

Bionano Corporate Overview

MARCH 2024

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Safe harbor statement - This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as “may,” “will,” “expect,” “plan,” “anticipate,” “estimate,” “intend,” “should,” “believe,” “would,” “could,” “potential,” “outlook,” “guidance,” “goal” and similar expressions (as well as other words or expressions referencing future events, conditions or circumstances and the negatives thereof) convey uncertainty of future events or outcomes and are intended to identify these forward-looking statements. Forward-looking statements include statements regarding our intentions, beliefs, projections, outlook, analyses or current expectations concerning, among other things: (i) growth drivers and expected levels of our organic growth, including anticipated growth of installed base; (ii) the impact of our investment in R&D and commercial and educational initiatives, including timely and successful launch of our next-gen OGM system and the timing of our planned product developments and clinical study results and milestones; (iii) anticipated goals and milestones and our 4 Strategic Pillars; (iv) our ability to stay in front of competitors’ improvements in technologies; (v) our estimates of anticipated market opportunity and underlying assumptions; (vi) our quarterly and annual revenue outlook; (vii) the anticipated benefits and ultimate success of our collaborations; and (viii) other statements that are not historical facts.

Each of these forward-looking statements involves risks and uncertainties. Actual results or developments may differ materially from those projected or implied in these forward-looking statements. Factors that may cause such a difference include the risks and uncertainties associated with: (i) the impact of global and macroeconomic events, such as recent and potential future bank failures, and the ongoing Ukraine-Russia and Israel-Hamas conflicts and related sanctions, on our business and the global economy; (ii) challenges inherent in developing, manufacturing and commercializing products; (iii) our ability to further deploy new products and applications and expand the markets for our technology platforms; (iv) third parties’ abilities to manufacture our instruments and consumables; (v) our expectations and beliefs regarding future growth of the business and the markets in which we operate; (vi) the accuracy of our estimates; (vii) our ability to fund our operations and continue as a “going concern”; (ix) the success of products competitive with our own; (x) our ability to integrate our recently acquired business into our strategic plan; (xi) changes in our strategic and commercial plans; and (xii) the application of generally accepted accounting principles which are highly complex and involve many subjective assumptions. We are under no duty to update any of these forward-looking statements after the date of this presentation to conform these statements to actual results or revised expectations, except as required by law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this presentation. Except as required by law, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements contained in this presentation.

More information about these and other statements, risks and uncertainties is contained in our filings with the U.S. Securities and Exchange Commission, including, without limitation, our Annual Report on Form 10-K for the year ended December 31, 2022 and in other filings subsequently made by us with the Securities and Exchange Commission. All forward-looking statements contained in this presentation speak only as of the date on which they were made and are based on management’s assumptions and estimates as of such date. We do not undertake any obligation to publicly update any forward-looking statements, whether as a result of the receipt of new information, the occurrence of future events or otherwise except as required by law.

To supplement our financial results reported in accordance with U.S. generally accepted accounting principles (GAAP), we have provided non-GAAP gross margin and non-GAAP operating expense in this presentation. Non-GAAP operating expense excludes from GAAP reported operating expense the following components as detailed in the reconciliation table accompanying this presentation: impairment charge, stock-based compensation, amortization of intangibles, financing charges and change in fair value of contingent consideration. Non-GAAP gross margin excludes from GAAP reported gross margin stock-based compensation as detailed in the reconciliation table accompanying this presentation.

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Bionano is transforming the way the world sees the genome, starting with cytogenetics

Pioneered a method for structural variant (SV) detection called optical genome mapping (OGM)

- **OGM consolidates 3 legacy methods** into one assay
- **It complements sequencing** as a new tool
- **Consistently finds more actionable variants** in days vs. weeks at a substantially lower cost
- **Bionano provides end-to-end solution** for structural variant detection

Commercial stage, tools & Dx company selling a platform for genome analysis

- **Strategic focus on the adoption and utilization** of OGM
- **Targeting 3 segments of genomics market:** cancer, cell and gene therapy, and constitutional genetic disease
- **Estimated OGM market:** \$10B and 10K labs running ~10M samples/year; 2.4M samples for cell and gene therapy

Executive Team



Erik Holmlin, PhD
President and Chief
Executive Officer
Joined 2011



Gülsen Kama
Chief Financial
Officer
Joined 2023



Mark Oldakowski
Chief Operating
Officer
Joined 2014



Alka Chaubey, PhD
Chief Medical
Officer
Joined 2020

Traditional methods in use today for SV detection are outdated and leave a significant number of questions unanswered

