# Agilent Media Briefing

AACR 2025 | April 27



Every Day Counts in the Race Against Cancer



### Safe Harbor

This presentation contains forward-looking statements (including, without limitation, information and future guidance on the company's goals, priorities, growth opportunities, customer service and innovation plans, new product introductions, financial condition and considerations, and the continued strengths and expected growth of the markets the company sells into, operations) that involve risks and uncertainties that could cause results of Agilent to differ materially from management's current expectations. The words "anticipate," "plan," "estimate," "expect," "intend," "will," "should" "forecast" "project" and similar expressions, as they relate to the company, are intended to identify forward-looking statements.

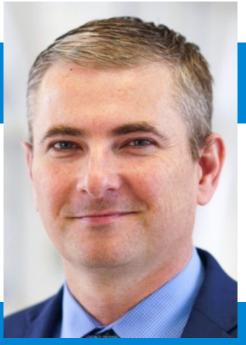
In addition, other risks that the company faces in running its operations include the ability to execute successfully through business cycles; the ability to successfully adapt its cost structures to continuing changes in business conditions; ongoing competitive, pricing and gross margin pressures; the risk that our strategic and costcutting initiatives will impair our ability to develop products and remain competitive and to operate effectively; the impact of geopolitical uncertainties on our markets and our ability to conduct business; the impact of currency exchange rates on our financial results; the ability to improve asset performance to adapt to changes in demand; the ability to successfully introduce new products at the right time, price and mix, and other risks detailed in the company's filings with the Securities and Exchange Commission, including our annual report on Form 10-K for the year ended October 31, 2024.

The company assumes no obligation to update the information in these presentations. This presentation include non-GAAP measures. Non-GAAP measures exclude primarily the impacts of asset impairments, amortization of intangibles, transformational initiatives, acquisition and integration costs, change in fair value of contingent consideration, loss on extinguishment of debt, business exit and divestiture costs, pension settlement loss and net gain on equity securities. We also exclude any tax benefits that are not directly related to ongoing operations, and which are either isolated or are not expected to occur again with any regularity or predictability. With respect to the company's guidance, most of these excluded amounts pertain to events that have not yet occurred and are not currently possible to estimate with a reasonable degree of accuracy. Accordingly, no reconciliation to GAAP amounts has been provided.

# Today's Presenters



Rita Shaknovich, MD, PhD Chief Medical Officer, **Agilent Technologies** 



Sean Glenn, PhD Vice Chair Molecular Pathology **Roswell Park Comprehensive Cancer Center** 



**Robert Neely, PhD** Co-founder, Director and Chief Scientific Officer **Tagomics** 



Mark Garner, PhD Director, Translational Research Segment, **Agilent Technologies** 

# Rita Shaknovich, MD, PhD

**Chief Medical Officer** 







## **Agilent Vision**

### **Transforming healthcare through innovation**

### Imagine a world where diseases like cancer are a thing of the past.

- Time counts ... so we're working tirelessly to help make that vision a reality.
- Biotechnology is not just about science; it's about changing lives. It's about making healthcare more personalized, efficient, and effective, and ultimately improving patient care and outcomes.
- Today, we'll share some of the latest advances that are contributing to this incredible future, one innovation at a time.



### **About Me**

### A physician scientist living in New York, NY

#### **Education and Home**

I received my medical training at the Mount Sinai School of Medicine in New York. I also completed my anatomic pathology residency and surgical pathology fellowship at Columbia Presbyterian Hospital in New York, and fellowship in Hematopathology at Weill Cornell Medicine. I live in New York City.



#### **Professional Expertise and Experience**

I have more than 20 years of experience in translational medicine and molecular diagnostics. The first part of my career was in academia as a diagnostic pathologist and head of a basic science laboratory at Weill Cornell Medicine, where I focused on the epigenetic mechanisms of carcinogenesis. For the last 10 years, I have been in the biotechnology industry, developing diagnostic tools for clinical use and supporting clinical trials.

#### **Achievements**

In my previous roles, I was extremely fortunate to be at the forefront of epigenetic research, making fundamental scientific observations regarding clonal evolution in cancer and supporting early companion diagnostic trials for immuno-oncology drugs. I also contributed to the development of the Galleri™ Multi-Cancer Early Detection liquid biopsy test. Additionally, I have published over 50 scientific articles in renowned journals and book chapters.



# **My Vision**

### **Achieving great things together**

My vision for Agilent is to continue **pushing the boundaries of what's possible in biotechnology**by developing new tools to support research and clinical diagnostics.

Additionally, we aim to enable new treatments that can **revolutionize healthcare** through companion diagnostic tools.

I believe that **collaboration is the key** to achieving our goals, so I look forward to working closely with Agilent's talented team, fantastic partners, and the broader scientific community.



# Why Agilent

### Pushing the boundaries of what's possible

I went through the long medical training, to achieve my MD PhD. Early on I cared for patients, some old, some young, and some who unfortunately succumbed to cancer. Their stories deeply touched me.

The resilience and courage they displayed in the face of adversity stayed with me, shaping my perspective and driving my passion. From that moment on, I dedicated my research work to cancer biology, determined to make a difference.

I was drawn to Agilent because its mission to transform healthcare through innovation aligns perfectly with my own professional goals and personal values.

