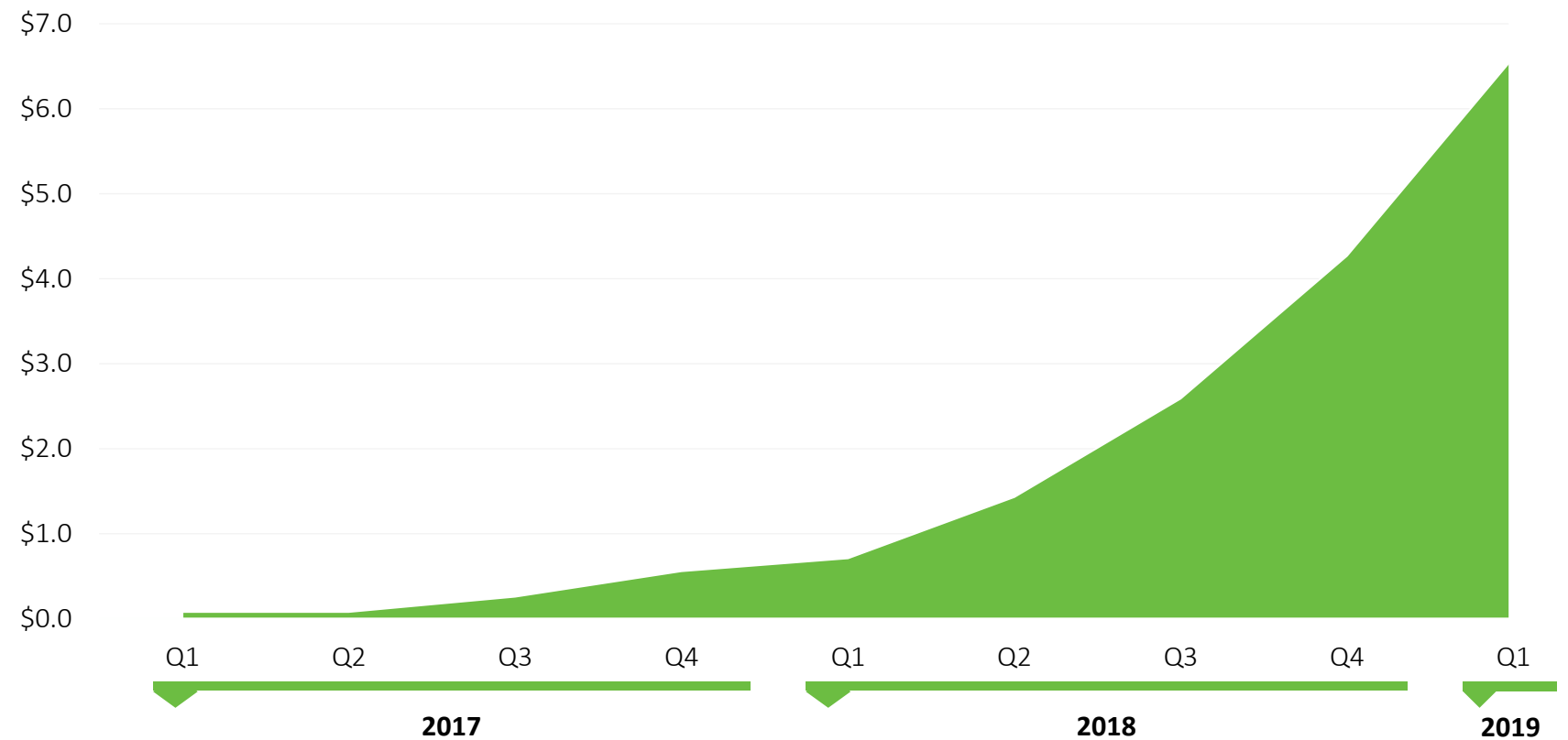


Currently piloting ImmunID NeXT



Initial pilot period gives way to broader use at organization

Cumulative Revenue from One Current Pharma Customer (\$M)