Traditional cytogenetics requires multiple methods that are labor intense, time-consuming, repetitive & costly

Clinical utility of traditional cytogenetic analysis is severely limited



Karyotyping

Up to 4 weeks for results



FISH

(fluorescence *in-situ* hybridization)

4-6 different probes per sample & successive testing



Microarrays

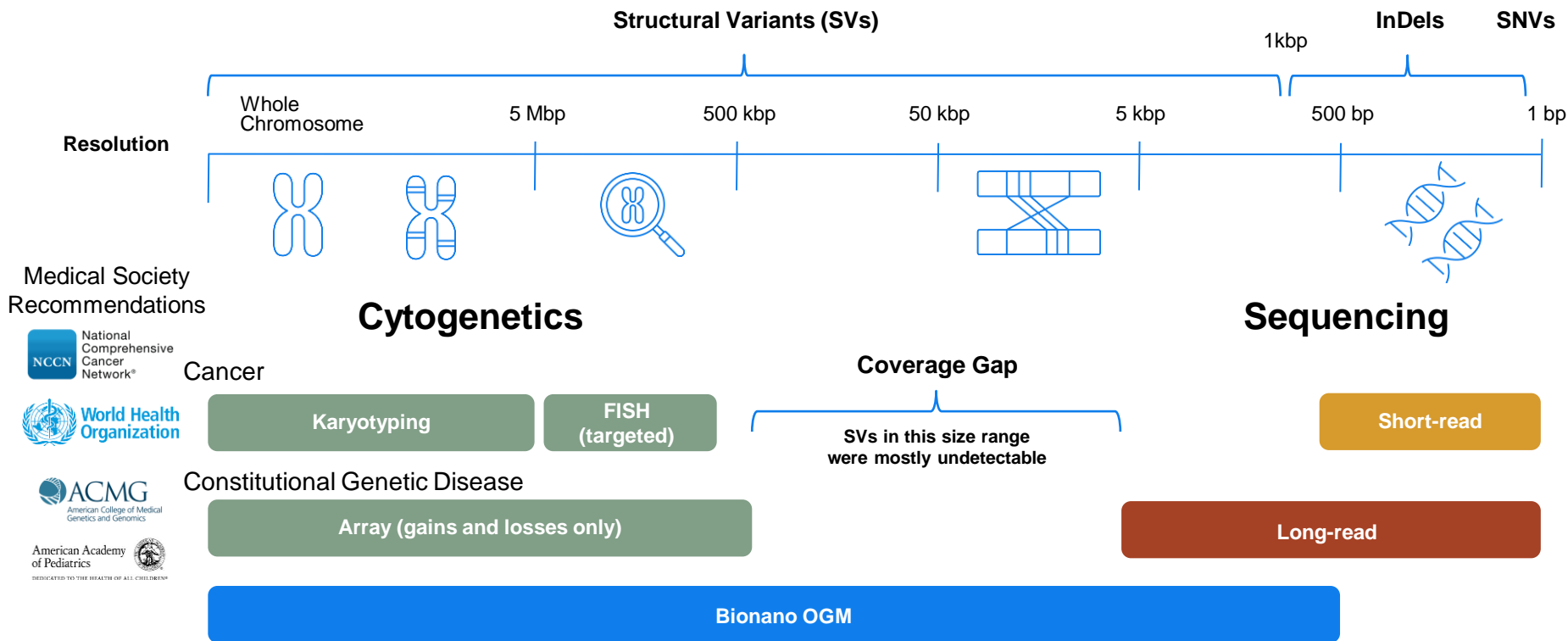
Detect CNVs only

