BioMark™

we believe

CANCER

IS CURABLE

A NEXT GENERATION COMPANY
POWERED BY METABOLOMICS
AND ARTIFICIAL INTELLIGENCE

Our Mission

Provide better cancer detection, monitoring and screening solutions for hard to detect cancers

Who We Are

- Developer of a metabolomics liquid biopsy-based platform leveraging machine learning with advanced near-to-market diagnostic technologies.
- Multiple IP’s in detection and quantitation of metabolites.
- Led by industry experts, cross functional team of scientists, engineers, and medical professionals.

Collectively over 8 patents in different stages and jurisdictions in progress

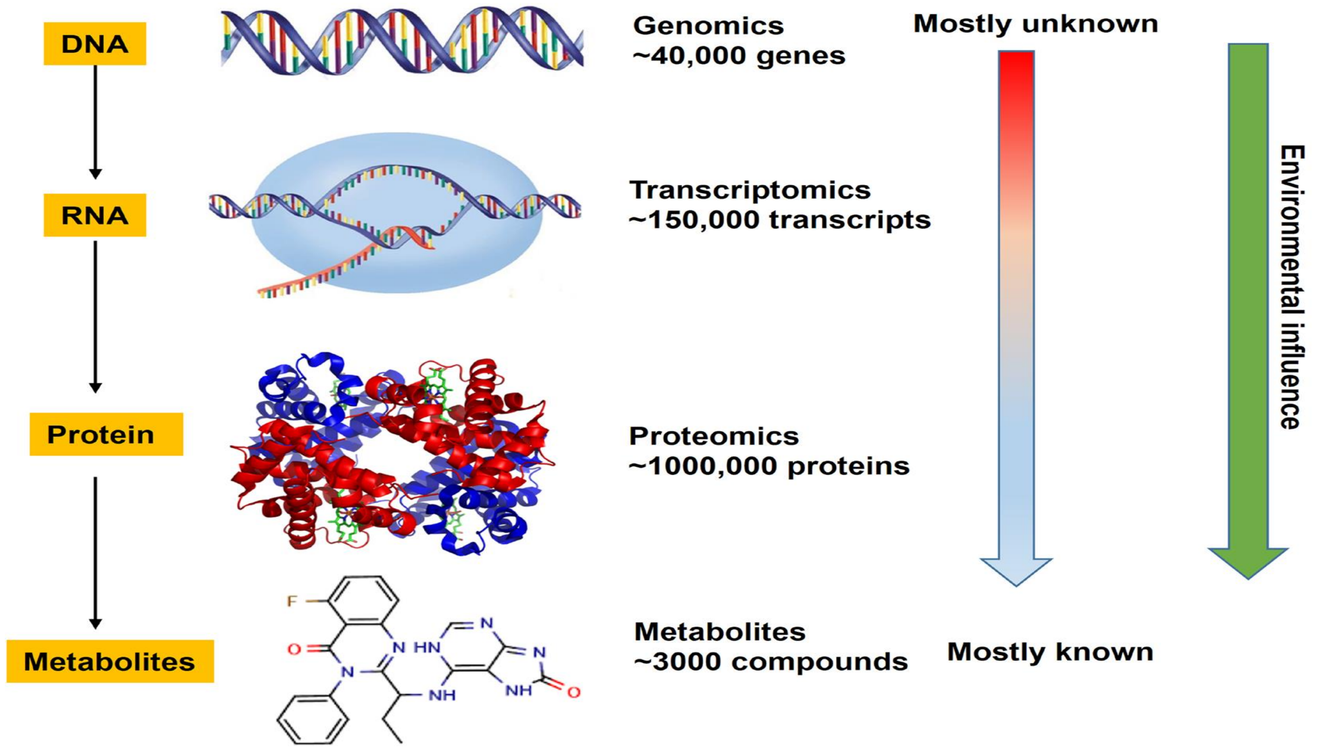
METABOLOMICS

me·tab·o·lo·mics | \ mə-ˈta-bə-ˌlō-miks

: a form of clinical chemistry that uses advanced analytical techniques to measure the complete collection of “***small molecules***” found in a given biological sample that offers rapid, inexpensive, comprehensive, quantitative characterization of…

- Primary Metabolites
- Secondary Metabolites
- Microbial Metabolites
- Food Products
- Supplements
- Contaminants
- Drugs

THE ADVANTAGES OF METABOLOMICS



There are differences in the genomes of cancer cells and tissues in different cancer patients.

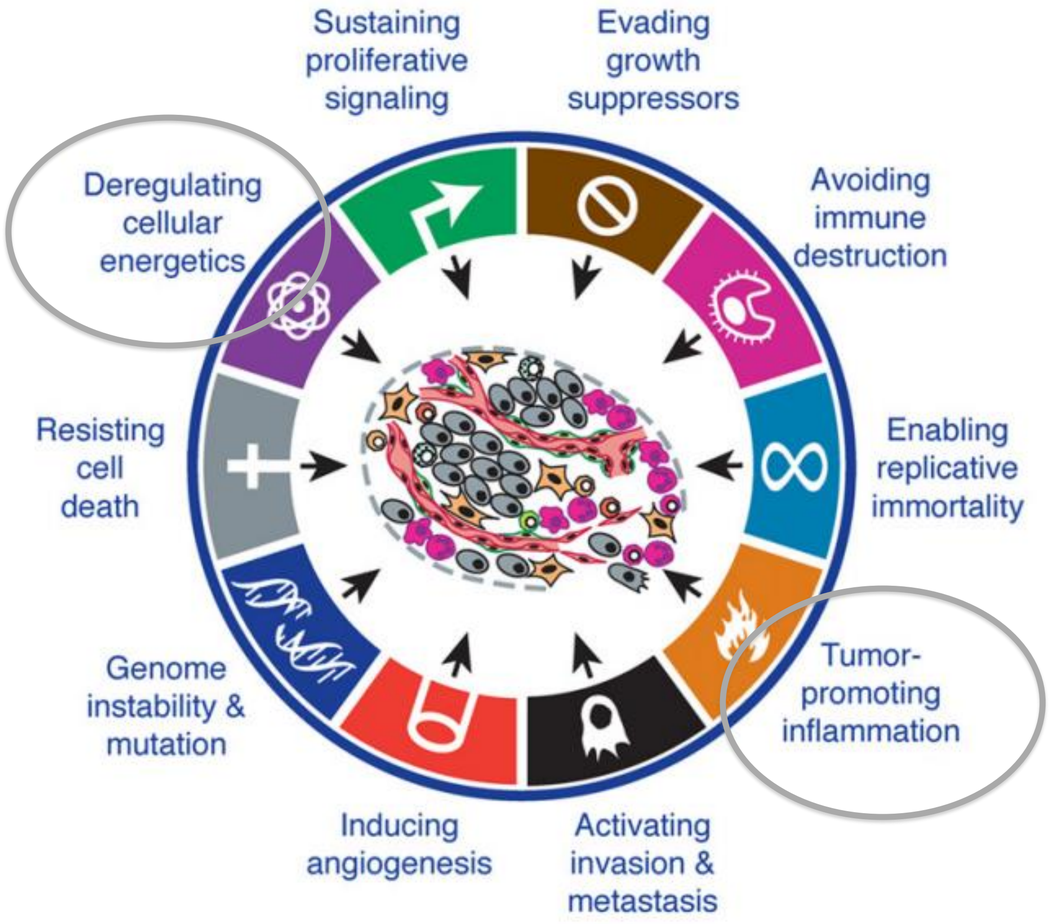
This heterogeneity of cancer cells impacts the accuracy and applicability of many diagnostic markers for genes and proteins.

