PacBio

Accelerating innovation in genomics

41st Annual J.P. Morgan Healthcare Conference

Christian Henry, President and CEO
January 11, 2023

Forward-looking statements

All statements in this presentation (and any accompanying oral presentation) that are not historical of fact are “forward-looking statements” within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, and the U.S. Private Securities Litigation Reform Act of 1995, including statements relating to preliminary financial results as of and for the quarter and year ended December 31, 2022; future operating results, including revenue, margins, guidance, goals and operating plans; expectations with respect to the commercial success of the Revio and Onso systems; expectations with respect to development and commercialization timeframes; future availability, uses, accuracy, sensitivity, advantages, compatibility, pricing, specifications, quality or performance of, or benefits or expected benefits of using, PacBio products or technologies, including the Revio and Onso systems; throughput, scalability, affordability, coverage, run times, data, density, type and cost per genome, pricing, consumable requirements, number of genomes that can be sequenced per year; the use of NVIDIA GPUs and AI-enabled compute in the Revio system and related improvements in yield and accuracy; schedule flexibility and downtime; expected delivery timeframes; expectations regarding competition in the short-and long-read sequencing technologies markets; market sizes, market growth and market opportunities, as well as our ability to capture market share; expected use applications; expectations with respect to collaborations and partnerships, and other future events. Readers are cautioned not to place undue reliance on these forward-looking statements and any such forward-looking statements are qualified in their entirety by reference to the following cautionary statements. All forward-looking statements speak only as of the date of this presentation and are based on current expectations and involve a number of assumptions, risks and uncertainties that could cause the actual results to differ materially from such forward-looking statements, including, among others, challenges inherent in developing, manufacturing, launching, marketing and selling new products, and achieving anticipated new sales; challenges related to the testing, validation and commercialization of our products, including the fact that Onso is in beta testing and Revio and Onso are not yet commercially available, and remains subject to additional development and validation; potential product performance and quality issues and potential delays in development and delivery timelines; assumptions, risks and uncertainties related to the ability to attract new customers and retain and grow sales from existing customers; rapidly changing technologies and extensive competition in genomic sequencing that could make the products PacBio is developing obsolete or non-competitive; supply chain risks; customers and prospective customers curtailing or suspending activities utilizing our products; the impact of U.S. export restrictions on the shipment of PacBio products to certain countries; third-party claims alleging infringement of patents and proprietary rights or seeking to invalidate PacBio’s patents or proprietary rights; and risks associated with macroeconomic and geopolitical conditions. Readers are strongly encouraged to read the full cautionary statements contained in PacBio’s filings with the Securities and Exchange Commission, including the risks set forth in PacBio’s Forms 8-K, 10-K, and 10-Q. PacBio disclaims any obligation to update or revise any forward-looking statements, except as required by law.

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MISSION

Enabling the promise of genomics to better human health

Key takeaways from today's presentation

We believe our new products will accelerate our growth

Revio, our transformative long-read system, exceeds our order expectations with 76 systems ordered in Q4

Onso, our highly accurate short-read system, is receiving excellent feedback in beta

Customers and ecosystem partners are increasingly working with PacBio across a range of applications to drive adoption

We have a strong balance sheet and intend to become cash flow positive during 2026

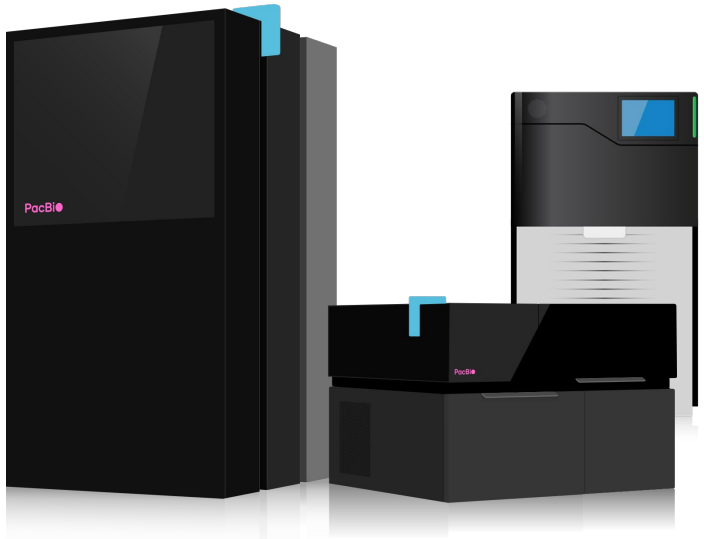
Who is PacBio?