Only 50% of testing is useful for guiding therapy

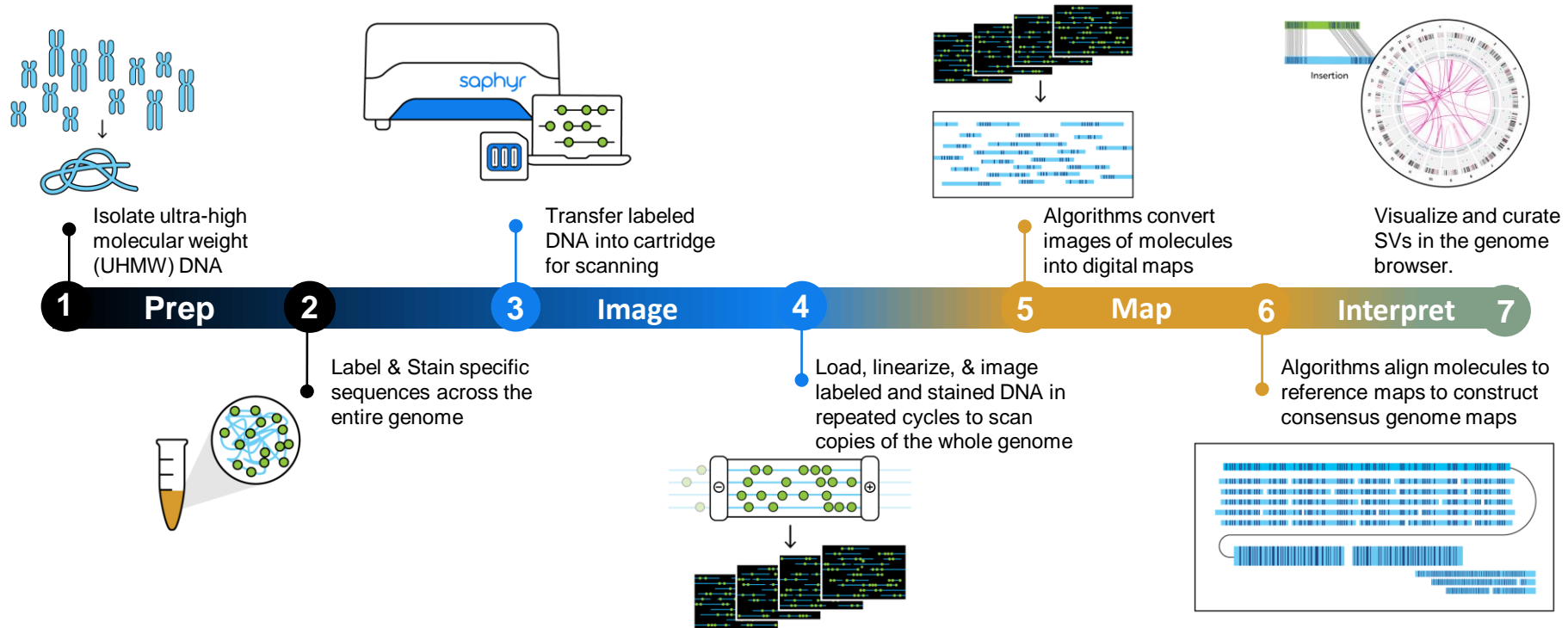
As many as 20% of prognostic scores for Rx selection may be wrong

86% of cell & gene therapy programs are halted, due partly to limitations in genome analysis tools

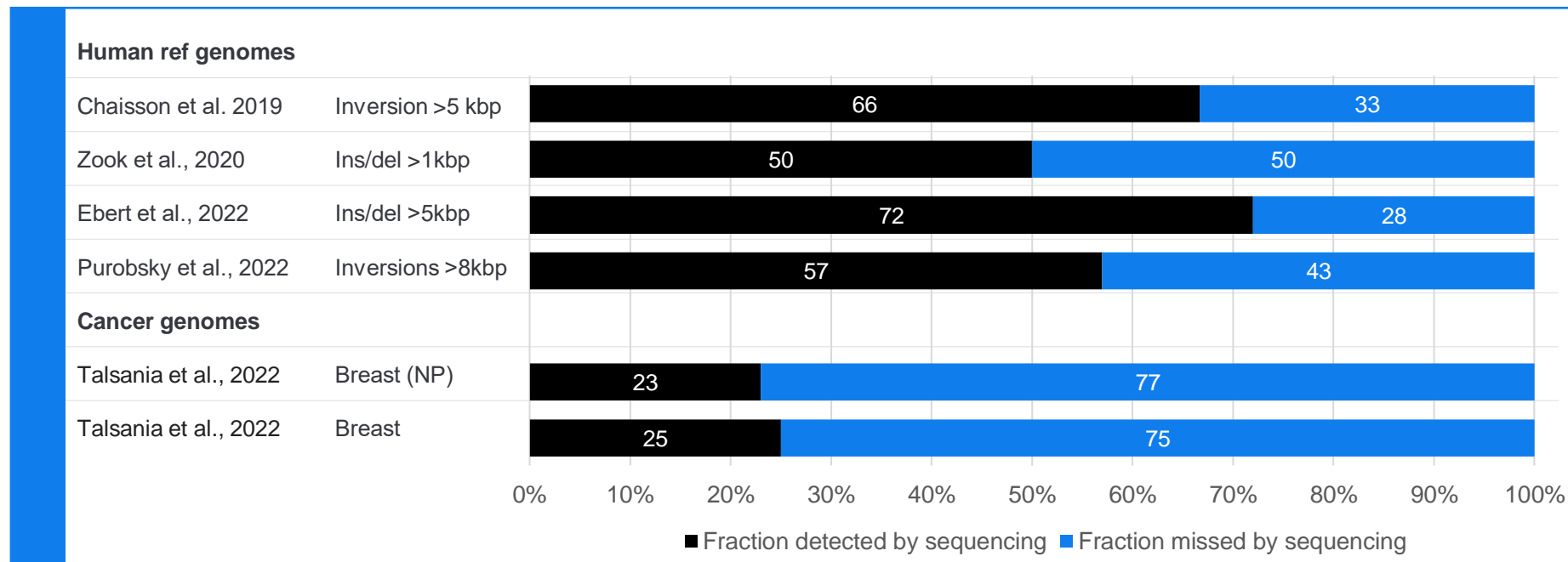
OGM detects all classes of SVs in one assay, replacing classical cytogenetics, and bridges the gap to sequencing