Agilent is at the forefront of biotechnology and companion diagnostics development and that's is incredibly exciting. I'm eager to contribute to the groundbreaking projects that are underway. ""



# Sean Glenn, PhD

Vice Chair Molecular Pathology







### Roswell Park and the Evolution of Clinical Genomics

# Foundation & Expertise

Initiatives Central to Helping Our Community Fight Cancer



ROSWELL Advanced Molecular Diagnostics Initiative

MRD and Early
Detection of
Cancer



**OmniSeq Precision Medicine** 



The Center of Personalized Medicine



**Establishment of Genomics Facility** 



Contribution to the First Genome

2012

1999- Today

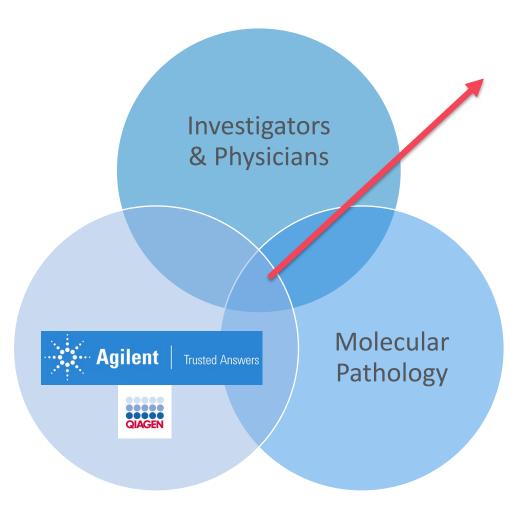
1990s-2003







## The Innovation Intersection – Essential for Success in Diagnostics



### **Innovation Intersection**

- Integration of:
  - Medical and Scientific Need
  - Clinical Expertise
  - Leading-Edge Technology

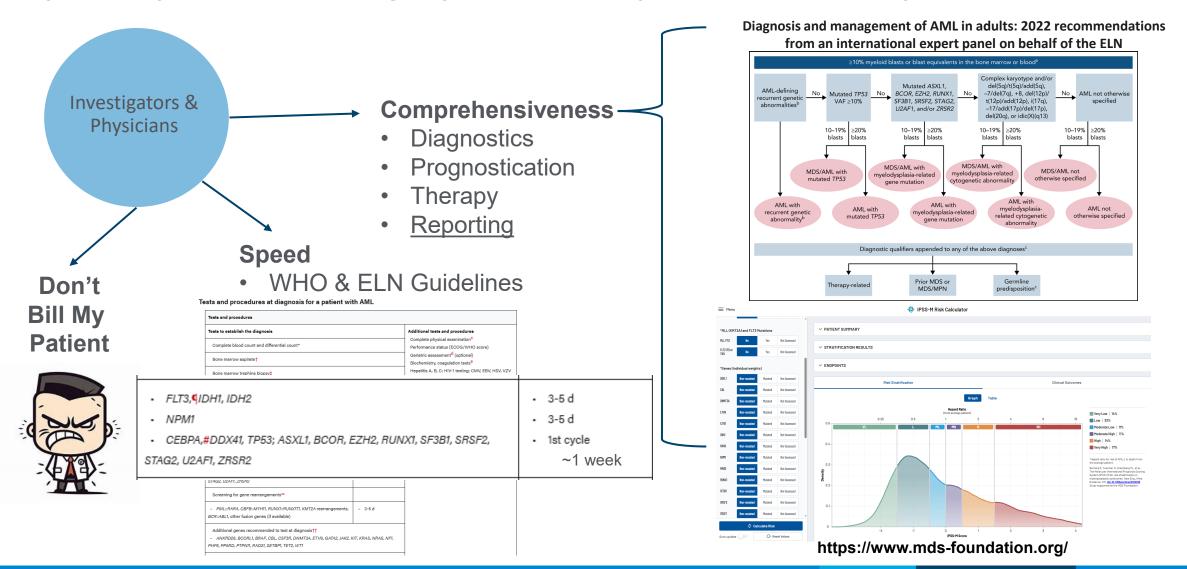


### **Through Collaboration**

- Leads to:
  - Clinical Trial Initiatives
  - Evolution & Dissemination of Testing
  - Enhanced Patient Care

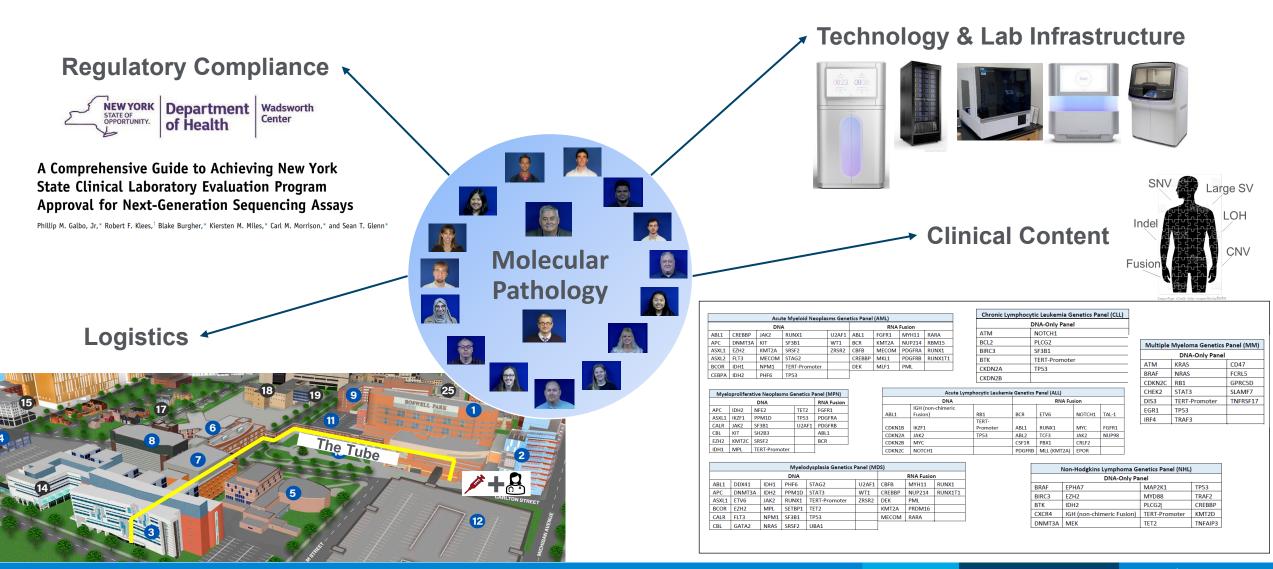
# The First Step in Any Collaboration: Identify the Problem