1,000+
Sequencers sold to date
in 40 countries

~9,000
Publications
to date

400+
Exclusive issued US
patents held[1]

~770 employees[1]
~230 commercial
~415 research + ops



Instruments

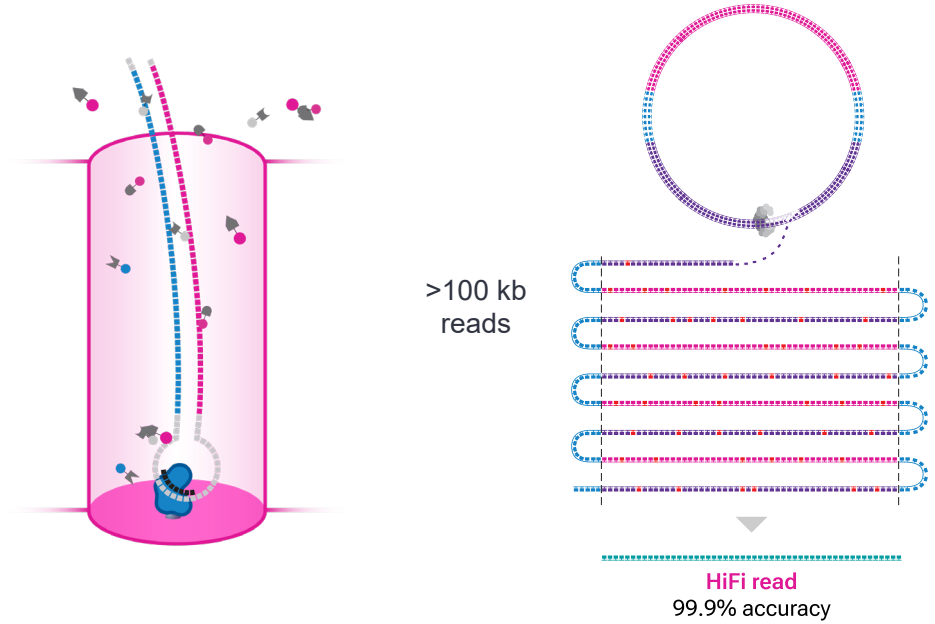
Consumables

Software/informatics

1. As of 12/31/22

Two differentiated technologies to sequence DNA in both long + short reads

Single Molecule, Real-Time (SMRT) sequencing on semiconductor chips with **HiFi** sequencing produces **long, highly accurate** consensus reads



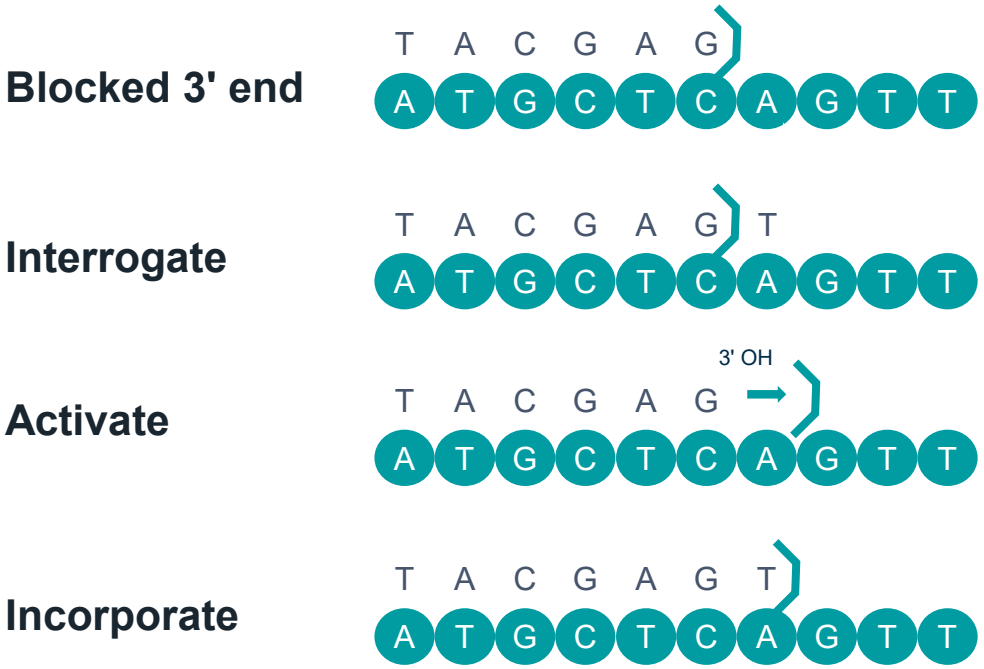
Short-read NGS

150–200 bp

PacBio HiFi reads

15,000–20,000 bp

Sequencing by binding (SBB) separates binding and extension steps of short-read sequencing, allowing further optimization and **raw base accuracy at up to Q40+ levels**