Our Customer Applications – VA MVP

Whole genome sequencing provider to U.S. VA Million Veteran Program

Significant customer offering stability and scale

2018A Revenue of \$18.6M

740,000

veterans enrolled in program to-date

Personalis is currently contracted

to deliver ~80,000 samples

Awards to date expected

to be revenue into 2021 (\$73M backlog)¹

Contracted to 2023 and potential for additional orders

Long-term partner

Working together since 2012

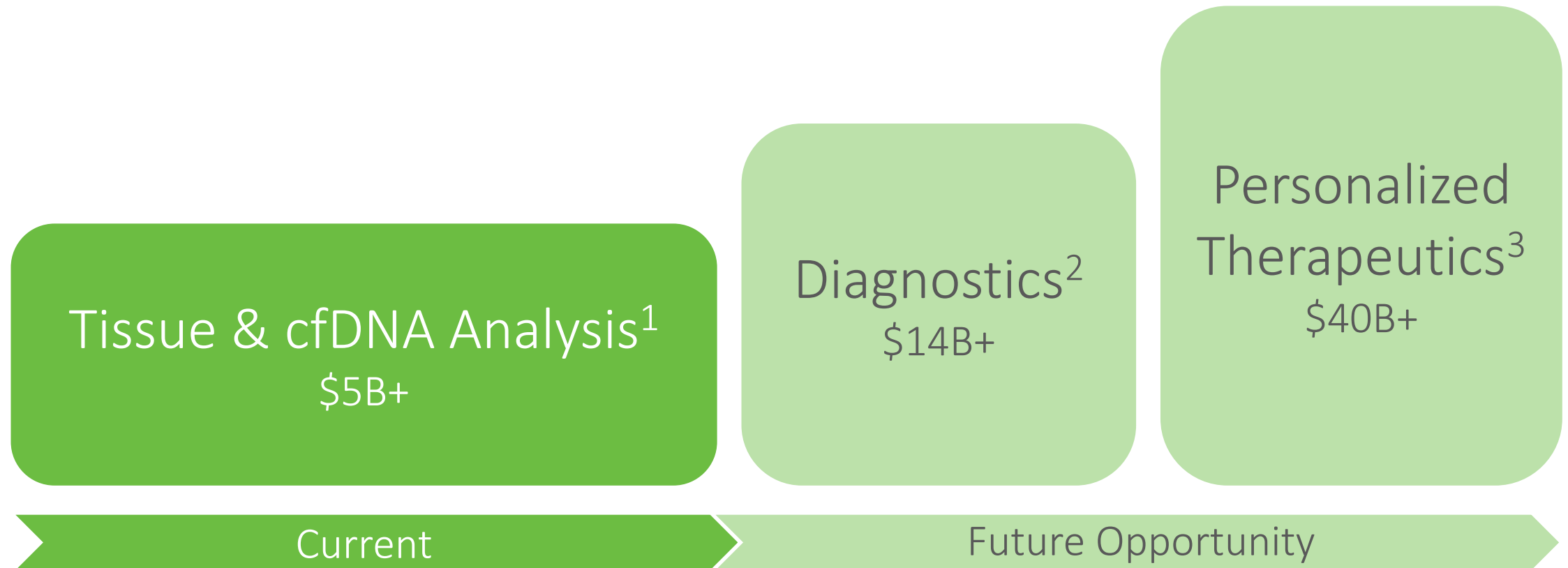


**MILLION
VETERAN
PROGRAM**

DISCOVERY ★ INNOVATION ★ ADVANCEMENT

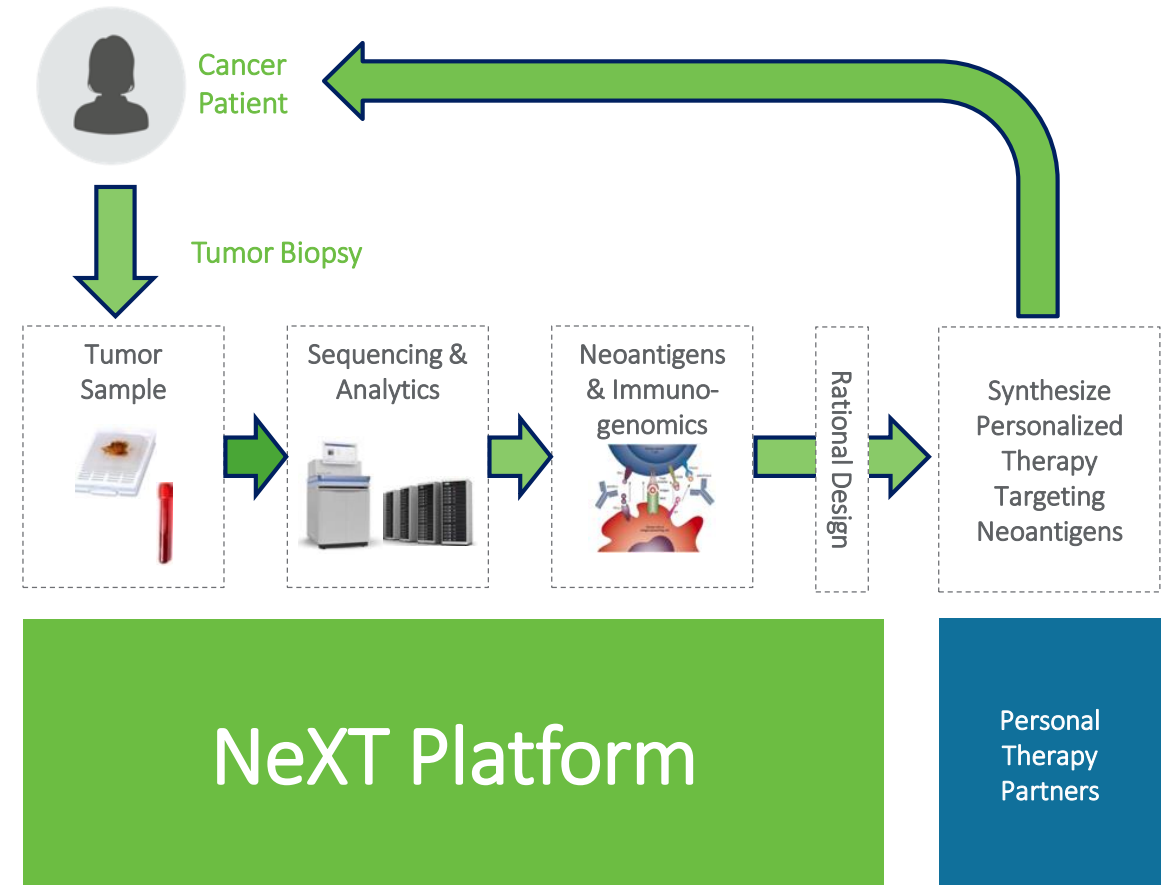
Offers key experience as cancer analysis eventually moves to whole genome

Market Opportunity Grows as Use Increases



Personalis Provides Information that May Be Used in Personalized Cancer Therapies

- We believe we are working with the majority of companies developing neoantigen-targeted personalized cancer therapies
- Involved in first-in-human clinical trials
- Addresses key challenges with unique technology
 - Seeing more neoantigens
 - Predicting which neoantigens will be immunogenic
 - Comprehensive immuno-genomic biomarkers
- Rapid turnaround time
- >95% success rate with samples¹
- Personalis' FDA Device Master File enables long-term success with our customers
- Potential to derive revenue in connection with the sale of personalized therapeutics developed using our platform



What's Next?

Develop NeXT as a Clinical Diagnostic Platform

- Clinical diagnostic test built for advanced immuno-therapies
- Genes related to classic targeted therapies boosted to > 1,000x coverage
- Initial clinical interpretation builds on three years of experience with our earlier targeted-therapy panel-based test
- Platform to work with pharma and collaborators to build clinical utility evidence with advanced therapies
- Long-term upside as the diagnostic platform of next-generation IO

SPECIFICATIONS SHEET ACE CancerPlus Test - Clinical Report Only

Personalis[®] ACE CancerPlus Test

Increasingly, oncologists and pathologists are utilizing information on genomic alterations in solid tumors, such as lung, colon, breast, skin, and prostate cancers, to help guide and optimize therapeutic options for patients. The Personalis ACE CancerPlus Test provides clinicians a comprehensive and accurate next generation sequencing-based testing solution for solid tumors.

Clinical Reports

Personalis ACE CancerPlus Test is a comprehensive genomic testing solution that provides physicians a clinical report on the genetic alterations found in cancer genes of medical importance. We use our leading ACE cancer platform to provide high accuracy, clinical grade next generation sequencing and analysis to identify base substitutions, insertions/deletions, copy number alterations and gene fusions.