These markers for genes and proteins may be effective for some patients, while ineffective for others.

Metabolic biochemical reaction meanwhile is an ancient, multi-species similar and conservative process that is strictly regulated by the organism.

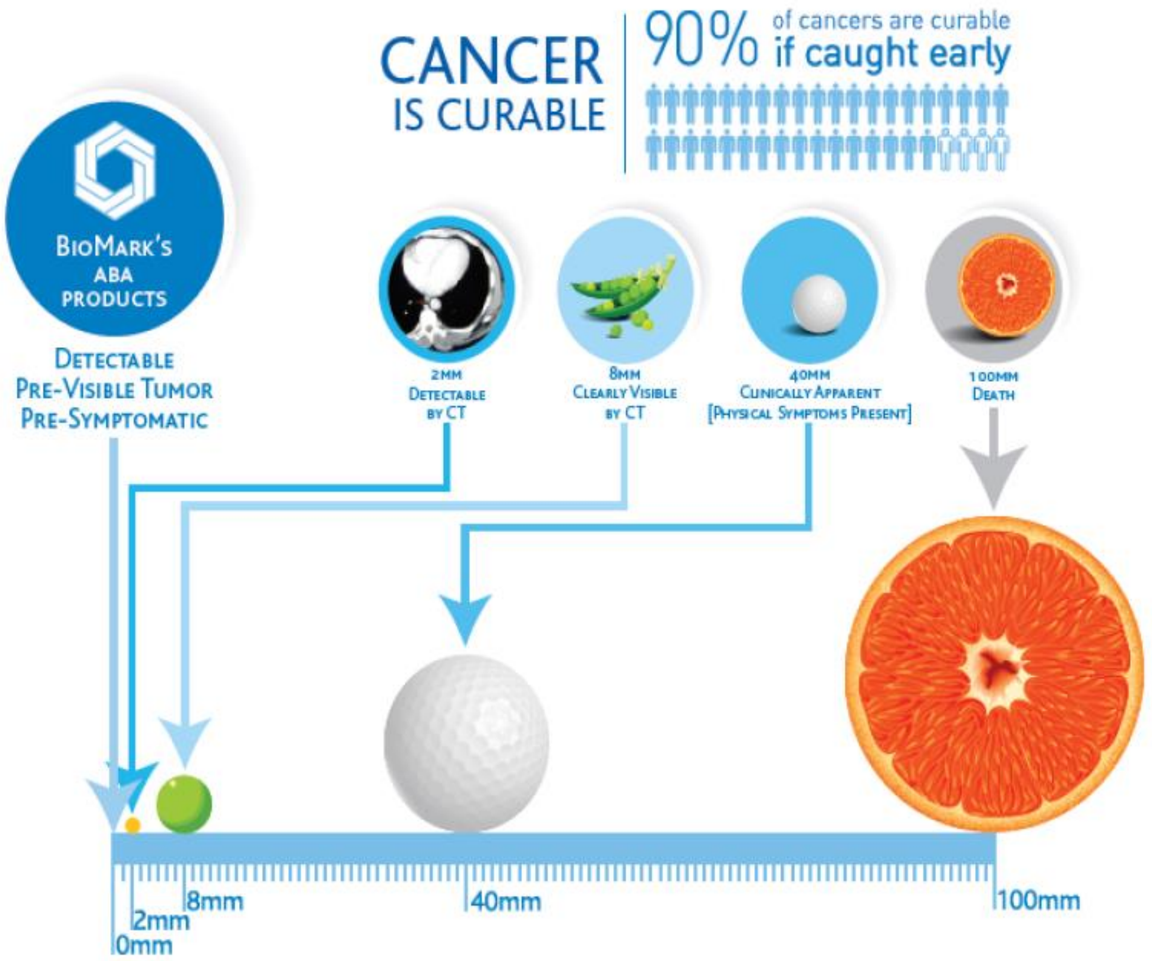
Therefore, the difference between individuals is much smaller than that of genes and proteins

CANCER IS A METABOLIC DISEASE



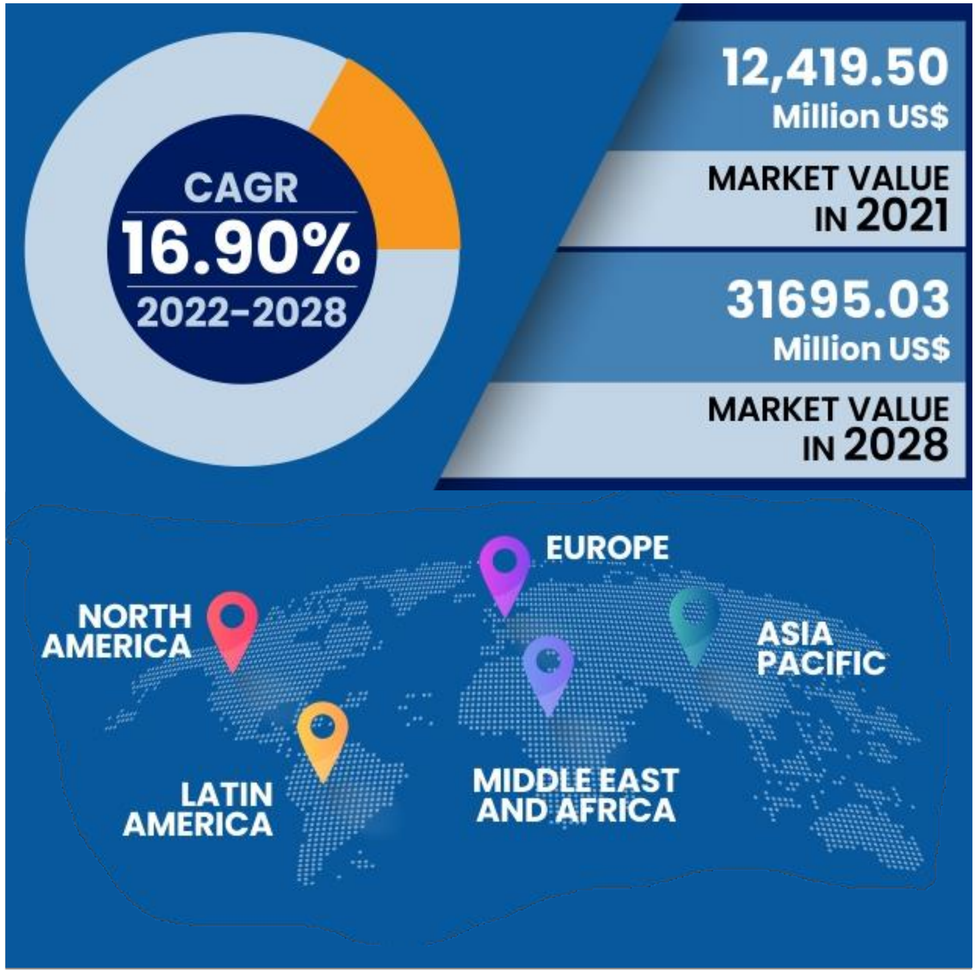
Source: Hallmarks of Cancer - Hanahan D, Wienberg RA (2011) Cell, 144:646-674.