Drawn to scale

Using the best-suited technology in each application = better results

HiFi sequencing
Delivers long reads with the highest accuracy[1]
— even in hard-to-sequence regions

SBB sequencing
Promises significant accuracy improvements over conventional NGS approaches

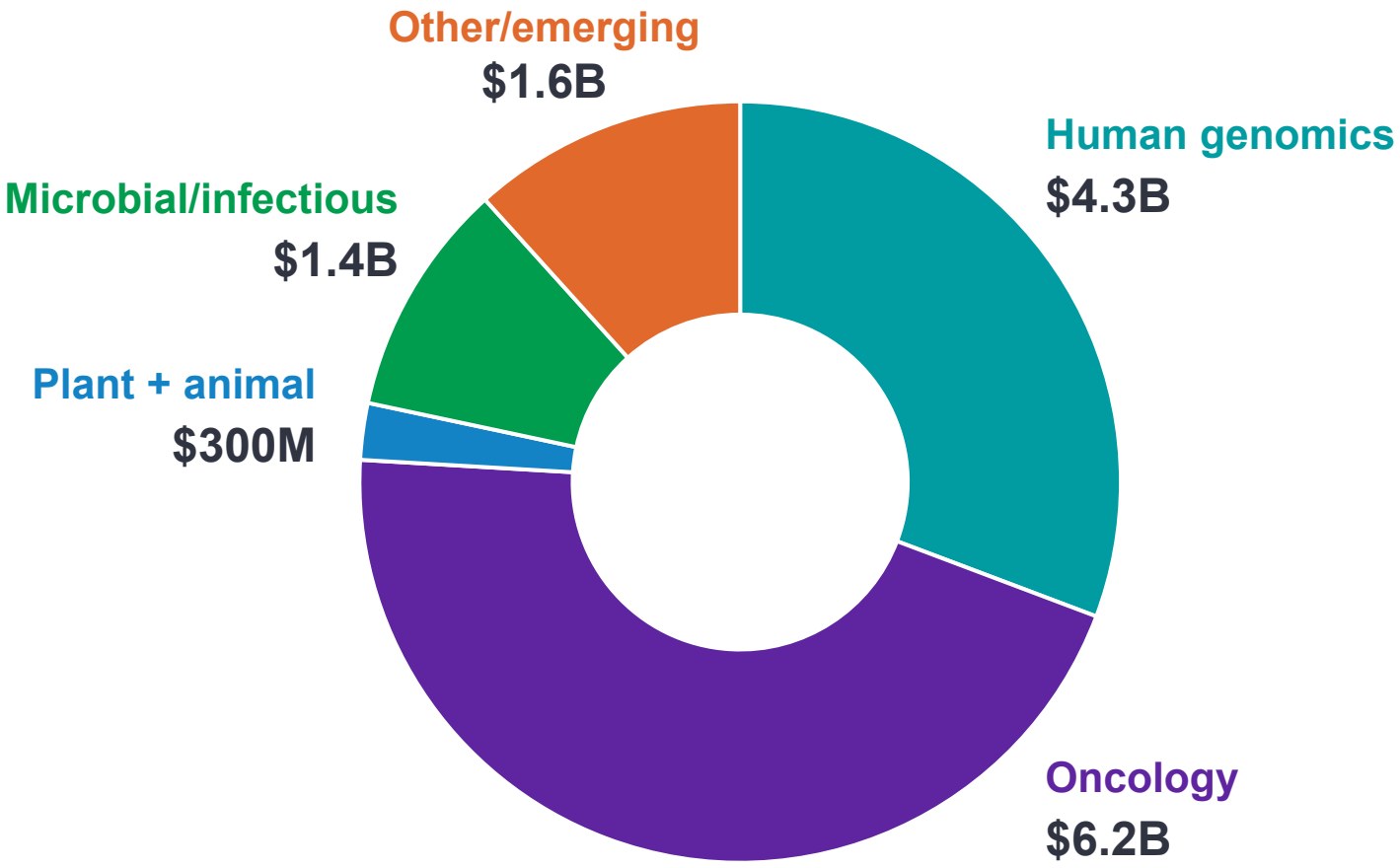
Complex disease research
Plant + animal sciences
Neuroscience
Immunology

Rare + inherited disease
Gene editing confirmation
Infectious disease/microbiology
Targeted clinical panels

Therapy selection
Noninvasive prenatal screening
Early-stage cancer screening
Cancer recurrence monitoring