Test results are provided to clinicians in hard copy and PDF format. The ACE CancerPlus Test report describes clinically important genomic alterations and potentially relevant therapies and clinical trials.

What Makes Our Test Unique

The Personalis ACE CancerPlus Test goes beyond typical cancer genomics tests in a few key areas:

- Proprietary methods for improving sequencing coverage in traditionally difficult to sequence regions typically missed or excluded from other cancer panel tests.
- Analysis of DNA and RNA from the same sample to enable robust identification of gene fusions over a broad number of genes.

ACE CancerPlus Performance Specifications

Analysis Method	NGS
Specimen Type	FFPE, Fresh Frozen, 200% tumor content
Regions Analyzed	Coding regions of 181 genes
Type of Sequencing	Deep-see (RNA using Illumina NGS)
Typical Median Depth	1000x
Turnaround Time	~3 weeks
Specificities	Base Substitutions (AF 10%) >99% Indels (AF 10%) >99% Copy Number Alterations (AF 10%) >99%
Sensitivity	Base Substitutions (AF 10%) >99% Indels (AF 10%) >99% Copy Number Alterations (AF 10%) >99%
Gene Fusions (RNA)	>95%
Base Substitutions (AF 1%)	>95%
Indels (AF 1%)	>95%

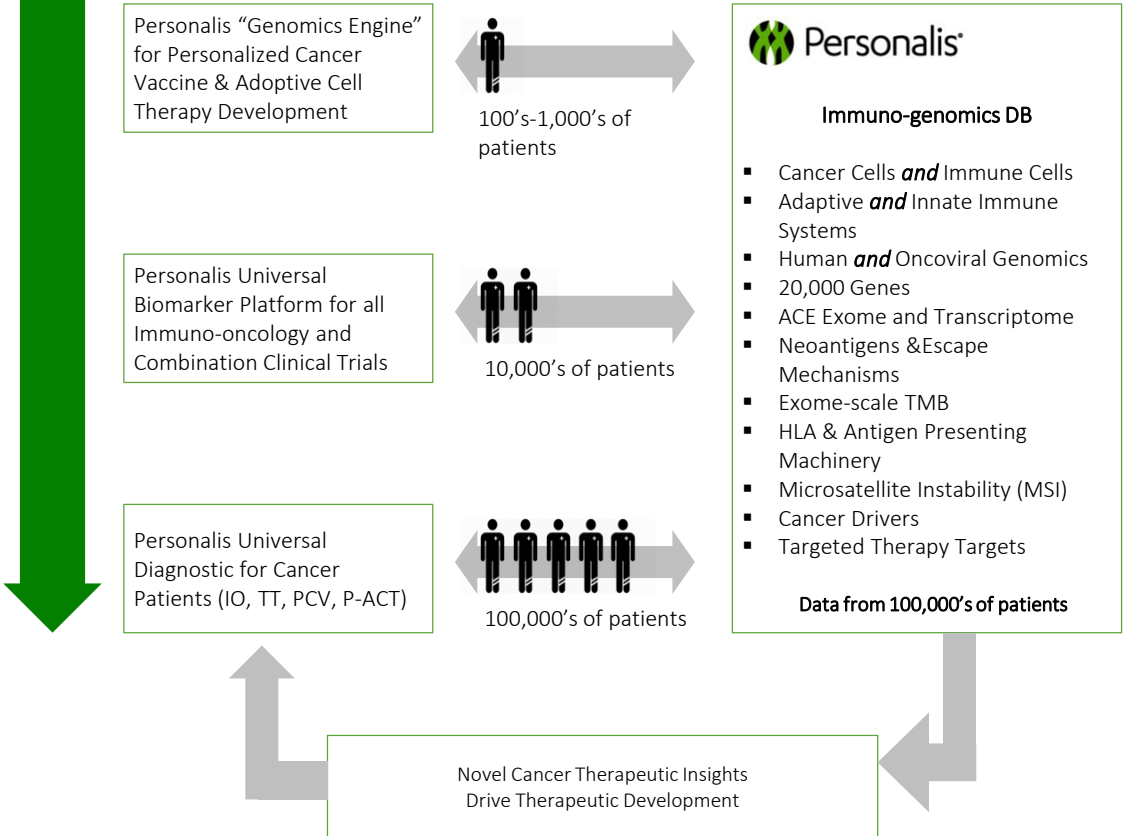
41 Cancer Genes Analyzed for Copy Number Alterations