EARLY DETECTION IS CRITICAL TO SAVE LIVES



GLOBAL CANCER BIOMARKERS MARKET

Forecast to 2028



Growth Drivers :

Market growth is driven by the increasing **use of cancer biomarkers in drug discovery** and development, increasing research on cancer biomarkers, technological advancements, and the **increasing global incidence of cancer.**

Rising technological advancements In the development of cancer biomarkers -The advancements in arrays and proteomics technologies have addressed the challenges in identifying and understanding the functions and interactions of various proteins. These technological advancements have simplified the process of discovery & development of novel cancer biomarkers to a great extent.

Major Opportunity:

Personalized medicine identifies the most beneficial treatment path for individual patients. Cancer biomarkers play a very important role in certain aspects of personalized medicine. Cancer biomarker diagnostic products are also used as **companion diagnostics** for several investigational therapies. Thus, the field of personalized medicine is expected to offer potential growth opportunities for players operating in the cancer biomarkers market.

Source: Zion Market Research

LIQUID BIOPSY PLATFORM & PRODUCT PIPELINE

Completed development of 2 metabolomic assays – Platform Play

Lung Cancer Metabolic Fingerprint Assay	Customize assay; Collect more clinical data and build LDT for early lung cancer detection and screening
SSAT-Amantadine Assay using LC-MS/MS Response to treatment for advanced lung cancer treatment and GBM	Health Canada approved expanded study to include immunotherapy treatment regime apart from chemo/radio therapies. Studies at 2 sites – IUCPQ and CancerCare Manitoba
Expand markers to other hard to detect and treat cancers –**Head and Neck*, Breast,** Pancreatic and Ovarian Cancers	H&NC - Commenced sample analysis on first batch (60 samples. Total n=200) Breast – Targeted Metabolomics performed on a total of 260 blood samples in a case (n=188) vs control (n=72) study

**Liquid biopsy circulating markers to customize the follow up of head and neck cancer patients for early identification of recurrence/second tumours . Measure of metabolic, methylation markers, viral markers, clinical parameters and radiomic-combinatorial approach .*

PROJECTS IN PROCESS

Metabolomic Fingerprint Assay Development

Early Lung cancer - 1200 retrospective studies following 260 trial at IUCPQ for early detection of lung cancer. Expanded the sample size to include more subtypes, other lung diseases, other morbidities and different cancers. – Sponsored research – Medteq and Sparks Grant. Sample to be analyzed at 2 different sites. Readout May/June 2022.
Samples from IUCPQ and CHTN.

Validation and Verification – Lab certification in late 2022

4000 prospective and retrospective studies – Metabolomics, Polygenic risk scores, Radiomics and EGFR . – IUCPQ; AZ; Pfizer; BioMark. Meeting kick off – Feb 2022. 8 hospitals are targeted to participate in the trial. CqDM SynerQic funded

Proof of Principle – 200 retrospective studies with Mount Sinai. Commence in May/June 2022

Breast cancer – Retrospective study completed. 260 samples . Samples included major subtypes including Triple Negatives and Receptor status . Results revalidated at 2 sites and involved machine learning. Readout imminent – June 2022

Head and Neck Cancer - Liquid biopsy circulating markers to customize the follow up of head and neck cancer patients for early identification of recurrence/second tumours . Measure of metabolic, methylation markers, viral markers, clinical parameters and radiomic-combinatorial approach . University of Brescia; BioMark; TMIC; CancerCare Manitoba. Sample size 200; Already enrolled 60 patients and first sample shipped for analysis

Response to treatment Studies using SSAT1 Assay

Advanced stage lung cancer– radio and chemo therapies. Proof of concept studies. Expanded study scope and site to include immunotherapy. Sites – IUCPQ and CancerCare Manitoba. IUCPQ funded by Fondation Grant while CancerCare Manitoba is supported by Maunders McNeil Foundation

GBM
CancerCare Manitoba – 9 patients completed trials . Funded by CHRP; Expect to complete Proof of principle by end of summer 2022. Expand trials to Johns Hopkins and University of Maryland under Dr. G. Woodworth in fall of 2022. Funding source – MIPs , CanExport and investors from US

PATENT FAMILY IN USE IN DIFFERENT JURISDICTIONS

SSAT1 use for response to treatment in lung and brain cancers

A METHOD FOR ASSAYING THE ACTIVITY OF SPERMIDINE/SPERMINE N1-ACETYLTRANSFERASE

DETECTION AND QUANTIFICATION OF ACETYLAMANTADINE IN URINE SAMPLES

Patent Family 1 & 2

Granted in CA, CN, DE, FR, GB, USA

Early lung cancer detection

METHOD OF DETECTING LUNG CANCER

METHOD OF DETECTING CANCER BASED ON SSAT GENE EXPRESSION

METHOD OF DISCRIMINATING LUNG CANCER PATIENTS

METHOD OF DIAGNOSING EARLY-STAGE NON-SMALL CELL LUNG CANCER

Patent Family 3 - 7

Pending in BR, CA, CN, EU, JP, USA

Patent for family 3 issued in Japan

GBM therapeutic target

GLIOBLASTOMA TUMOR GROWTH INHIBITON BY SAT1 KNOCKDOWN

Patent Family 8

USA Earliest priority date 2021-10-14

Lung Cancer Metabolic Fingerprint Assay

LUNG CANCER – THE BIG PICTURE

Lung cancer has been the most common cancer in the world for several decades and accounts for 1 in 5 of all cancer deaths.