1. Based on product comparison as published in Nature Biotechnology (https://doi.org/10.1038/s41587-021-01049-5)

We serve a large market, ~$7B today, growing to an estimated $14B by 2026[1]

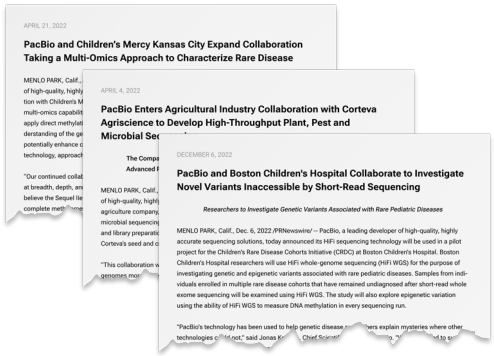


Growth predicted across all segments, with highest growth in human germline + oncology

Increased investment in translational studies, including population-scale programs + expansion of sequencing into routine clinical testing

1. Based in DeciBio NGS manufacturers report 2021, peer company disclosures, and internal estimates

In 2022, we had three strategic priorities



APRIL 21, 2022

PacBio and Children's Mercy Kansas City Expand Collaboration Taking a Multi-Omics Approach to Characterize Rare Disease

APRIL 4, 2022

PacBio Enters Agricultural Industry Collaboration with Corteva Agriscience to Develop High-Throughput Plant, Pest and Microbial Se

DECEMBER 6, 2022

PacBio and Boston Children's Hospital Collaborate to Investigate Novel Variants Inaccessible by Short-Read Sequencing

Researchers to Investigate Genetic Variants Associated with Rare Pediatric Diseases

MENLO PARK, Calif., Dec. 6, 2022 /PRNewswire/ -- PacBio, a leading developer of high-quality, highly accurate sequencing solutions, today announced its HiFi sequencing technology will be used in a pilot project for the Children's Rare Disease Cohorts Initiative (CRDC) at Boston Children's Hospital. Boston Children's Hospital researchers will use HiFi whole-genome sequencing (HiFi WGS) for the purpose of investigating genetic and epigenetic variants associated with rare pediatric diseases. Samples from individuals enrolled in multiple rare disease cohorts that have remained undiagnosed after short-read whole exome sequencing will be examined using HiFi WGS. The study will also explore epigenetic variation using the ability of HiFi WGS to measure DNA methylation in every sequencing run.

Execution matters

Leverage commercial investment to drive continued HiFi and Sequel II/IIe adoption

Delight our customers

Deepen customer collaboration in clinical + a growing list of new applications

Progress product pipeline

Demonstrate SBB as differentiated short-read offering + drive future HiFi system development

2022 preliminary financial performance

~$128M

Preliminary 2022 revenue[1]

~$60M

Record consumable revenue in 2022[1]

512

Installed base Sequel II/IIe[1]

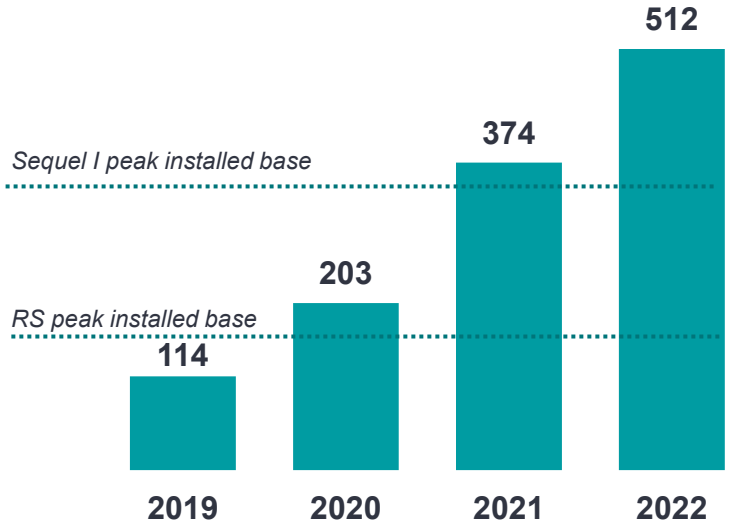
~$772M

Cash, cash equivalents, + investments[1]

