

# **Investor Overview**

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# **Empowering Scientists Through Transformative Products for Proteomics**

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Enabling unbiased, deep and rapid proteomics at scale

Broadly accessible and durably differentiated technology



Large potential market opportunity across proteomics and complementary markets



Management team uniquely positioned to capitalize on proteomics



# Making Strong Progress Across Multiple Fronts

Strong interest from wide range of customer types

Broad geographical representation of interested customers

### **Strong Progress With Our Measured Approach**



MARKET





- Strong flow of pilot studies and presentations
- Product robustness and experience proving out in the hands of customers
- Promising roadmap and potential





- Commercial partner progress joint presentations, customer interest, co-marketing
- High value co-development opportunities underway with each partner
- Positive impact on conversations with new-to-proteomics customers







· High interest from genomic customers, especially commercial entities with translational and clinical focus

- All four Collaboration Phase customers making strong progress
- Early data from customers reinforcing differentiated value of our technology



- Continuing to strengthen team at all levels with exceptional hires
- Build out of commercial capabilities and reach

• More to come in upcoming weeks and months...

# Full Characterization of the Proteome is Essential to Filling in the Missing Pieces of Biology



Source: UniProt, PNAS, PLOS



# Proteomes Are Dynamic and Far More Diverse Than Genomes

Unbiased deep proteomics at scale has the potential to reveal biological insight



Source: Isabell Bludau et al. Proteomic and interactomic insights into the molecular basis of cell functional diversity. Nature Reviews Molecular Cell Biology (2020).



# Targeted Approaches Are Limited for Discovery

Discovery of novel protein variants will be essential to cataloguing variation and understanding the proteome

# Image: Second system Image: Second system

Can design for a specific variant, suited for single-low-plex targeted clinical applications

### Targeted approaches:

- · Do not allow for novel variant and content discovery
- · Are SPECIFIC by definition: they bind to a known protein or protein group
- Detect only a small part of a protein: average epitope is 5-8 aa, average protein is 472 aa
- Do not reach the depth, breadth or complexity needed to connect genotype to phenotype

### POLYCLONAL TARGETED APPROACHES



Cannot design to differentiate specific variants, fundamentally limited in clinical applications



# Existing Unbiased Approaches Do Not Scale

Complex sample-handling and lengthy processes limit sample throughput







 >10x dynamic range in protein expression requires lengthy and complex fractionation and depletion steps



Drives complex and lengthy process with high infrastructure requirement



Combination typically limits scalability of current untargeted, deep methods to only 10s of samples\*

Source: Isabell Bludau et al. Proteomic and interactomic insights into the molecular basis of cell functional diversity. Nature Reviews Molecular Cell Biology (2020). \* Applies to studies in plasma of >600 proteins



# Seer Enables Unbiased, Deep and Rapid Proteomic Analysis At Scale





# Seer's Nanoparticles Improve on Nature's Evolutionary Approach

Machine-learning-based models of NP-protein interaction facilitate design of nanoparticles

# Proteograph leverages the innate biology of proteins

# Physicochemical properties are the basis of nanoparticle-protein interaction

**Proteograph Product Suite** 

Specific Interactions Evolution - millions of years



**Protein Structures and Functions** 

Designed Interactions Developed by machine learning - months

# Almost an infinite possibility of nanoparticle physicochemical properties



### Library of 275+ Nanoparticles

Designed Interactions Deployed on different nanoparticles



# **Proteograph Enables Proteogenomics**

Unmet need to characterize genomic variation and establish functional characterization





# The Path to Whole Proteome Discovery

Deep, plasma proteomics-based discovery requires a scalable, unbiased approach



### **Untargeted Approaches**

Promise to provide UNLIMITED potential to drive discovery of novel content, novel biology and all that targeted gives you - across the continuum from discovery to diagnostics

### **Targeted Approaches**

Are limited to discovery of protein expression differences of known targets across cohorts valuable but LIMITED



# Seer Uniquely Addresses Unmet Need to Harness Power of Proteome

Accessing the depth and breadth of the proteome requires an unbiased, scalable approach





# Putative Protein Isoforms Identified Using Peptide Abundance

16 putative isoforms show known and novel associations with lung carcinoma targets, spanning the dynamic range







# Proteogenomic Studies at Scale with an Unbiased, Deep and Rapid Method

Peptide variant identification using personalized libraries





# Deep, Unbiased, Scalable Proteomics Is Driving Powerful Insights



### Scientific Conferences





>10 presentations and posters at scientific conferences in 2021



## Sharing results and response from customers and partners



# Unbiased Approaches are Needed to Create Substantial Value

Peptide level resolution will enable the acceleration of variant discoveries and their clinical application