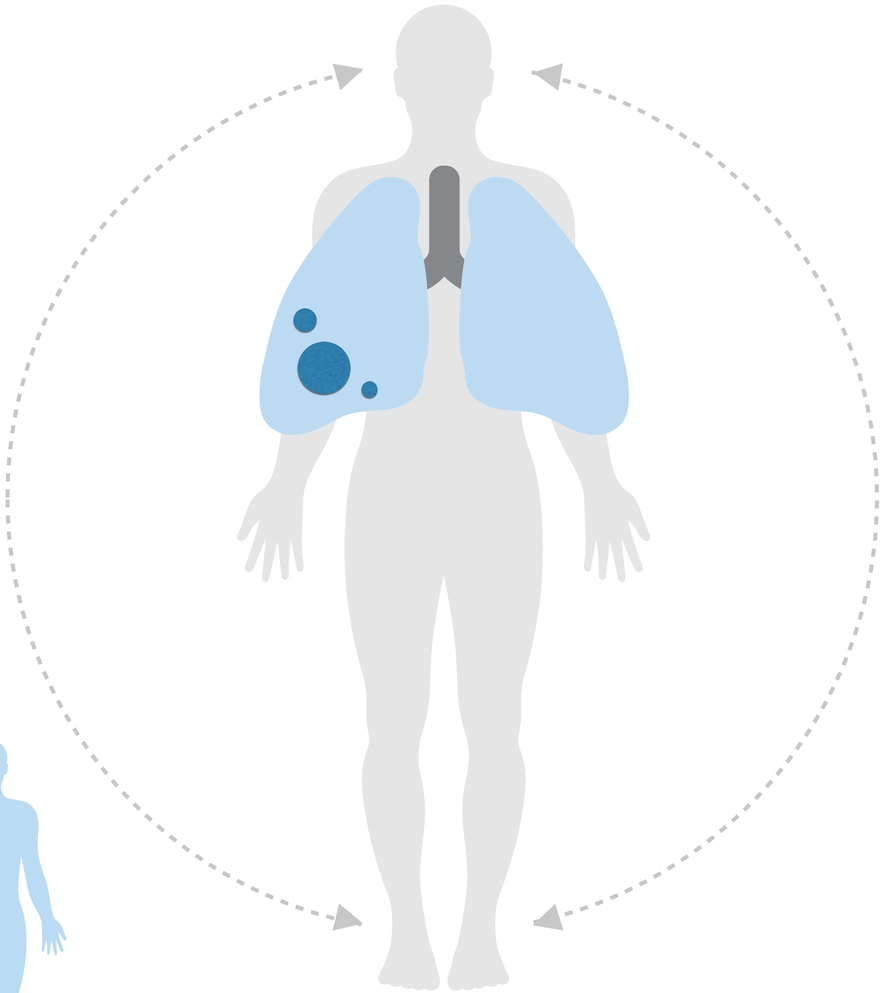
Worldwide, three people die from lung cancer every minute

Because of the lower specificity of LDCT, 96 % of all nodules discovered via LDCT scans are benign, leading to unnecessary and often harmful invasive procedures, radiation exposure and high costs.

Most common

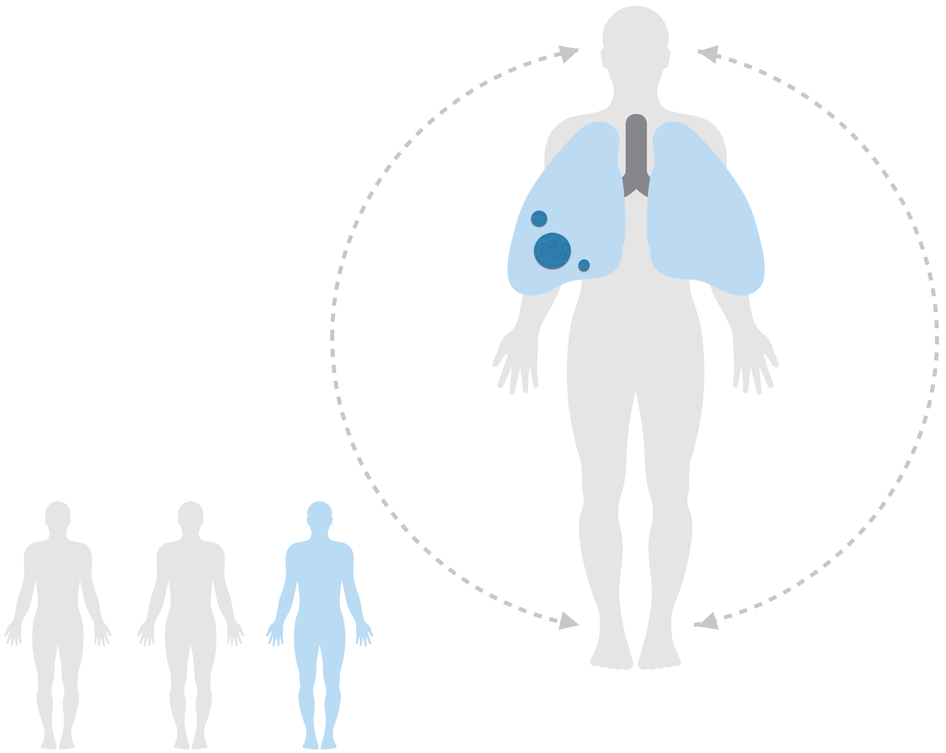
Deadly

High false positive rates



LUNG CANCER – STAGE SHIFTING IMPACT

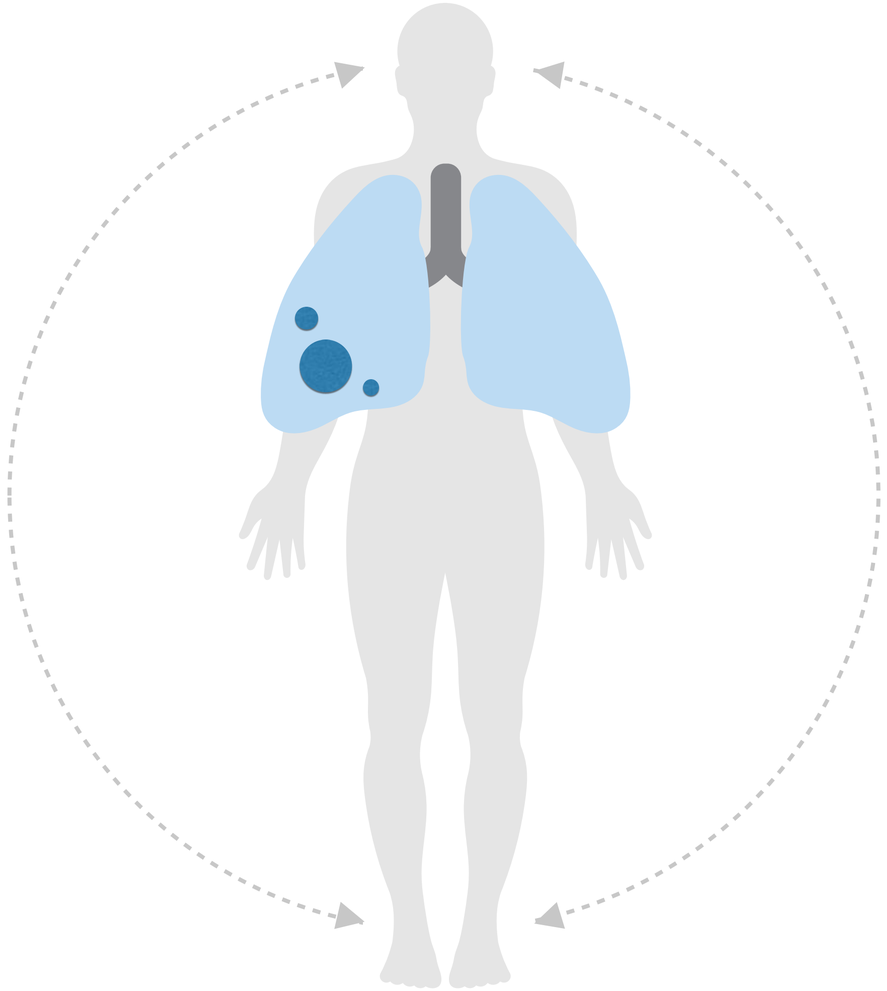
- The lung cancer five-year survival rate (18.6 percent) is lower than many other leading cancer sites, such as colorectal (64.5 percent), breast (89.6 percent) and prostate (98.2 percent).
- The five-year survival rate for lung cancer is 56 percent for cases detected when the disease is still localized (within the lungs). ***However, only 16 percent of lung cancer cases are diagnosed at an early stage***. For distant tumors (spread to other organs) the five-year survival rate is only 5 percent.
- More than half of people with lung cancer die within one year of being diagnosed.