1. Unaudited, preliminary estimate as of 12/31/2022 and subject to change

Continued to lay the foundation for HiFi with Sequel IIe expansion

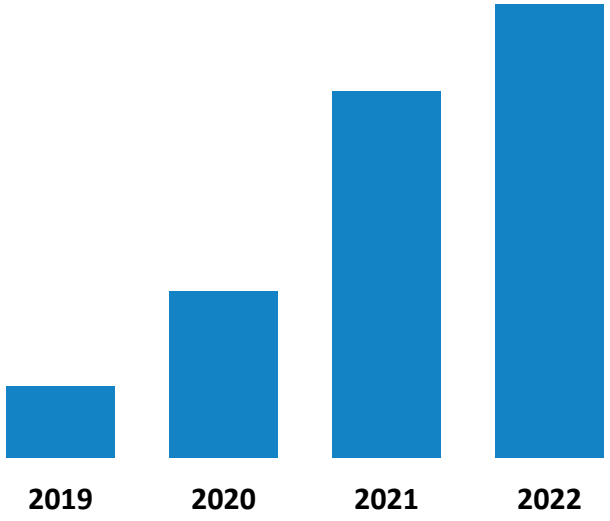
Sequel II/IIe installed base



37%

2022 growth in Sequel II/IIe installed base

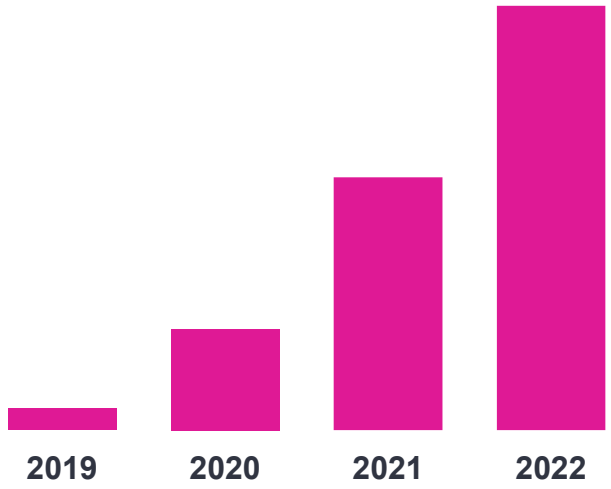
SMRT Cells shipped



24%

2022 growth in Sequel II/IIe SMRT Cells

Est. total petabase/year



68%

2022 growth in data generated from Sequel II/IIe

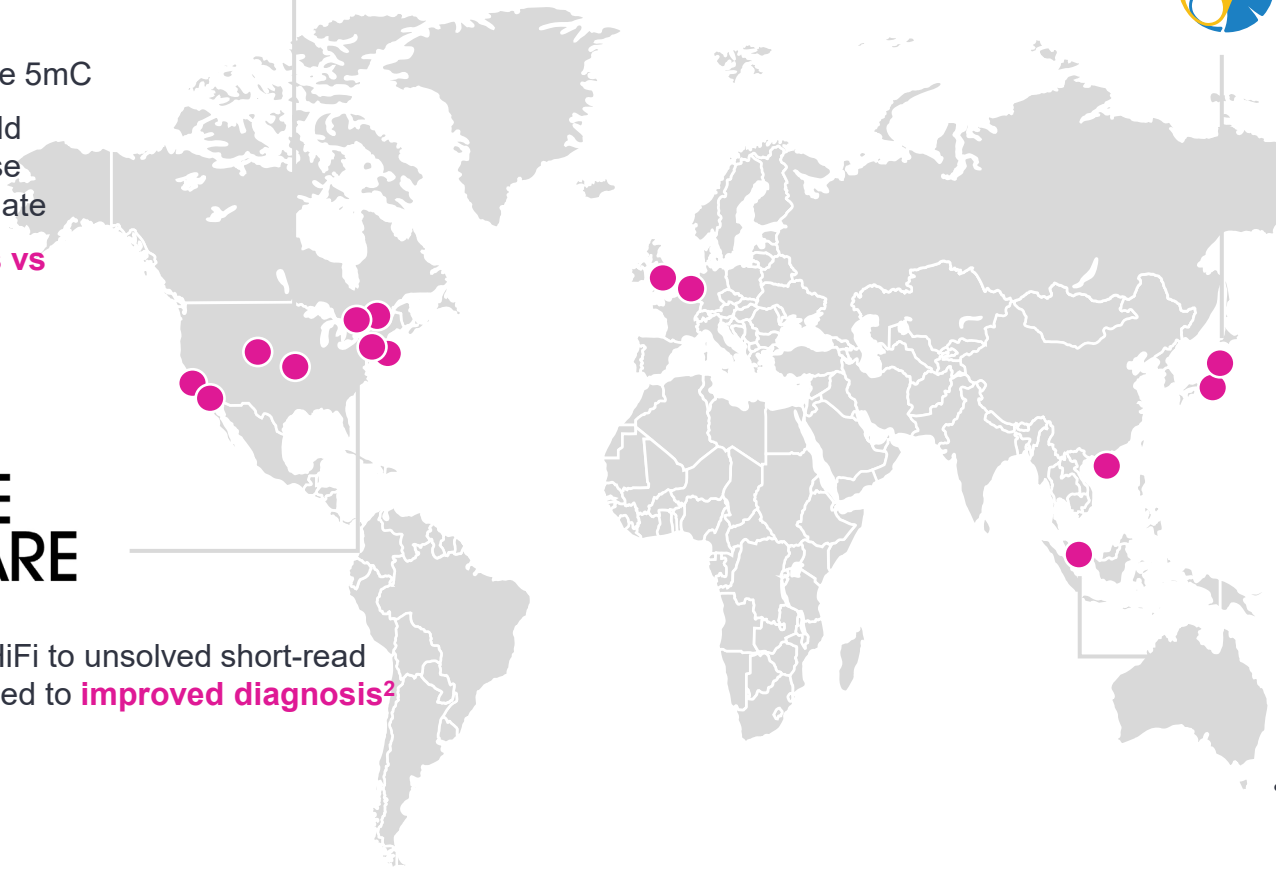
PacBio

Figures as of 12/31/2022

Collaborations showing that HiFi uncovers variants missed by other sequencing technologies

Children's Mercy KANSAS CITY

- Multiomic collab to include 5mC
- Early Revio adopter to add capacity; >1K rare disease genomes sequenced to date
- **>4-fold rare coding SVs vs short-read genomes**[1]



THE UNIVERSITY OF TOKYO

- Aims to develop new methods to identify disease-causing mutations in Japanese population
- Intends to employ PacBio's tandem repeat genotyper (TRGT)

CARE forRARE

- Applying PacBio HiFi to unsolved short-read cases, which has led to **improved diagnosis**[2]

KK Women's and Children's Hospital
SingHealth

- Plans to sequence over 300 rare disease genomes
- **Increased diagnostic yield** by using PacBio HiFi to identify variants missed by short-read sequencing[3]

1. https://doi.org/10.1016/j.gim.2022.02.007
2. https://www.ashg.org/wp-content/uploads/2022/09/ASHG2022-PosterAbstracts.pdf - pg 1450
3. https://www.ashg.org/wp-content/uploads/2022/09/ASHG2022-PosterAbstracts.pdf - pg 1442

2022 was a year of extraordinary innovation across the entire workflow

PacBio

Automation

Sample prep