"If you find yourself in a fair fight, you didn't plan your mission properly."- Gen. David Hackworth



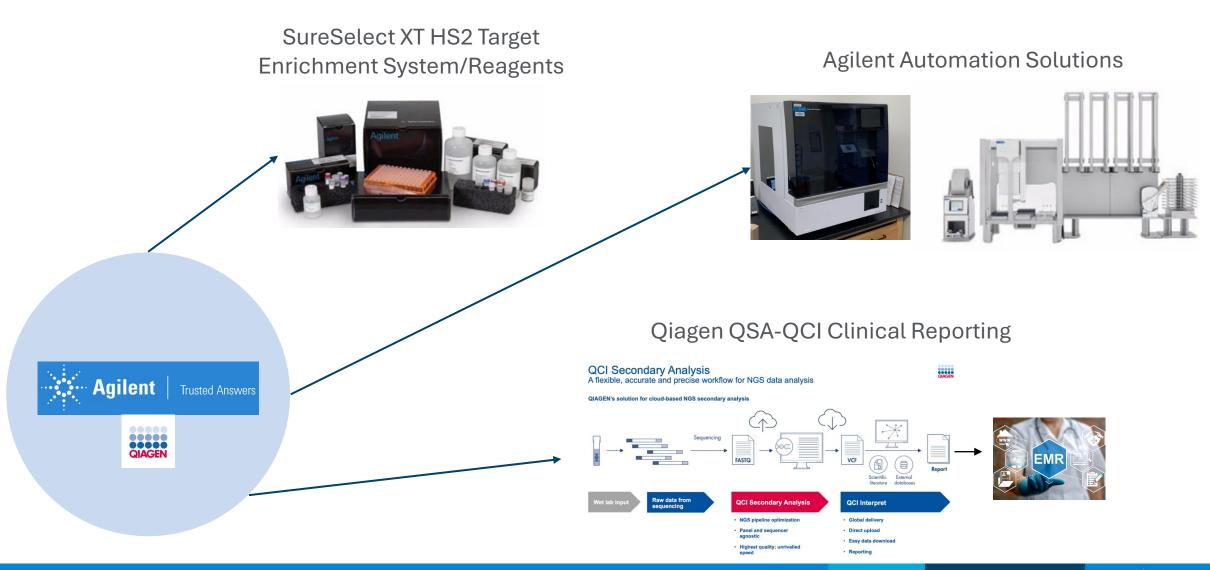
# Molecular Pathology: How Can We Help The Front Line

"When leading the charge, I would rather be followed by a handful of lions over an army of sheep"



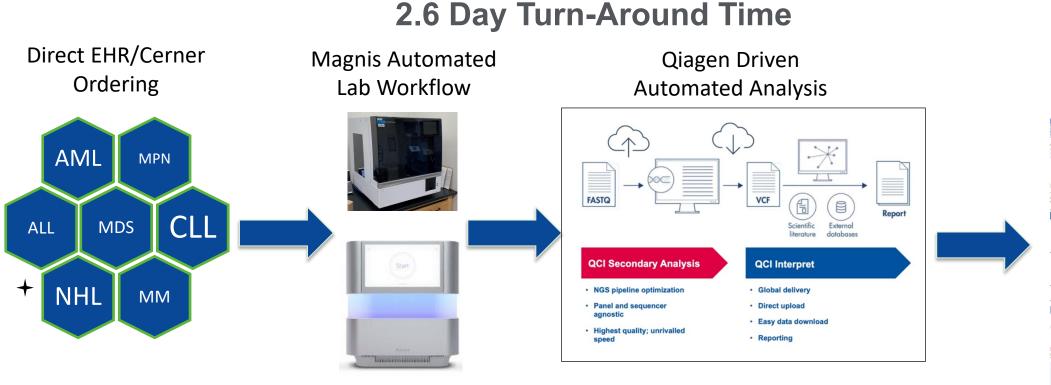
# Strategic Partner with Shared Core Values to Close the Loop

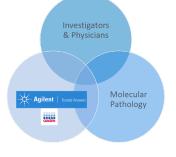
Teamwork makes the dream work - John C. Maxwell