Source: U.S. National Institute Of Health, National Cancer Institute. SEER Cancer Statistics Review, 1975–2015.

LUNG CANCER SCREENING HIGHLIGHTS

Large Undeserved Market



Target - Lung Cancer Screening for identified high risk groups to complement LDCT Scan

- Estimated Population Size : 16 million in USA
  1.4 million in Canada
  0.4 million in Québec only
- Current Uptake 5% in USA – No organized lung cancer screening programs in Canada except Ontario
- Imaging is used for Screening – Low Dose CT Scan (Helical CT) – reduces mortality in high risk groups by 15-20%;

  Challenges– High false positives; Costs; Access

STRONG TAILWINDS

Current lung cancer screening rates in US is estimated at 5%

Limited access to LDCT especially in rural communities

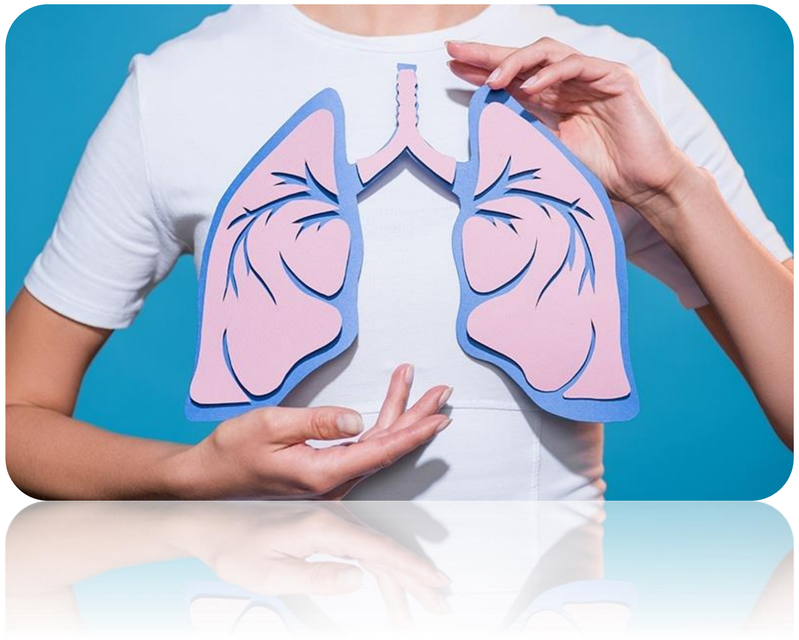
Active VA screening programs seeking better screening technology for at risk veterans across the country. Program being funded under NCI

Cancer Moonshot has been reignited and aims to address inequities within the US by improving access to cancer screening and support in early detection initiatives

Missed screening due to Covid - 19. Over 9.5 million screenings missed and also delayed surgeries

Era for faster adoption and smoother regulatory acceptance

ESTABLISHED ACCEPTED TEST (LDT) COUPLED WITH ROBUST TECHNOLOGY BACKBONE



The lung cancer metabolites are easily measured using quantitative mass spectrometry (MS) methods with standard instruments used in diagnostic clinical laboratories across Canada and USA.

- the amount of blood required (<20 µL),
- the expected cost per test ($100)
- the expected revenue per test ($350)
- the time to perform the test (<5 minutes on an MS instrument and LDTD proprietary platform)

Much faster, cheaper and less invasive than any other known or proposed lung cancer test, including biopsies, X-rays, LDCT and other molecular based assays.