Library prep

Analysis platform

2° analysis

3° analysis

Expanded applications

- Twist *Targeted Sequencing* panels
- Tandem Repeat Genotyping Tool (TRGT)

Created scale

- Collaboration with Corteva
- High-throughput sample setup

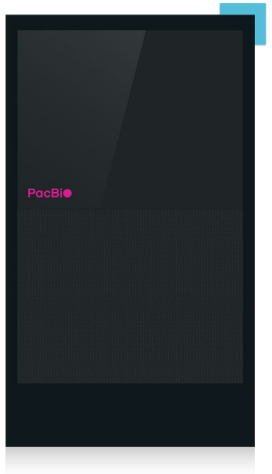
Improved core long-read system

- Lower DNA input, less hands-on time, fewer tubes
- MAS-Seq launch

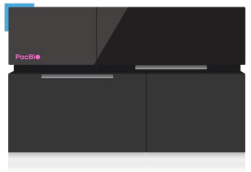
Progressed short-read development

- Conversion kit for existing short-read ecosystem
- Demonstrated robust Q40+ accuracy

Revio



Onso



Introducing the PacBio Compatible program, created to provide customers a curated portfolio across workflow in both long and short reads

PacBio Compatible

Automation

Sample prep

Library prep

Analysis platform

2° analysis

3° analysis

Agilent

10x GENOMICS

QIAGEN

Google Health

HAMILTON

TECAN

TWIST BIOSCIENCE

JUMPCODE GENOMICS

NVIDIA

diagenode

DNAnexus

Sentieon

MIROCULUS

BUGSEQ Bioinformatics

Revio system designed from the ground up to deliver HiFi at scale

Scale

- 25M ZMW SMRT Cell
- 4 independent stages
- 24-hour cycle time

Ease of use

- 50% reduction in consumables
- Load-in-advance capability
- No N_2 requirement

Compute power

- 20× the relative compute power
- GPU-based architecture
- Google DeepConsensus on board

Affordability

- Sub $1,000 human HiFi genome
- <1 minute to load instrument
- >50% decrease in file size

Note: US list price is $995 for sequencing reagents for one Revio SMRT Cell, which has an expected yield of 90 Gb, equivalent to a 30× human genome. Price may vary by region. Based on expected specifications and features as of 1/11/2023.