ABL1	CD34	FGFR3	MET	PTEN
AKT1	CDKN2A	HER2	NRAS	TP53
AR	CDKN2B	JAK2	NRXN1	VEGFA
ATM	EGFR	KIT	NRXN2	BRCA1
BCL2	ERBB2	MET	NRXN3	BRCA2
BCL6	ESR1	METL1	NRXN4	BRCA3
BRCA1	ESR2	METL2	NRXN5	BRCA4
BRCA2	ESR3	METL3	NRXN6	BRCA5
BRCA3	ESR4	METL4	NRXN7	BRCA6
BRCA4	ESR5	METL5	NRXN8	BRCA7
BRCA5	ESR6	METL6	NRXN9	BRCA8
BRCA6	ESR7	METL7	NRXN10	BRCA9
BRCA7	ESR8	METL8	NRXN11	BRCA10
BRCA8	ESR9	METL9	NRXN12	BRCA11
BRCA9	ESR10	METL10	NRXN13	BRCA12
BRCA10	ESR11	METL11	NRXN14	BRCA13
BRCA11	ESR12	METL12	NRXN15	BRCA14
BRCA12	ESR13	METL13	NRXN16	BRCA15
BRCA13	ESR14	METL14	NRXN17	BRCA16
BRCA14	ESR15	METL15	NRXN18	BRCA17
BRCA15	ESR16	METL16	NRXN19	BRCA18
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BRCA22	ESR23	METL23	NRXN26	BRCA25
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BRCA28	ESR29	METL29	NRXN32	BRCA31
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BRCA30	ESR31	METL31	NRXN34	BRCA33
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BRCA38	ESR39	METL39	NRXN42	BRCA41
BRCA39	ESR40	METL40	NRXN43	BRCA42
BRCA40	ESR41	METL41	NRXN44	BRCA43