Targeted Metabolomics Lung Cancer Trials

Data Summary

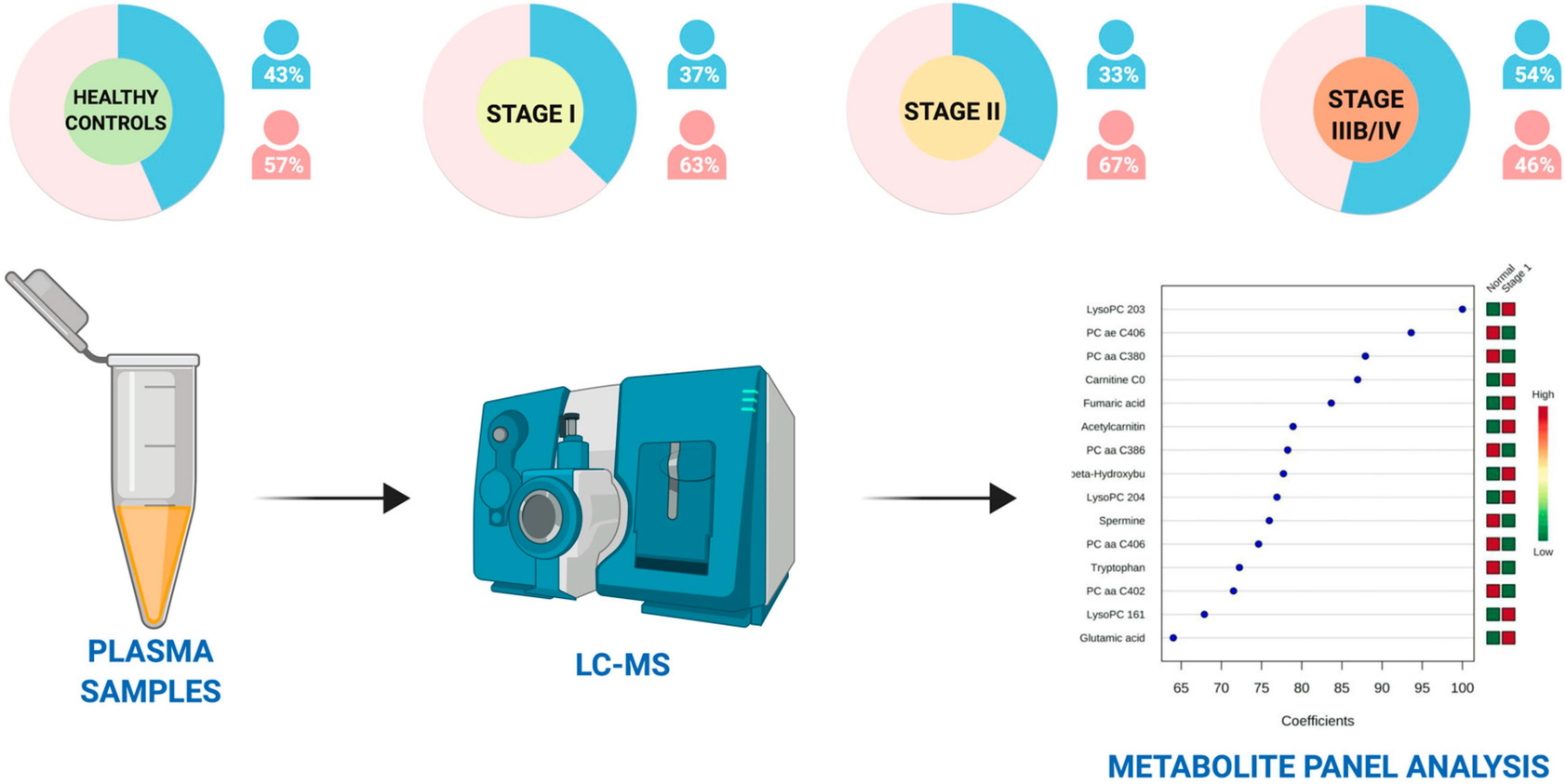
Total Subjects: 257

Normal: 60

Lung Cancer: 197
(emphasis on Stages 1 and 2)

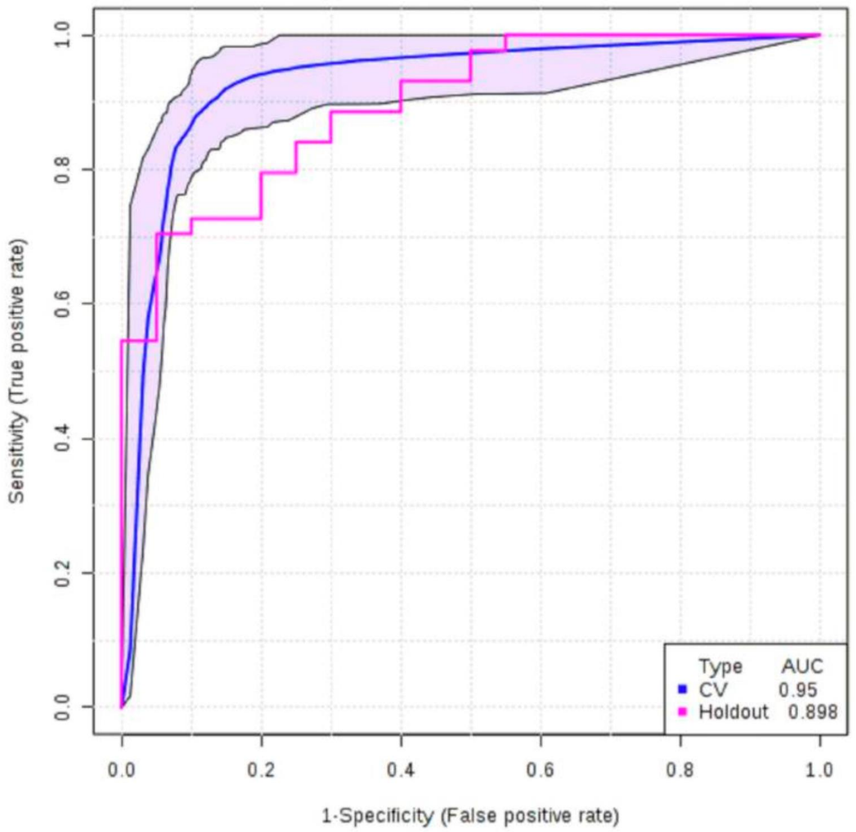
Metabolomics Analysis: Human plasma samples* were analyzed using custom developed assay for several putative lung cancer biomarkers.

*Samples and data obtained from IUCPQ bio bank



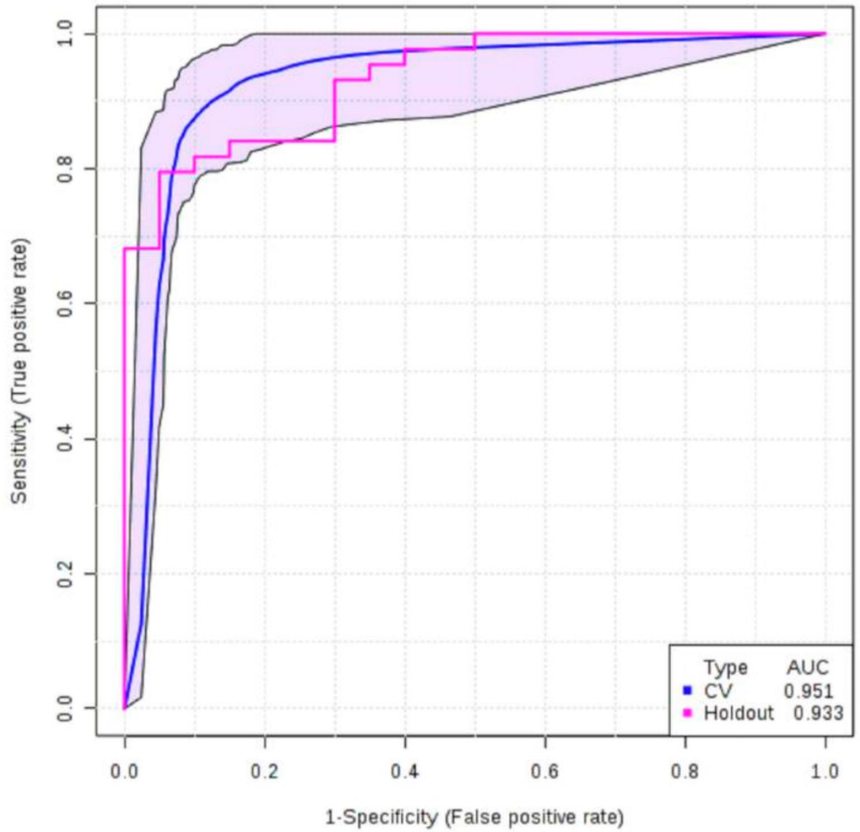
STRONG PERFORMANCE FOR EARLY-STAGE DETECTION

a



Logistic regression based optimal model for stages I + II NSCLC detection: **metabolites only**

b



Logistic regression based on optimal model for stages I + II NSCLC detection: **metabolites plus smoking history**

STRONG PERFORMANCE FOR EARLY-STAGE DETECTION

PERFORMANCE OF LOGISTIC REGRESSION MODEL A			
	AUC	SENSITIVITY	SPECIFICITY
TRAINING/ DISCOVERY	0.974 (0.965 ~ 0.982)	0.937 (0.920 ~ 0.954)	0.922 (0.895 ~ 0.950)
10-FOLD CROSS-VALIDATION	0.959 (0.923 ~ 0.995)	0.919 (0.919 ~ 0.976)	0.900 (0.807 ~ 0.993)