Revio internal testing demonstrating robust performance

Revio specification	Average performance[1]
360 Gb HiFi yield per run	**370 Gb** HiFi yield per run
90% ≥Q30 Base quality	**93% ≥Q30** Base quality

Variety of samples

	Sample
	HG002
	HG003
	HG004
	CHM13
	NA07537
	Mouse
	Ladybug
	Oak
	Mistletoe
	Maize
	Tomato

1. 29 recent internal runs with human, plant, animal, and plasmid samples

In less than 3 months, Revio is off to best start in PacBio history

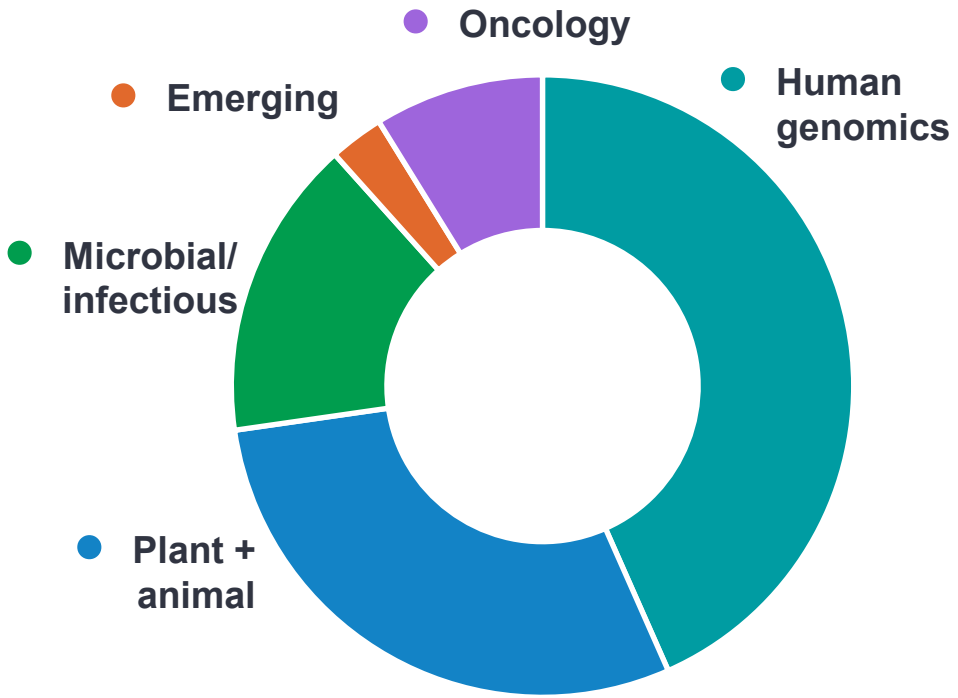
76
systems ordered as of 12/31/22

13
countries, across all regions

43
customers, including new customers

~30%
of sales pipeline = new customers

Orders received across a diverse set of applications



Represents proportion of $ orders received across customer application

Revio is designed to enable larger-scale genome projects and clinical researchers to sequence thousands of HiFi genomes

Multi-unit Revio order to propel genomic medicine discovery in rare disease and cancer in Dubai

Multi-unit Revio order to significantly ramp Darwin *Tree of Life* program and increase long reads in human applications such as single-cell transcriptomics + variant detection

The program has already solved several genetic mysteries using PacBio[1] and with Revio expects to ramp from 100s to 1,000s of genomes

10.1002/path.5755; 10.1016/j.xhgg.2021.100046; 10.1053/j.gastro.2022.08.041

Onso designed to enable extraordinary accuracy for short-read sequencing

≥90% bases Q40+
(>99.99% accuracy)

400–500M reads

200 + 300 cycle kits

Conversion kits for existing short-read ecosystem

Note: Anticipated commercial specs

Onso beta demonstrating ultra-high accuracy in customers' labs

BROAD INSTITUTE

"We believe that more accurate reads will be transformative for many genomic applications, including oncology. We are excited to be evaluating the Onso platform with this in mind."

— Niall Lennon, PhD,
Senior Director of Translational Genomics,
Institute Scientist,
Broad Institute

$259k
List price[1]

~$15
Per Gb
list price[2]

>4×
Sequencing
efficiency[3]

CORTEVA™ agriscience

"We've been extremely impressed by Onso's levels of accuracy. This accuracy can open exciting new opportunities to transform agricultural biotechnology, specifically in areas like gene editing specificity analysis."