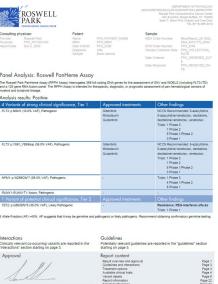
### Successful Collaboration to Create the SureSelect Cancer Pan Heme Assay

Democratized access to comprehensive genomic profiling of hematologic malignancies





# Direct EHR Reporting



First Agilent on site visit: 08/22 — Weekly Strategy and Development Meetings — Full Solution Available 2025



## **SureSelect Cancer Pan Heme Assay – Best on Market!**

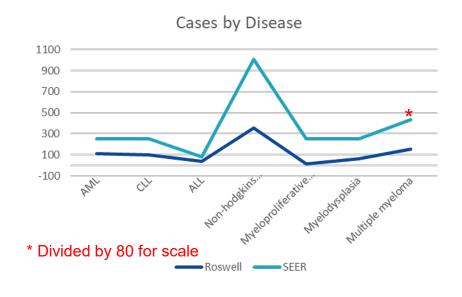
### **Comprehensive Rapid NGS Testing Solution for Heme Malignancies**

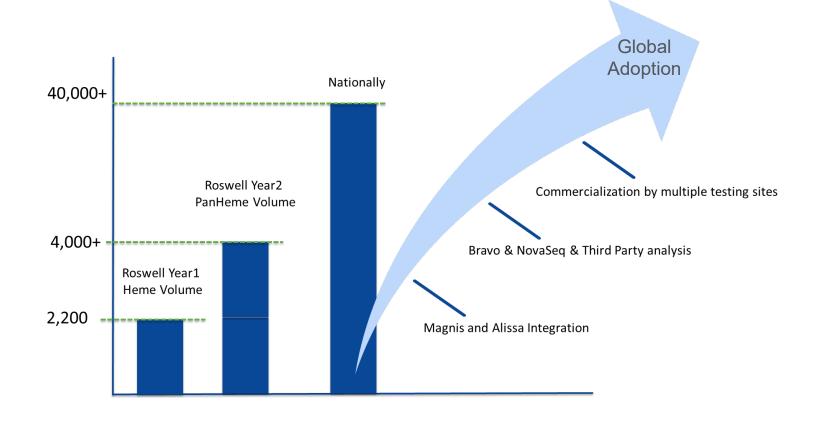
		Test 1	Test 2	Test 3	PanHeme	
	Turn-Around Time	48hrs	5 day	~2 weeks	~60hrs	0
Existing Market -	SNVs	<u> </u>	<b>/</b>	<b>✓</b>	<b>✓</b>	
	Indels	<b>~</b>	<b>/</b>	<b>/</b>	<b>/</b>	
	ASXL1 homopolymer	×	<b>/</b>	<b>/</b>	<b>/</b>	
	CALR	×	×	<b>/</b>	<b>/</b>	
	FLT3 ITD (including >150bp)	×	✓ X	<b>/</b>	<b>/</b>	
	Chimeric Fusions	✓ X	<b>/</b>	<b>/</b>	<b>/</b>	
Emerging Market-	Non-Chimeric IGH Fusions	×	×	✓ X	<b>/</b>	
	Risk Stratification (large SV)	×	×	✓ X	<b>/</b>	
	Inherited Indications	×	×	×	<b>/</b>	
	Comprehensive Molecular Profile	X	X	X	<b>/</b>	

Speed and Comprehensiveness are Essential

### From Roswell to the Masses

### **Providing This Rapid Comprehensive Solution Globally**







### The A-Team: The Three Amigos

### Roswell-Agilent-Qiagen



#### **Team Leaders:**





Carl Morrison, MD, DVM

Phillip Galbo, PhD

Prashant Singh, PhD

#### **Advanced Molecular Lab:**

Blake Burgher

Kiersten Marie Miles, PhD

Lily Granville

LeeAnn Tindell

Lujain Ar-rawi

**Ashley Mingo** 

Sirinapa Szewczyk

Melissa Mallon

Vincent Giamo

Jesse Luce

Christian Borrelli

Bailey Stark, MPA

#### IT & Informatics:

Chris MacDonald

Abhi Pughazhendhi

Ben Plessinger

Joe Lee



Ronda Allen

Heidi Kijenski

Kelle Hammock

Edward Jan

Mike Ruvolo

**Gregory Miles** 

Marco Chiapello

Eric Lin

Linus Forsmark

Katherine Wilkins

Mustafa Shafiq

**Doug Roberts** 

Supriya Swarnkar

Phil Klimball

Kevin Meldrum

Sam Raha



**Brendan Burns** 

Chelsea Alexander

**Bryony Brown** 

Neha Jalan

Kim Madsen

Nelson Vila

Vignesh Brahmadesham





# Robert Neely PhD

Co-founder, Director and **Chief Scientific Officer** 







## **Introducing Tagomics**

Tagomics is a pioneering biomarker discovery and diagnostics company based in Cambridge, UK. Founded in 2021 as a spin-out from The University of Birmingham.

Tagomics has developed a **novel multiomics platform** called Interlace<sup>TM</sup>. This platform offers a seamless solution for multiomic profiling, which integrates:

**Epigenomics** – studying chemical 'switches' on the genome **Genomics** – detecting mutations and other structural variants **Fragmentomics** – the analysis of DNA fragmentation patterns in the blood.

Interlace is designed to unlock disease-associated DNA biomarkers, providing unparalleled biological insights for biomarker discovery, diagnostic development, and precision medicine applications.