OGM uses single molecule imaging of sequence specific patterns on ultra-high molecular weight DNA to reveal SVs



Published studies consistently show that OGM outperforms long-read sequencing for detection of structural variations



Chaisson, et al. *Nat Commun.* 2019;10(1):1784., Zook, et al. *Nat Biotechnol.* 2020;38(11):1347-1355; Ebert, et al. *Science.* 2021;372(6537). Porubsky, et al. *Cell.* 2022;185(11):1986-2005.e26. Talsania, et al. *Genome Biol.* 2022;23(1):255.

Bionano provides an end-to-end solution for comprehensive structural variant detection with OGM



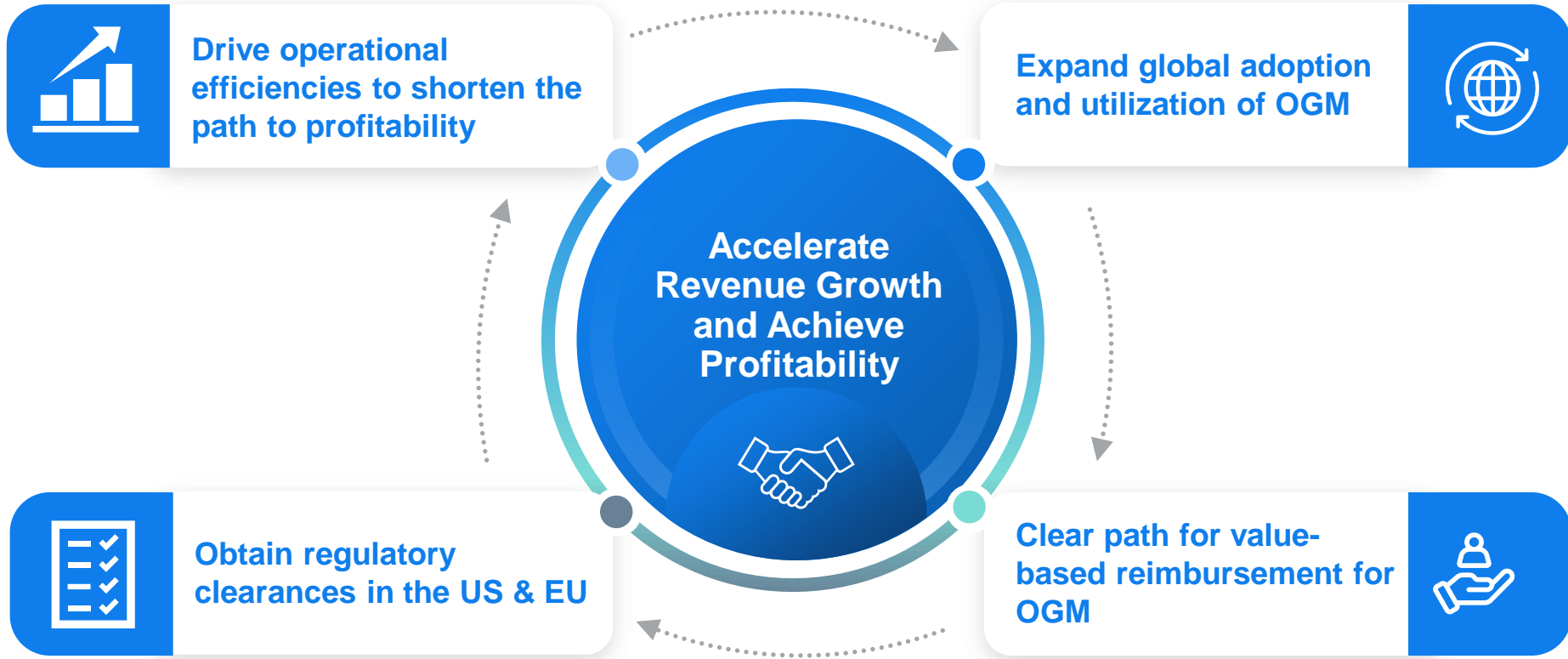
End -to- End Solution

- Sample-to-interpreted report in as few as 3 days for up to 10,000 samples per year per instrument
- VIA™ software integrates OGM data for all classes of SVs together with NGS and array data in a single view
- Computation solutions developed in collaboration with NVIDIA
- Bionano sells and supports all components of the workflow

Strategy update: Our plan to succeed

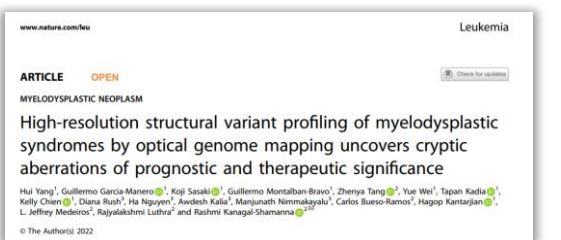
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Our strategy is based on four pillars



Key publications show evidence of OGM as a superior alternative to traditional cytogenetic methods & sequencing (NGS or LRS) for SV detection

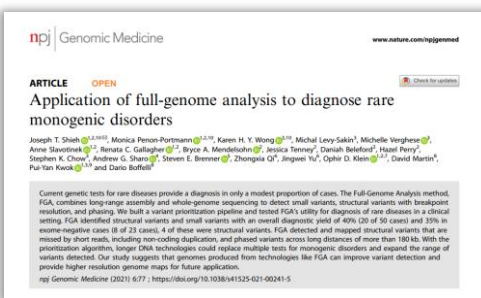
Heme malignancy



- OGM prognostic scores were different for **17 to 21%** of study subjects
- OGM revealed additional pathogenic variants in **13%** of study subjects