Logistic regression based optimal model for stages I + II NSCLC detection: **metabolites only**

PERFORMANCE OF LOGISTIC REGRESSION MODEL B			
	AUC	SENSITIVITY	SPECIFICITY
TRAINING/ DISCOVERY	0.982 (0.975 ~ 0.990)	0.960 (0.946 ~ 0.974)	0.944 (0.921 ~ 0.968)
10-FOLD CROSS-VALIDATION	0.965 (0.930 ~ 1.000)	0.930 (0.930 ~ 0.984)	0.925 (0.843 ~ 1.000)

Logistic regression based on optimal model for stages I + II NSCLC detection: **metabolites plus smoking history**

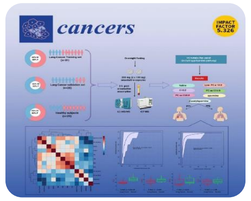
BIOMARK'S ADVANTAGE OVER LDCT SCAN FOR LUNG CANCER SCREENING

	LDCT	BIOMARK'S LIQUID BIOPSY
% EARLY STAGE DETECTION	73.4% (SPECIFICITY) 93.8% (SENSITIVITY)	96.1% (SPECIFICITY) 94.4% (SENSITIVITY)
FALSE POSITIVE RATES	HIGH	MUCH LOWER
COST	>$1000	<$400
RADIATION IMPACT	OVER 18% COMPLICATIONS	NONE

False Positive: Telling someone they have a disease, but they don't actually have it
False Negative: Telling someone they do not have a disease, but they actually do
Specificity: Ability of the test to correctly identify those without the disease (true negative rate)
Sensitivity: Ability of a test to correctly identify those with a disease (true positive)

IMPENDING CATALYST – SHORT TERM CANADA

Lung Cancer Panel Assay Development Timeline



Stage I/II Discovery Study Publication

Open R&D Facilities in Qc

Internal Assay V&V

cqdm SynergiQc

Pfizer

AstraZeneca

Lung Cancer Screening Validation CQDM (4000 samples)

Present data to regulatory agencies

2020 ***2021*** ***2022*** ***2023***

Partnership with Phytronix's LDTD technology

Phytronix

Clinical Lab Equipment purchase

SCIEX

Retrospective Validation Medteq+ (1500 samples)

MEDTEQ IMPACT

ISO 15-189 compliant QMS audit

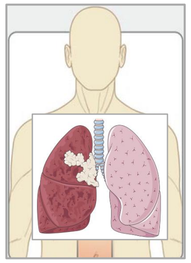
Commercial Launch with IUCPQ as beachhead

INSTITUT UNIVERSITAIRE DE CARDIOLOGIE ET DE PNEUMOLOGIE DE QUÉBEC

AFFILIÉ À UNIVERSITÉ LAVAL

LUNG CANCER SCREENING VALIDATION OUTLINE - ONGOING

DISCOVERY COHORT



IUCPQ Biobank
4,000 lung lesion patients
- ✓ Clinical data
- ✓ Chest-CT
- ✓ Plasma/buffy coat
- ✓ Tumor tissue

1,000 normal patients
- ✓ Chest-CT

CARTaGENE cohort
12,000 normal patients
- ✓ Genotype

→ **Genetic profile** *Polygenic score EGFR Status*

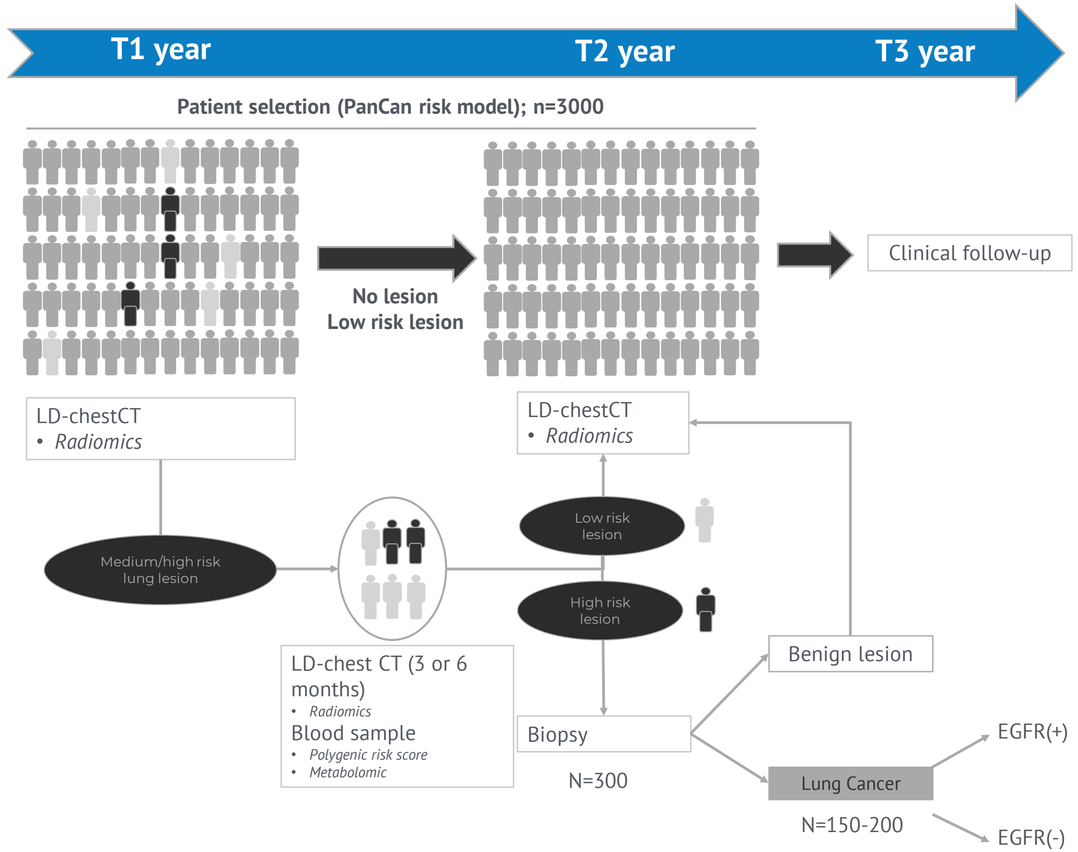
→ **Clinical data**

→ **Radiomics**

→ **Liquid biopsy** *LC-MS profile*

To identify the best predictors of lung cancer risk and EGFR status using data-driven modalities, genetics, blood-based metabolomic and radiomics
AIM 1.1: To build an AI-based lung cancer risk prediction model along with a predictive model for EGFR status using low dose chest CT-scans.
AIM 1.2: To develop a polygenic risk score capturing the genetic component of lung cancer susceptibility and its potential to improve lung cancer risk prediction.
AIM 1.3: To select the optimal panel of blood-based metabolites that predicts the risk of presenting a lung cancer.