Tagomics is part of Agilent's Early-Stage Partnership program, which supports innovative startups with investment and consultation

### Tagomics' ambition is to make multiomics simple



#### Patient blood contains multiple biomarkers of disease

Genetics, DNA methylation, unique DNA fragmentation patterns, RNA levels, protein and metabolomic markers

Current lab processes are ill-suited for multiomic analysis

Each biomarker requires a distinct process, analysis

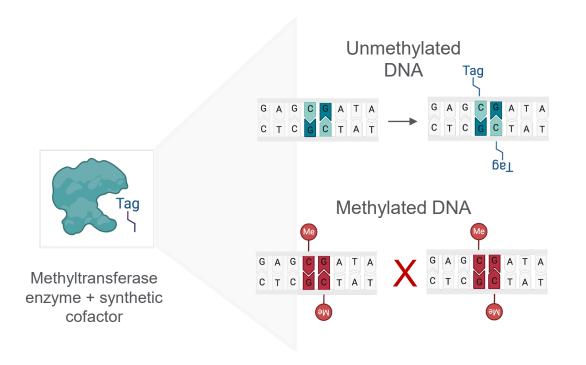


Our aim:

- Single sample input
- Non-damaging process
- Derive as much data- for the benefit of the patient- as possible

## Tagomics' Novel Approach To Epigenetic Profiling: Activace

Tagomics' unique enzyme and helper molecule target specific DNA regions without causing damage, making the process efficient and precise and preserving the biosample



World's first platform for targeted, highly-specific enrichment of unmethylated DNA



Enzymatic chemistry, leveraging nature's solution to targeted DNA modification:

Non-damaging

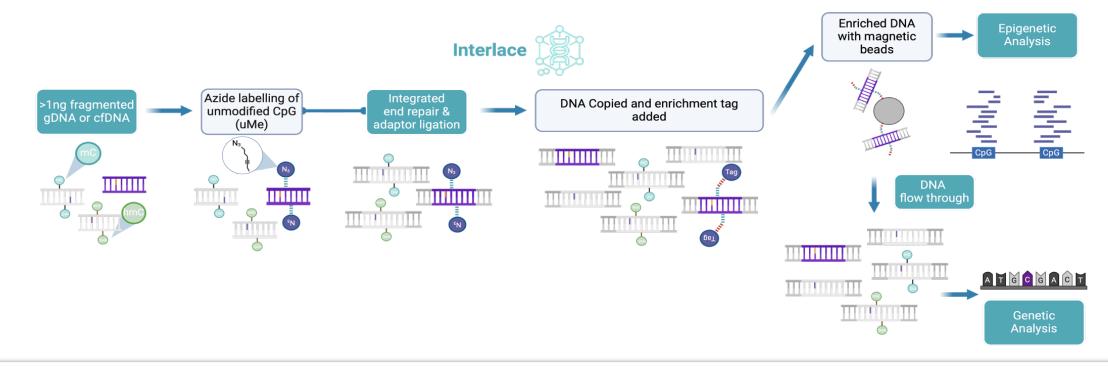
**Enriched** 

Unenriched

- Compatible with minute input amounts of DNA
- A foundation for a streamlined multiomic workflow

### Interlace™: An Integrated Multiomic Workflow

Preparing and tagging DNA in one step, from a single input sample. Interlace allows simultaneous genetic and epigenetic readout, identifying important and additive biomarkers.





Single-pot library preparation and tagging of unmethylated DNA

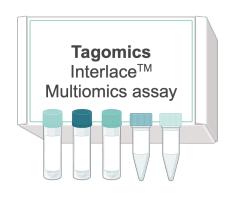
Enrichment of unmethylated DNA and mutation hotspots Sequencer agnostic

Multiomic biomarker identification

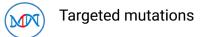


## Interlace+SureSelect CGP: Plug-and-play multiomics

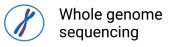
Interlace seamlessly integrates with Agilent's SureSelect library preparation and SureSelect Comprehensive Genomic Profiling panel to enable feature-rich, multiomic genome profiling.

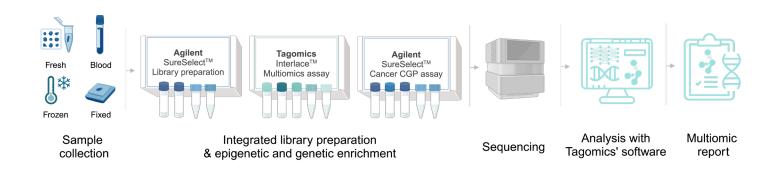












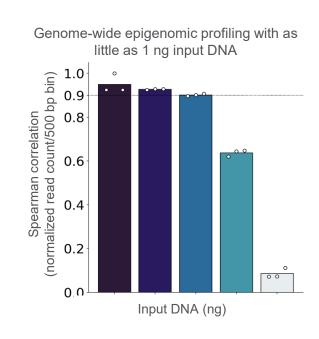


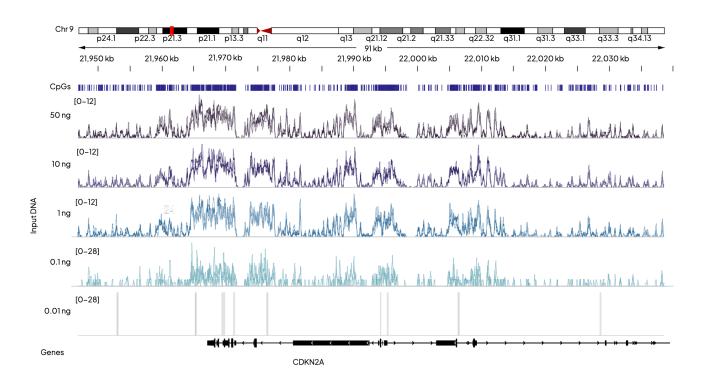
**Interlace+SureSelect** delivers unparalleled multiomic insights for biomarker discovery, diagnostic development, and precision medicine applications.