<https://www.nature.com/articles/s41375-022-01652-8#Abs1>

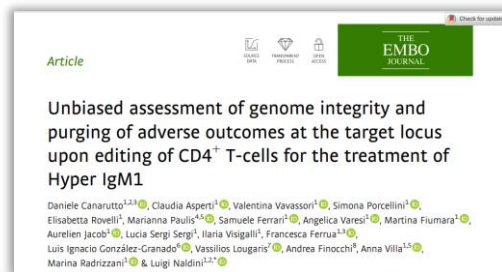
Constitutional



- OGM findings resolved genetic diseases that were previously undiagnosed
- OGM resulted in incremental **increase in diagnostic yield of 12%** in rare disease cohort

<https://www.nature.com/articles/s41525-021-00241-5>

Gene therapy



- OGM detected **11 nonrecurring SVs** outside of the target locus
- OGM analysis showed that **20-50%** of the edited cells expressing the rescued gene did not undergo precise editing

<https://www.embopress.org/doi/epdf/10.15252/emboj.2023114188>

Strategic assemblance of end-to-end OGM workflow



Q1' 2017

Commercial launch of Saphyr® system



Q4' 2021

Acquires BioDiscovery software solution NxClinical™ for genome-wide variant analysis from NGS and microarray data types

Q1' 2024

Full commercial launch of Stratys™ system, which offers high throughput capabilities for new clinical and translational research applications



Q1' 2018

Introduces DLS chemistry, method for improving its single-molecule optical genome maps



Q4' 2022

Acquires Purigen Biosystems - automated nucleic acid extraction and purification solutions using proprietary isotachopheresis (ITP) technology on the Ionic® system; OGM kit anticipated second half 2024

Q2' 2023

Launch of VIA™ software, a new platform for visualization, interpretation and reporting across OGM, microarray and NGS data types. Expansion of capabilities planned for future releases in 2024