BRCA41	ESR42	METL42	NRXN45	BRCA44
BRCA42	ESR43	METL43	NRXN46	BRCA45
BRCA43	ESR44	METL44	NRXN47	BRCA46
BRCA44	ESR45	METL45	NRXN48	BRCA47
BRCA45	ESR46	METL46	NRXN49	BRCA48
BRCA46	ESR47	METL47	NRXN50	BRCA49
BRCA47	ESR48	METL48	NRXN51	BRCA50
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BRCA76	ESR77	METL77	NRXN80	BRCA79
BRCA77	ESR78	METL78	NRXN81	BRCA80
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BRCA79	ESR80	METL80	NRXN83	BRCA82
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BRCA81	ESR82	METL82	NRXN85	BRCA84
BRCA82	ESR83	METL83	NRXN86	BRCA85
BRCA83	ESR84	METL84	NRXN87	BRCA86
BRCA84	ESR85	METL85	NRXN88	BRCA87
BRCA85	ESR86	METL86	NRXN89	BRCA88
BRCA86	ESR87	METL87	NRXN90	BRCA89
BRCA87	ESR88	METL88	NRXN91	BRCA90
BRCA88	ESR89	METL89	NRXN92	BRCA91
BRCA89	ESR90	METL90	NRXN93	BRCA92
BRCA90	ESR91	METL91	NRXN94	BRCA93
BRCA91	ESR92	METL92	NRXN95	BRCA94
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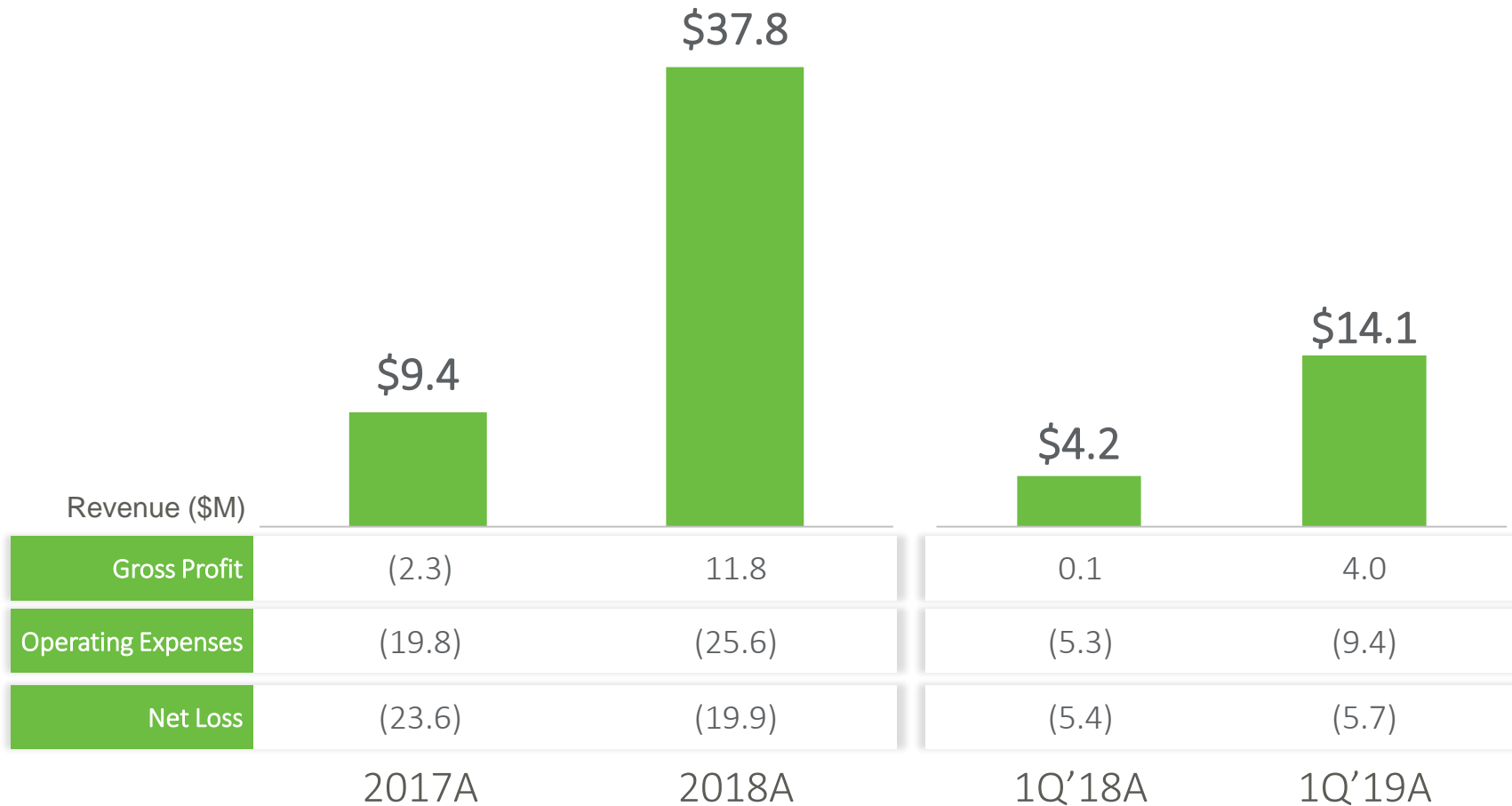
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Build a Tumor Immuno-Genomics Database