Validated on over 130 samples (Inc. Cell lines / NAT / Tumour / cfDNA)

## Interlace+SureSelect CGP: Input requirement

Profiling the epigenome from minute amounts of sample. More information from difficult samples.





#### Validated in partnership with Agilent Technologies: Robust epigenomic profiling from as little as 1 ng DNA input

Integration of SureSelect library preparation with Tagomics epigenomic enrichment enables genome-wide, epigenomic profiling with as little as 1 ng of input DNA. (Left) Genome-wide Spearman correlation of the epigenomic profile (to the profile created with 50 ng input), with decreasing amounts of input DNA. (Right) Screenshots from the genome browser (IGV) showing Tagomics' Activace profiles for unmethylated DNA, with decreasing input amount.

# Interlace+SureSelect CGP: Validation of the epigenomic output

Matching the gold-standard in epigenomic profiling with 1/10<sup>th</sup> the sequencing costs

#### Comparison of the Interlace epigenomic profile to bisulfite data

Top: Whole-genome bisulfite sequencing for DNA derived from the HEK293 cell line (750M reads). Blue traces: Tagomics' epigenomic signal shows consistent mirroring of the whole-genome bisulfite sequeincing data across this region of interest. Tagomics' signal has been downsampled to 50M reads and is typically 90% saturated at 70M reads enabling low cost, genome-wide epigenomic profiling.

#### Non-damaging enzymatic enrichment

**Targeting unmethylated CpG sites**, allows reproducible, genome-wide profiling with 70M reads.

#### **Highly-specific, efficient enzymatic enrichment**

Enrichment over background in excess of 100x. Covalent DNA modification, streptavidin pulldown.

#### **Enzymatic targeting of the active genome**

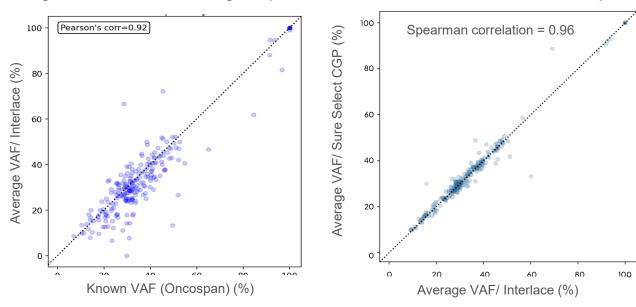
Unmethylated promoters and enhancers, hypomethylated **DNA.** A unique, assumption-free profile targeting key biology.



## Interlace+SureSelect CGP: Validation of the genetic output

Providing detailed genetic information, helping to select the best therapy for patients

#### Single-nucleotide variant calling with performance consistent with the SureSelect CGP panel alone



#### Validated in partnership with Agilent Technologies

Integration of SureSelect library preparation and hybridization panel - (Left) Genome-wide Spearman correlation of the epigenomic profile (to the profile created with 50 ng input), with decreasing amounts of input DNA. Genome-wide profiling is feasible with sub-nanogram inputs. (Right) Spearman correlation of the variant allele fractions determined for an analytical standard (Oncospan gDNA) using Tagomics Interlace (multiomic) workflow with Agilent's Sure Select CGP panel integrated into the workflow, and Agilent's Sure Select CGP panel alone.

#### 100% concordance Interlace <> CGP panel alone

The Interlace workflow allows SNV profiling with high **fidelity,** directly comparable to running the CGP panel alone.

#### 97.7% of known variant alleles found

For the reference Oncospan DNA 247 of 253 known variants were found using Interlace at a mean read depth ~125x. The six missed all had VAF < 3%



## Interlace+SureSelect CGP: Key platform properties

Single sample input, cost-effective sequencing requirement, detailed multiomic profiling output

#### **Highly efficient enzymatic enrichment**

**Enrichment over background in excess of 100x.** Covalent DNA modification, streptavidin pulldown for epigenomic profiling.

#### **Base-conversion-free enrichment**

**Simple sequencing alignment**. Preserves genomic DNA sequence for analysis with the Agilent SureSelect CGP panel.

# Comprehensive genetic and epigentic profiling in a single-sample workflow

Unmethylated promoters and enhancers, hypomethylated DNA. A unique, assumption-free profile targeting key disease biology. Complementary read-out of genetic abnormalities.

#### 1/10<sup>th</sup> sequencing requirement of WGBS

**Targeting unmethylated CpG sites**, allows reproducible, genome-wide profiling with 70M reads.

#### **Tailored for discovery**

Comprehensive genetic signature of disease captured by SureSelect CGP panel. Low cost epigenomic profile facilitates broad understanding of disease biology.

#### Scalable, genome-wide epigenomic profiling

Sequencing cost in the region of \$200 per human epigenome allows seamless transition between discovery and deployment of the test.