Stratys system will unlock OGM at scale



Higher throughput and improved sample flexibility key for new customer adoption in clinical and translational research markets



Consumables revenue expected to increase as Stratys becomes a larger percentage of total installed base



Early access program resulted in 11 Stratys systems acquired by 10 global sites



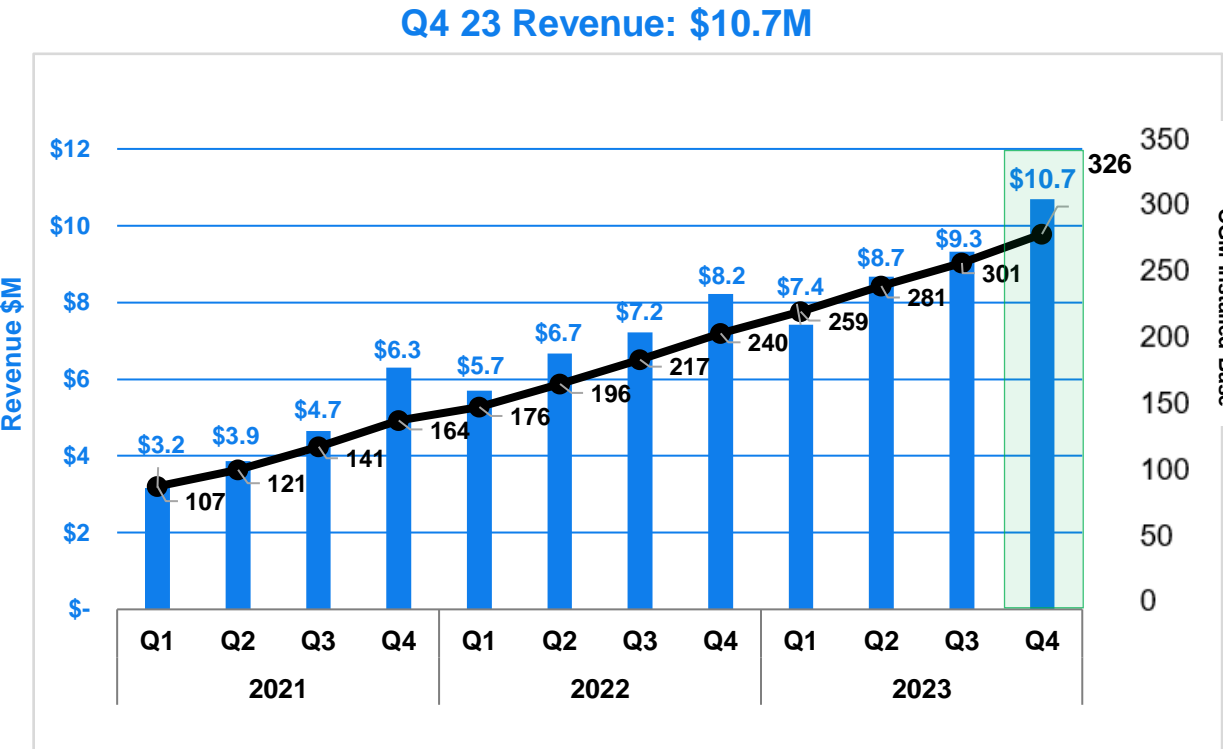
Global commercial rollout launched January 2024



Financial Review

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Record growth across the business brings OGM into the mainstream



- **Q4 revenues: \$10.7M**
(+30% vs Q4'22)
- **FY 23 revenue: \$36.1M**
(+30% vs FY 2022)
- **Q4 flowcells sold: 7,980**
(+67% vs Q4'22)
- **FY 23 flowcells sold: 26,444**
(+72% vs FY 2022)
- **326 OGM systems installed**
+25 systems Q/Q
(+36% vs Q4'22)
- **282 OGM Publications**
(+54% vs FY 2022)

Important steps to ensure we can deliver against our vision

Debt Restructuring (Feb 2024)

- Unlocked \$30M with potential for an additional \$25M as further principal is retired
- Recent debt refinancing agreement took debt from \$52M to \$24.3M

Reductions in Force and Other Cost Savings Initiatives Started May 2023

- ~ 200 total headcount projected once cost savings initiative completed end of Q2 2024
- \$65M to \$75M projected cumulative annual operating expense reduction compared to May 2023

A highly disciplined approach will position company for future streamlined growth