Strong Financial Profile and Historical Growth



1Q '19A Balance Sheet

Total Cash: \$33.2M

Total Debt: \$18.9M

Customer Deposit
Liabilities: \$44.3M¹

Experienced Leadership Team



John West

President, Chief Executive Officer & Director



Richard Chen, M.D., M.S.

Chief Scientific Officer



Clinton Musil

Chief Business Officer



Aaron Tachibana

Chief Financial Officer



MANAGEMENT TEAM

Christian Haudenschild, Ph.D.	VP Operations
Michael Fitzpatrick	VP Sales
Carol Tillis	VP Finance and Administration
Rena McClory, Ph.D.	VP Marketing
Lloyd Hsu	VP Software Engineering
Xavier Paliard, PharmD, Ph.D.	VP Immunology and R&D

NON-EMPLOYEE DIRECTORS

Jonathan MacQuitty, Ph.D.	Chairman of the Board
Patrick Balthrop	Director
A. Blaine Bowman	Director
Alan Colowick, M.D.	Director
Kenneth Ludlum	Director
Paul Ricci	Director



Operational Excellence

100,000+ human samples

of anticipated current capacity annually

Significant focus on process development

including with laboratory automation, to drive margin expansion

Differentiated QMS and Regulatory Credentials

CLIA / CAP, NY State¹ & FDA² - all at exome scale

Headquartered

in Menlo Park, CA

Over 145 employees

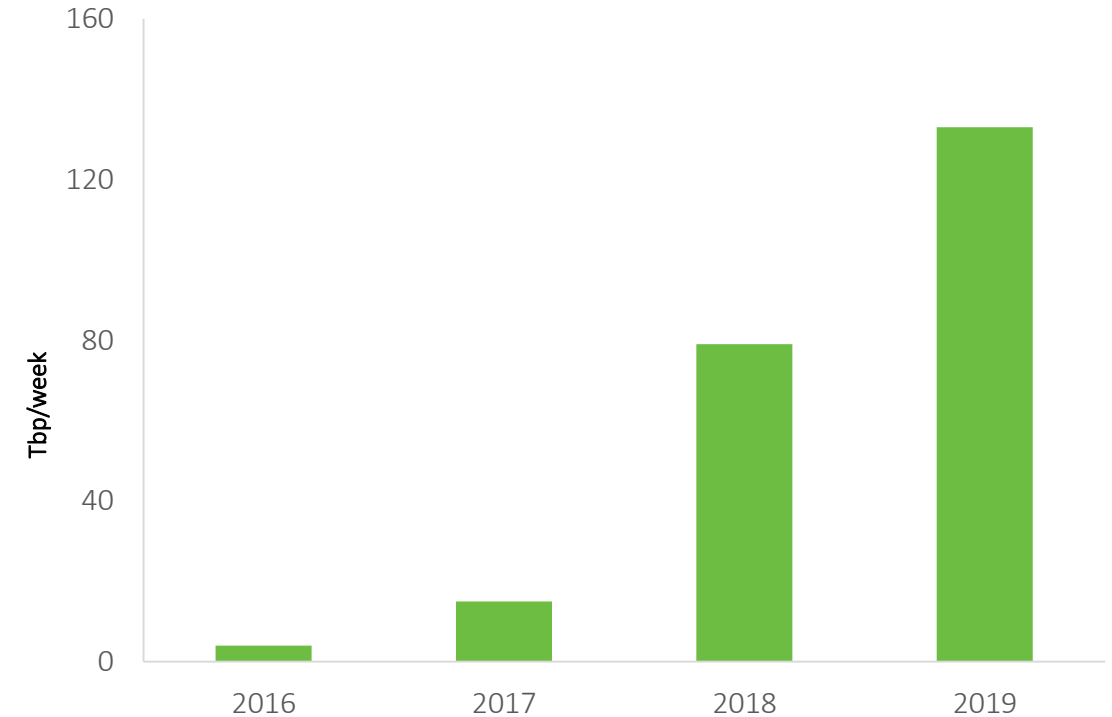
Specialized sales force fosters deep relationships

Intellectual Property Protections

including 10 issued U.S. and foreign patents

Growth of Personalis' Sequencing Capacity

Sequencing capacity at Q1



Key Upcoming Milestones

Planned new product launches

- Expect to generate revenues from ImmunID NeXT in 2019
- Clinical diagnostic based on ImmunID NeXT, for pharma & collaborations
- Exome-scale cell-free DNA liquid biopsy for neoantigens (known *and* new)

Growing proprietary content to drive further product differentiation

- Mass spec data for HLA-peptide binding
- Immuno-genomics database reaches scale to benefit biopharma customers

Customer & collaboration results to increasingly demonstrate clinical utility

- Expect to demonstrate neoantigen and tumor escape dynamics using exome-scale cell free DNA assay
- Potential for use as companion diagnostic to better understand a patient's therapeutic response to checkpoint inhibitors
- Potential for personalized therapy customers to demonstrate efficacy using adoptive cell therapies & cancer vaccines

Cancer Drug Development is Increasingly About Data...