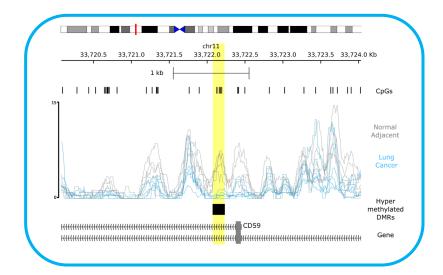


# Lung cancer biomarker discovery

Identifying changes in DNA methylation between cancerous and normal tissues, helping discover biomarkers for lung cancer

# Interlace+SureSelect CGP: Epigenomic signature for lung cancer

Linking changes in DNA methylation to specific genes and pathways, helping to understand lung cancer biology



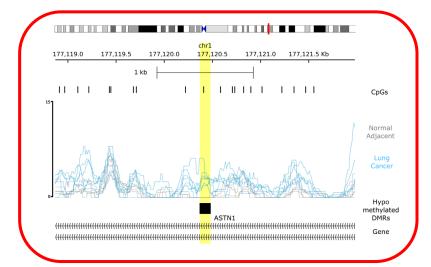
#### **Hypermethylation**

#### **Differential methylation in cancer**

**Differentially methylated regions** (DMRs) can robustly be identified by simple comparison of profile signals in tumour and normal adjacent tissue (FFPE samples).

#### **Example with 6 lung cancer patients**

Interlace epigenomic profiles used to identify **both hyper- and hypomethylated** regions of the genome in all tumours



#### **Hypomethylation**

Over a hundred thousand differentially methylated regions

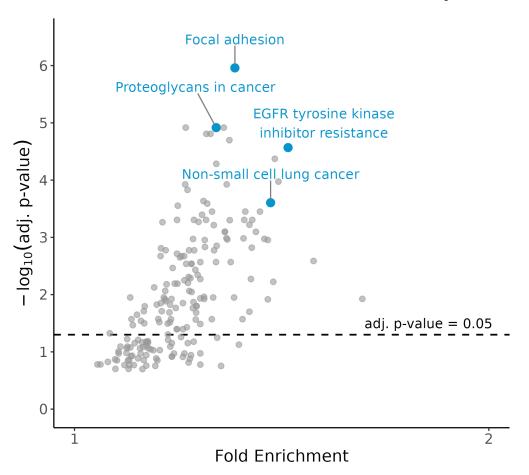
Genome-wide, we capture significant changes in methylation associated with tumour biology.



## Interlace+SureSelect CGP: Epigenomic signature for lung cancer

Changes in methylation status occur in regions associated with known cancer pathways

#### KEGG Database - enrichment analysis



#### **DMR** enrichment analysis

DMRs are linked to closest gene (+/-3kb from TSS) for pathway enrichment analysis using the KEGG database

#### Plot of DMR enrichment vs p-value

DMRs linked with genes that are associated with established lung cancer biology are highly enriched in this cohort of six patient tumours.

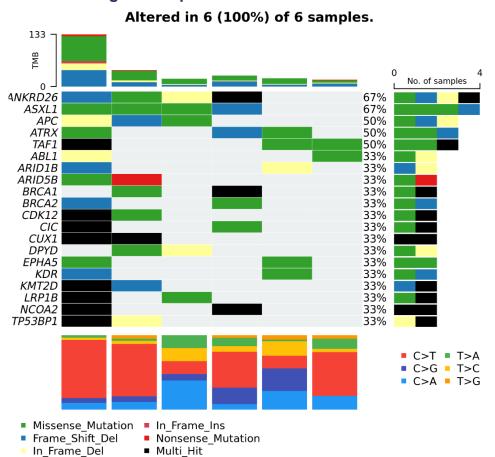
#### Lung cancer specific and more general pathways identified

Methylation is disrupted in genes associated with known lung cancer pathways, as well as in more general cancer pathways

## Interlace+SureSelect CGP: Genomic signature for lung cancer

Read out of genetic mutations allows targeted and personalized therapy selection

Summary of single nucleotide variants and tumour mutational burden (TMB) called in tissue (FFPE blocks) for six lung cancer patients



#### SureSelect CGP panel enables genetic biomarker discovery

Targets 679 cancer-associated genes as well as TMB, SNVs, **CNVs, MSI...** Sequenced to a mean 600x.

#### **Critical information for therapy selection**

Interlace+SureSelect CGP enables comprehensive view of genome biology and subsequent targeting of diagnostic tests.

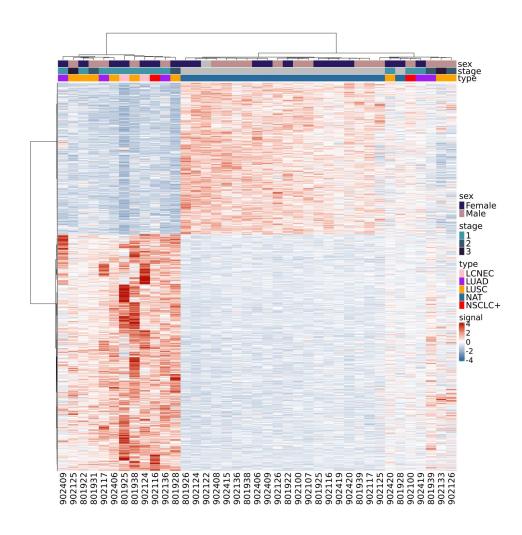
#### Streamlined workflow, one sample, two readouts

SureSelect CGP ideal for discovery, can be switched for a more targeted panel when biomarker is defined.