# Novel Content and Methods Drive Value Creation

NGS, untargeted scalable genomics, drove genomic discovery and creation of novel content and insights



Sources: Database of Genomic Variants Increase in published structural variation data that have been added to the database since its start in 2004; the numbers reflect the year of publication; National Human Genome Research (NHGRI), Ark Investment Management



# Novel Content and Methods Drive Value Creation

Untargeted scalable genomics drove market value indirect revenue and in the clinical ecosystem





# Seer Is Uniquely Positioned Across the Continuum





# of outcomes gated by pace of discovery



Value creation highly affected by novel discoveries that lead to novel tests or therapeutics



Seer uniquely positioned to accelerate pace of discovery and value creation

4

NP technology can and will play across the entire continuum



# Clinical Value Continues to Be Driven By Untargeted NGS

Clinical applications and clinical genomic value has shifted to untargeted and deeper genomic interrogation

Clinical Genomic Applications		Key Genomic Methods	Addressable Market
Non-Invasive Prenatal Testing	heirmonyprogenityPRENATAL TESTilluminailluminailluminainvitaeinvitae	• NGS	PCR NGS \$2Billion 0 2
Rare & Complex Genetic Disease	INVITAE CENT©GENE THE RARE DISEASE COMPANY	NGS – Whole Exome & Genome	PCR \$86 Billion NGS 0 86
Infectious Disease	COSMOSID       COSMOSID	<ul> <li>PCR</li> <li>NGS - Shotgun Metagenomics, Whole Genome</li> </ul>	PCR \$1.5 Billion NGS 1.30 0.20
Early Cancer Detection	OUCLEIX ກາວມາຍ	<ul> <li>PCR</li> <li>NGS - Whole Exome, Genome, and Methylation</li> </ul>	PCR \$75Billion NGS 2
Cancer Therapy Selection & Monitoring	GUARDANT GUARDANT GUARDANT GUARDANT Adaptive biotechnologies	NGS – Whole Exome & Genome	74

Sources: Addressable Markets are estimated based on public company statements on market size including: Natera, Inc 2021 J.P. Morgan Healthcare Conference Presentation, Bio-Rad 2020 Earnings, Thermo 2020 Earning, Qiagen 2020 Earnings, Invitae JP Morgan 2021 presentation, Illumina Sept 21 Press Release



# Seer Is Uniquely Positioned Across the Continuum



# **Opening a New Frontier**

Expanding proteomics and genomics markets via unbiased, deep, and rapid proteomics at scale



### Unmet need for deep, unbiased proteomics at scale

	Basic research and discovery applications	Translational research applications	Diagnostic applications	Applied applications
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# **Driving Market Development Strategies to Expand Opportunity**

Building an ecosystem around unbiased, deep proteomics



Technologies that enable rapid, deep and unbiased analysis of the proteome, while retaining the ability to detect and quantify modifications like phosphorylation, are essential now and in the future of biology and clinical medicine." — Steve Carr, Senior Director of Proteomics, Broad Institute



# Advances & Limitations of Genomics Has Crystalized the Need for Novel Proteomics Discovery at Scale



### **Unmet Need:**

Unbiased deep proteomics at scale to power discovery of novel insights

Seer is uniquely positioned to address this need across range of customers, applications and geographies



# Early Customer Data Supports Unique Value of Proteograph

Consistently detecting far more proteins per sample across wide range of samples and workflow comparisons





### Academic Medical Center (Translational Cancer Research)

- Novel potential protein variants for prostate cancer found in pilot
- Several large-scale follow on studies planned, including one with 500-1000 samples
- Growing interest in deep, unbiased proteomics at institution

### Research Institute

- Interested in model organisms, human complex disease, mechanisms of regulation and translation
- Promising early data on Arabadopsis pilot
- Early indications of difficult to get small proteins being detected

### Large-scale Service Provider

- Deeper coverage ~4x more proteins compared to their existing deep proteomics method
- Increased number of low abundance proteins reported (including cytokines)
- Proteograph scalability of great value for service business
- Promising early data increasing customer excitement, motivation to get access to product
- Planning on a regular cadence of customers sharing their experience (started with Mark Flory in May)
- Customer success and data will corroborate differentiated value, accelerate adoption and scaling



# Four Dimensions of Improvements

Improvements are multiplicative across the dimensions; the following slides give examples of each





# Four Dimensions of Improvements

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# Seer: A New Gateway to the Proteome

Making strong progress since the IPO





### **Strong commercial progress**

- Shipped to a second Phase 1 site
- Added third Phase 1 site



### **Positioned for market expansion**

• Partnered with Thermo Fisher and Bruker



### **Extended technology & team**

- Strengthened the management team
- Further evidenced key applications