... and Personalis is positioned to be a key part of that ecosystem



“Genomics Engine” for Next-Generation Cancer Therapies

Covers all ~20,000 human genes *and* the immune system from a single tumor tissue sample

Purpose-built for biopharma to help better understand cancer

Complementary liquid biopsy assay with broad 20,000-gene coverage in development



Positioned to Capitalize on Major Trends in Oncology R&D

Molecular data from cancer patients is increasingly used to develop therapeutics

Current molecular profiling panels only cover ~50-500 genes and miss critical tumor and immune biology

Immunotherapies, targeted therapies and personalized cancer medicines require more comprehensive genomic profiling



Potential to Unlock Value in Massive Markets

\$5Bn estimated initial addressable market for biopharmaceutical customer R&D

\$14Bn estimated addressable future market for diagnostic opportunity

\$40Bn estimated addressable future market based on commercialization of personalized therapeutics



Strong Financial Profile and Historical Growth

Strong historical revenue growth
Initial commercial model not subject to any reimbursement from payors

More than 45 biopharmaceutical customers since inception

VA MVP is a significant customer offering scale and stability

Highly targeted enterprise sales model

Endnotes

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1. Number of patients and clinical trials are based on data from the U.S. National Library of Medicine, ClinicalTrials.gov, January 2019; assumes that patients in such clinical trials will receive one tumor biopsy test and three liquid biopsy tests over the course of a clinical trial, and the cost of tumor and liquid biopsy tests will be \$5,000 and \$7,000 on average, respectively

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1. IQVIA MIDAS; IQVIA Institute, Dec 2017
2. Tufts CSDD "Personalized Medicine is Gaining Traction, but Faces Multiple Challenges" (14-May-2015)
3. Biotechnology Innovation Organization (BIO), Biomedtracker, and Amplion "Clinical Development Success Rates 2006-2015" (Jun-2016)

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1. Biotechnology Innovation Organization (BIO), Biomedtracker, and Amplion "Clinical Development Success Rates 2006-2015" (Jun-2016)

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1. Patwardhan et al. Genome Med. 2015

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1. Biopharmaceutical Industry-Sponsored Clinical Trials: Impact on State Economies, 2013

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1. As of December 31, 2018, the remaining performance obligations under contracts for which revenues are expected to be recognized over a period of more than one year is \$73 million. Management expects to recognize such revenues over a three-year period.

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1. Number of patients and clinical trials are based on data from the U.S. National Library of Medicine, ClinicalTrials.gov, January 2019; assumes that patients in such clinical trials will receive one tumor biopsy test and three liquid biopsy tests over the course of a clinical trial, and the cost of tumor and liquid biopsy tests will be \$5,000 and \$7,000 on average, respectively
2. Based on a combination of data derived from the American Cancer Society, Cancer Facts and Figures 2018, 2018, American Cancer Society, Cancer Facts and Figures 2019, 2019, and a review article from the European Journal of Cancer, Cancer incidence and mortality patterns in Europe: Estimates for 40 countries and 25 major cancers in 2018, August 9, 2018. We assume that pre-diagnosis cancer patients will receive one oncology clinical diagnostic test to inform their treatment strategy or to identify clinical trial enrollment opportunities, and the cost per test will be \$3,000 on average, which we believe is in line with current cancer panels.
3. Based on a combination of data derived from Public Health Faculty Publications, SEER Cancer Statistics Review, 1975-2015 (only data relating to cancer cases diagnosed—and the respective stage of disease upon diagnosis—from 2008 to 2014 was used for our purposes), American Cancer Society, Cancer Facts and Figures 2018, 2018, American Cancer Society, Cancer Facts and Figures 2019, 2019, and a review article from the European Journal of Cancer, Cancer incidence and mortality patterns in Europe: Estimates for 40 countries and 25 major cancers in 2018, August 9, 2018. We assume that personalized cancer therapy patients will receive one tumor biopsy test and three liquid biopsy tests over the course of a clinical trial or treatment, with the average cost per test being the same as is outlined above in the United States and \$3,000 and \$4,200 on average per test, respectively, in the European Union.

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1. For prospectively collected FFPE samples with our personalized therapy partners, we achieve a greater than 95% success rate for obtaining high-quality data from tumor samples received from personalized cancer therapy customers due to our optimized nucleic acid extraction protocols

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1. We maintain a current license with the New York State Department of Health for our laboratory
2. We have filed a Device Master File with the FDA