## Interlace+SureSelect CGP: Larger cohort of lung cancer patients

A larger cohort of lung cancer patients shows consistency of epigenomic signal, highlights most significant changes in disease



#### **Unsupervised clustering on unseen cohort**

**Differentially methylated regions** have consistent signal across a larger cohort of lung cancer patients (21 vs 18)

#### A basis for tumour-naïve diagnostics

ctDNA with tumour-specific methylation can be detected in background of cfDNA.

#### For diagnostics, leverage the breadth of (epi)genomic signal

Signal from multiple readouts can be aggregated to make diagnostic decisions, based on wholistic view of the (epi)genome.



# Interlace+SureSelect CGP: Information-rich biomarker discovery

#### Tagomics' epigenomic profile

Using nature's solution to targeting the epigenome with a unique focus on unmethylated CpG sites.

#### **Agilent SureSelect Library Preparation**

Highly efficient library preparation, optimized for SureSelect panels

#### **Agilent SureSelect CGP panel**

Comprehensive genomic profiling for biomarker discovery

One sample, two outputs

context.

Genetic profile for personalized therapy selection.

Epigenetic profile for added sensitivity and biological

**Highly-specific, efficient enzymatic enrichment** 

Enrichment over background in excess of 100x. Covalent DNA modification, streptavidin pulldown.

#### 1/10<sup>th</sup> sequencing requirement of WGBS

**Targeting unmethylated CpG sites**, allows reproducible, genome-wide profiling with 70M reads.



# Mark Garner, PhD

Director, Translational Research Segment







## From predicting the future of earth's climate, to developing new cancer therapeutics, all scientific understanding begins with measurement

Agilent enables researchers to make the measurements they need, by delivering cutting-edge, accessible, end-to-end solutions to help solve compelling scientific problems.



Basic research







265,000 analytical labs globally use Agilent solutions

Translational research Dx and treatment

### Agilent's cancer mission is to provide the technology and solutions researchers and clinicians need throughout the cancer continuum

Uncover	Discover	Translate	Enable	Deliver	Fight
How cancer cells behave and avoid the immune system	The genetic changes which drive cancer	Advance discoveries from basic to clinical research	The diagnosis with trusted pathology solutions	Precision diagnostics to help guide therapeutic decision making	Drive cutting edge molecular and cellular therapies
		X			

### Agilent's comprehensive portfolio of cancer solutions and workflows empower scientific and medical professionals from bench to bedside ... and back





LC & MS-Based Metabolomics and Proteomics Solutions







NGS Library Preparation and Target Enrichment Technology for DNA and Gene Expression



Cancer cell Metabolic Profiling



Quantitative Immunophenotyping and Proliferation Assays



Real-Time Live-Cell widefield and confocal imaging with Image Analysis

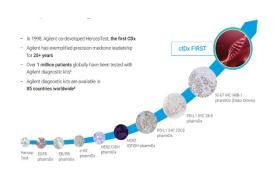




SureSelect Target Enrichment Cancer CGP Assay



Custom Antibodies, Beads and Reagents



Companion Diagnostic Solutions







End-to-End Staining and Digital Pathology Workflows

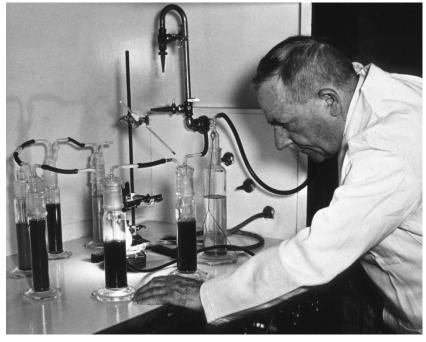
Basic research Translational research Dx and treatment

### The Agilent Seahorse Analyzer transformed cancer metabolism research

Ever since Otto Warburg's initial studies (almost exactly) 100 years ago, it has been known that cancer cells are profoundly different from the normal cells from which they are derived, even at the level of fundamental cellular physiology.

The Seahorse Analyzer enabled scientists to quantitatively measure cellular metabolism like never before.





- "If one wants to really understand the basis of the growth of tumors, it is necessary to first and foremost, focus on the chemical reactions which support that growth, the <u>energy producing</u> reactions."
  - Otto Warburg, Biochemische Zeitschrift 1923

### **Announcing the new Agilent Seahorse XF Flex Analyzer**



### Cancer biomarkers continue to evolve – and so do we

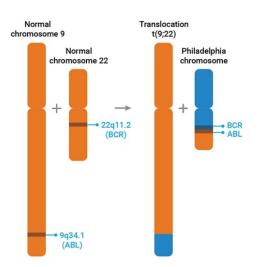
From the Philadelphia chromosome as a (visible) biomarker for Chronic Myeloid Leukemia (CML)

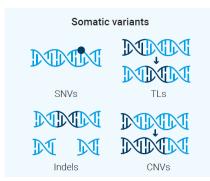
to

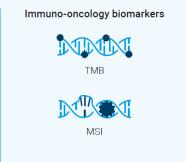
Targeted disease-specific genomic profiling panels

and

Multiomics and epigenomics











### Partnering for pathbreaking innovation













Let's bring great science to life.

# Questions



Rita Shaknovich



Sean Glenn



**Robert Neely** 



**Mark Garner** 



Trusted Answers