Bionano enters new era, poised to transform the field of cytogenetics

Streamlined Business Focus & Key Inflection Points



1. Advance reimbursement and medical society guidelines for OGM
2. Focus on adoption of Stratys system and VIA software through direct sales
3. Complete end-to-end workflow with ITP for OGM on Ionic system
4. Execute phase 2 of the hematological malignancies clinical trial
5. Phase out non-OGM clinical services products

2024 Guidance Initiated



OGM FY'24 Total Revenue:
\$37-\$41M¹



OGM Installed Base YE'24:
381 – 401 systems



1Q'24 Revenue Guide:
\$8.25 – 8.75 M



Thank you.

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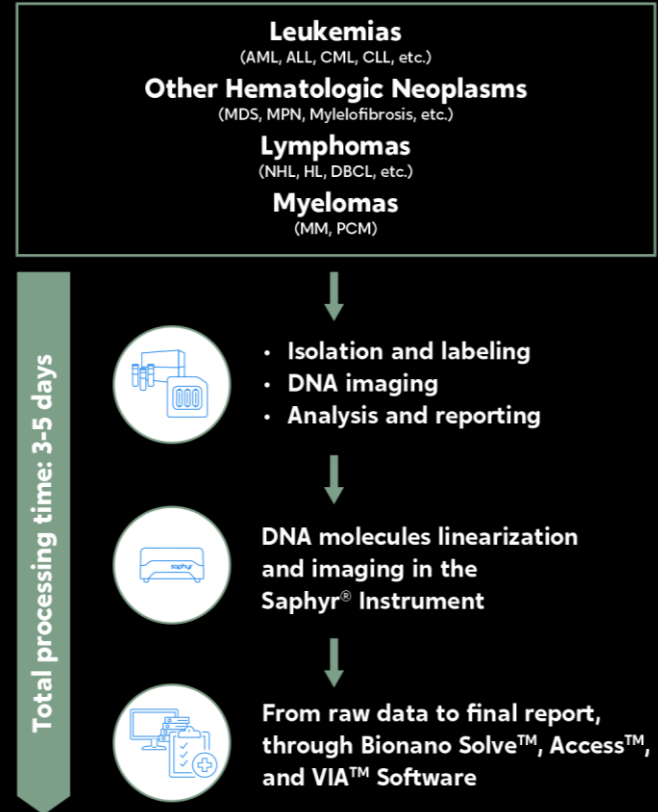
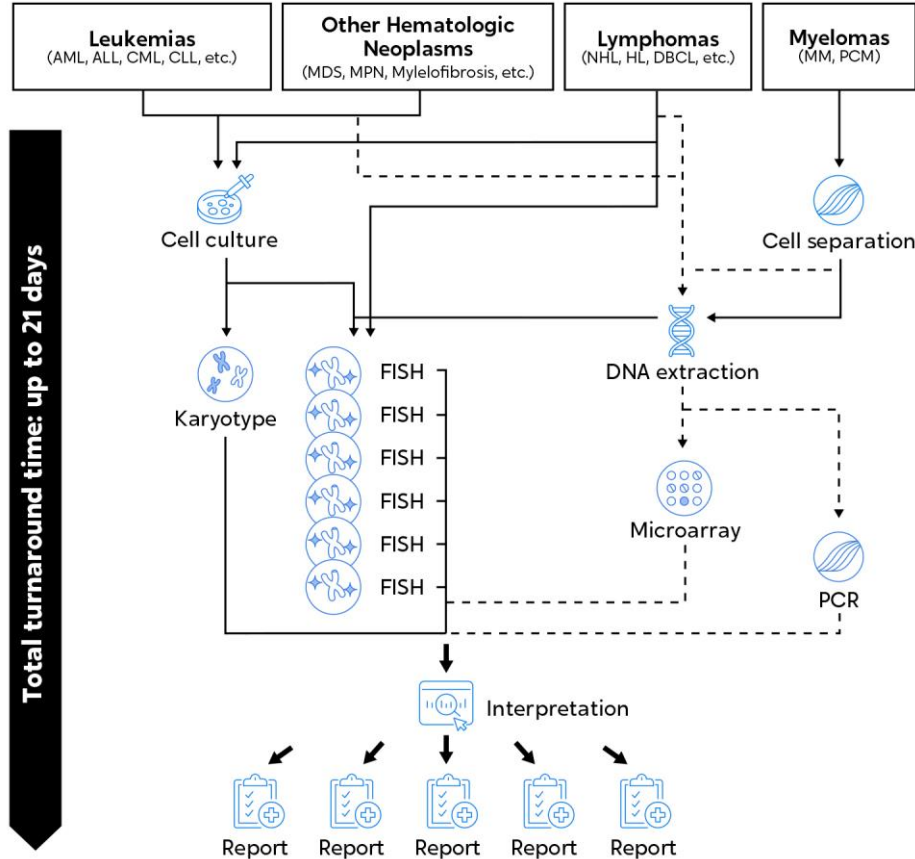
Primary Appendix