— Gina Zastrow-Hayes, Biotechnology and
GT-Genomics Technology Manager,
Corteva Agriscience

1. Includes price of cluster generator; standalone instrument priced at $225K
2. Represents estimated list price of $1,995 for the 2×150 kit and estimated yield
3. Internal calculation sensitivity at 6,000x coverage with non-UMI SBB exceeds >24,000x coverage at 0.05% and 0.1% VAF

PacBio entering next phase in strategic journey

SCALE

2020

Create commercial scale

2021

Demonstrate power of HiFi

2022

Develop multi-product / multiomic portfolio

ACCELERATE

2023

Launch transformative systems

2024

Drive sample elasticity / consumable growth

2025

Push deeper into clinical

Expand partner program

DURABLE GROWTH

2026

Expect to achieve positive cash flows

2027

Our strategic priorities for 2023

Drive rapid adoption of Revio by converting existing Sequel II/IIe customers + attracting new PacBio customers

Demonstrate Onso's extraordinary level of accuracy in the field and show how it can transform research in needle-in-haystack applications

Progress development of ultra-high-throughput + benchtop long-read sequencers + next generation SBB sequencer

Leverage current infrastructure to drive toward positive cash flow

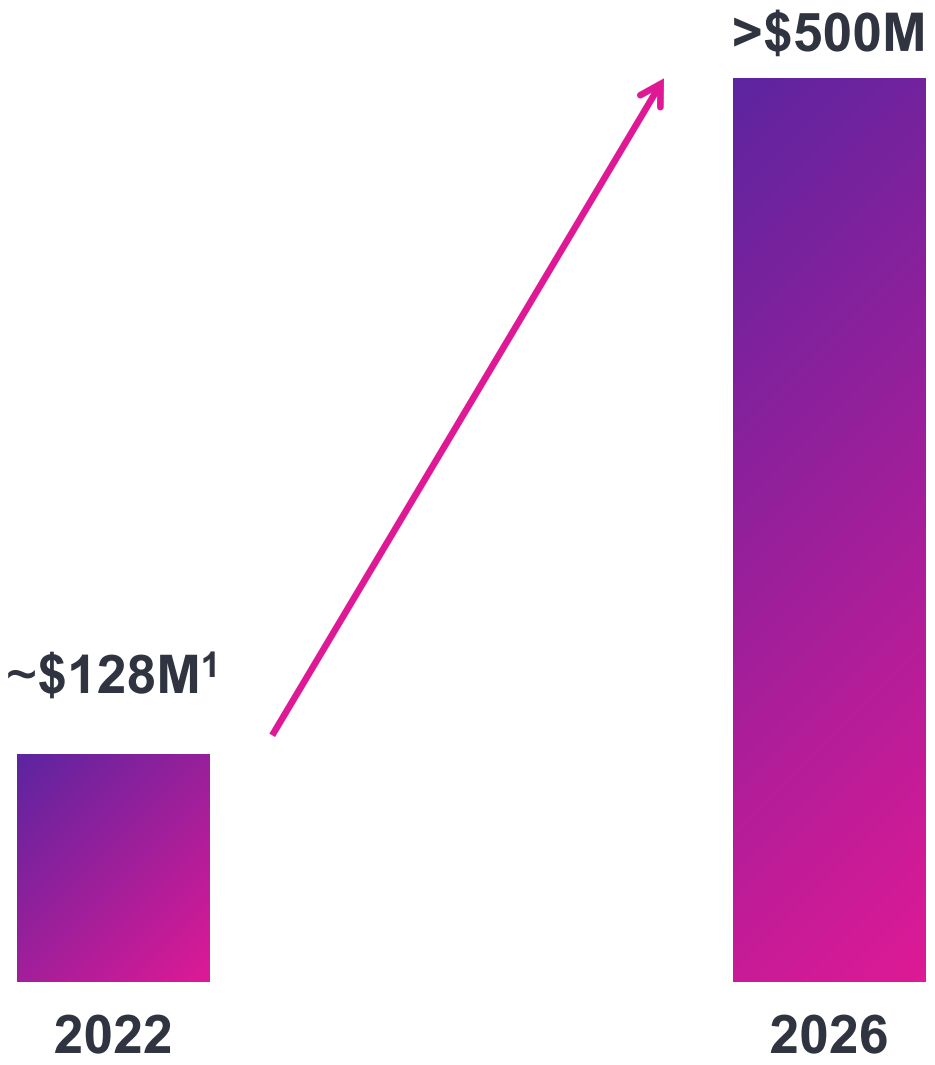
Expand partnerships across ecosystem + workflow to drive customer adoption of SBB + HiFi

2023 is first step on path to achieve >$500M in revenue in 2026

Revio planned to begin shipping in Q1 2023

First Onso shipment anticipated in Q2 2023

Enable new scaled projects as customers transition to Revio



1. Preliminary

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