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Traditional Cytogenetic Lab Workflow

Vs.

The OGM Workflow



OGM Has a Unique Position in the Genomics Market

NGS Landscape



illumina
Solexa



ULTIMA
GENOMICS
UG 100



Element
Biosciences
AVITI



PacBio
Ono

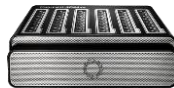


SINGULAR
GENOMICS
G4



illumina
Novaseq

LRS Landscape



Oxford
NANOPORE
Technologies
PromethION 24



Revio

OGM Landscape



Saphyr system



Stratys system

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Clinical Trial Sites and PIs Influence Guidelines and Reimbursement



Brynn Levy, PhD
Columbia

Board ISPD, Co-Editor Prenatal
Diagnosis, CGC Founding Member



Aaron Bossler, MD, PhD
University of Iowa

AMA CPT Editorial Committee
Member



Rashmi Kanagal-Shamanna
MD Anderson

AMP BOD, CGC BOD, NCCN Liaison



Ravindra Kolhe, MD, PhD
Augusta University

US and Canadian CAP, AACR/ASCO
visibility, NCI match PI, TSO500
driver for Illumina



Adrian Dubuc, PhD
Harvard

Former CGC president, and Harvard



Barb Dupont, PhD,
Greenwood Genetic Center

Constitutional (Agilent validation, Affy
validation, Illumina FDA sequencing
validation consortium)



Jim Broach, PhD
Penn State Medical College

Track record of success with
Bionano technology



Gordana Raca, PhD
CHLA

CGC President, NCCN Liaison
ACMG Technical Standards



Saurabh Gupta, PhD
Quest – Med Fusion

Quest, high volume



Anwar Iqbal, PhD
University of Rochester

CGC Founder, NY state



Yasmine Akkari, PhD
Nationwide Childrens

AMCG lab QA, AMP training and
ed chair, CGC President



Ulrich Broeckel, MD
Medical College of Wisconsin

NIH initiatives on clinical
pharmacogenomics



Stephen C. Peiper, MD
Chairman & Senior Vice President of
Enterprise Pathology



Roger Stevenson, MD
Founder of Greenwood
Genetic Center

World renowned geneticist



Aleksandar Rajkovic, PhD, MD
UCSF Chief Genomics Officer

Stuart Lindsay Distinguished Professor in
Experimental Pathology



Teresa Smolarek, PhD
Cincinnati Children's Hospital

Director, Genetics and Genomics
Diagnostic Laboratory



Peter Bui, PhD, FACMG
Quest Diagnostics

National Chief Director,
Cytogenetics



James S Blachly, MD
Comprehensive Cancer Center OSU

National Comprehensive Cancer
Network

Recent Publications from Our Clinical Trials Span our Target Markets

REFERENCE	COHORT SIZE	Genetic Disease			Cancer				
		FSHD	Prenatal	Postnatal	AML/CML/MP N/MDS	ALL/CLL	Lymphoma	MM/PCM	Solid Tumor
University of Iowa Stence, et al., 2021	351	●							
University of Augusta Sahajpal, et al., 2023	114		●						
Ningbo Women & Children Xie, et al., 2024	204		●						
Multisite trial Iqbal, et al., 2023	404			●					
Multisite trial Broeckel, et al., 2024	597			●					
Radboud University Neveling et al., 2021	52				●	●		●	
Multi-site Pang et al. 2022	80				●	●	●	●	
Augusta, Emory Sahajpal et al. 2022	69				●		●	●	
M.D. Anderson Yang et al., 2022	101				●				
Cancer Genomics Consortium Levy et al., 2022	100				●				
Hannover Medical School Lühmann et al., 2023	142					●			
Penn State Med Goldrich et al., 2021	20								●

● Peer-reviewed

Non-GAAP Financial Measures

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