VALIDATION COHORT



To assess risk prediction models and radiomics-based EGFR status to improve the management of indeterminate pulmonary nodules and streamline treatment for lung cancer patients.
AIM 2.1 Assess risk prediction models to improve the management of indeterminate pulmonary nodules.
AIM 2.2 Assess radiomic-based EGFR status to streamline treatment and guide adjuvant therapy.

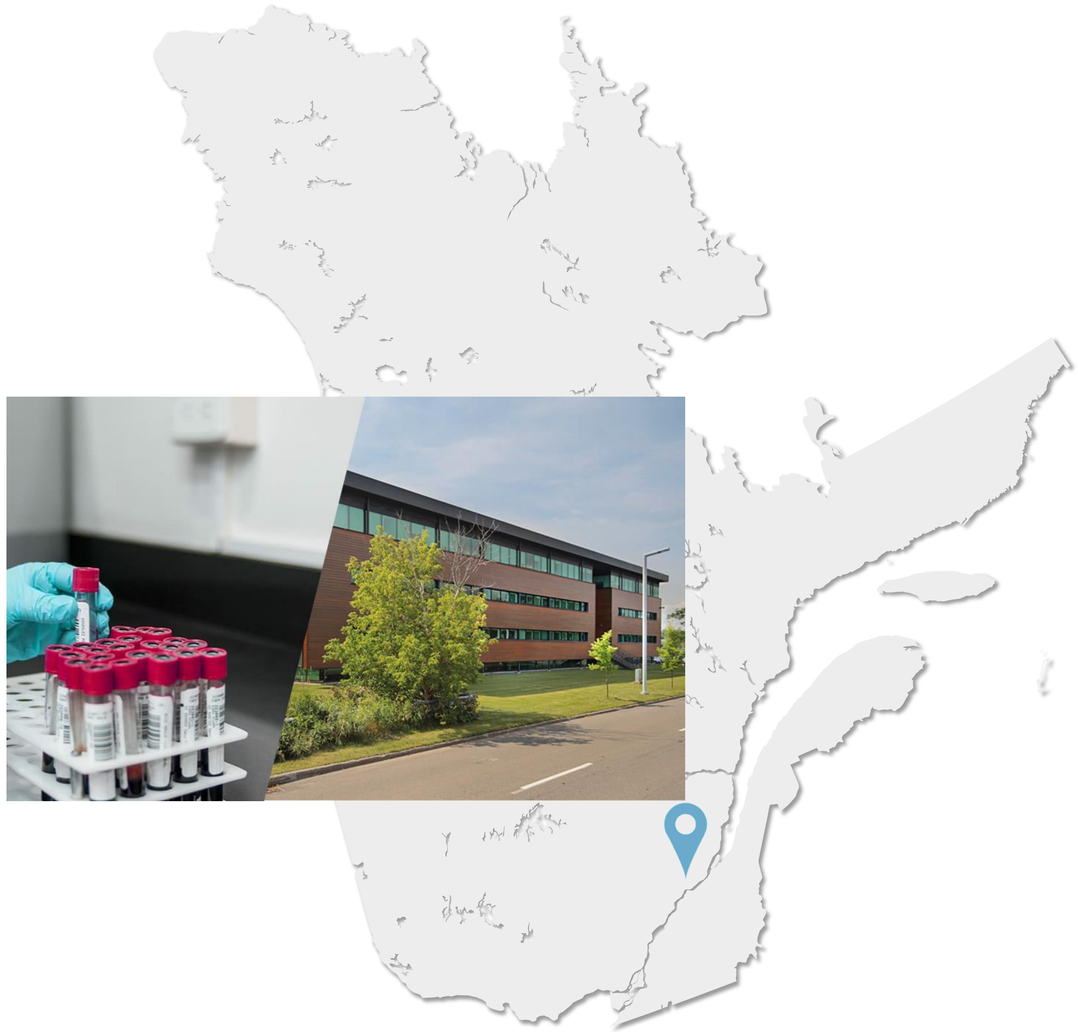
OPTIONS FOR GROWTH

Lung Cancer - Panel Assay

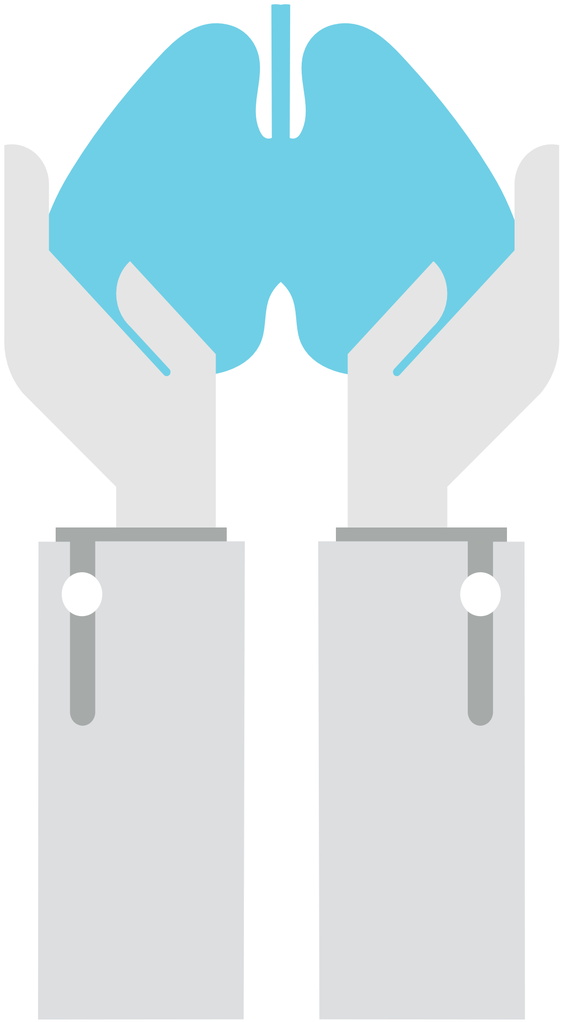
- ISO -15189 accredited lab services
- Establish beachhead in Quebec with IUCPQ and expand services across Canada
- Discuss collaboration with VHA (Veterans Health Authority)
- Build / Acquire Labs or Partner in US for assay validation with licensing option.
- Leverage partners with regulatory, lab infrastructure, distribution and reimbursement support structures
- Increase services – MultiOmic offerings - next-generation proteomics to support better patient stratification, more successful clinical trials, and, most importantly, more favorable outcomes for patients. Partner with other players to develop a one stop shop
- Assess response to treatment offering
- Seek and develop international licensing and distribution opportunities – Europe; MENA region and S. America

CATALYSTS IN Q2 AND Q3 2022

- Complete 1200 retrospective lung cancer analysis and data readout – Medteq and Sparks Grant funded study
- Conduct V&V studies for lab accreditation based on 1200 lung cancer samples
- Present at ASMS in June 2022 to demonstrate the clinical validation and utility of BioMark's/Phytronix lab equipment enabling ultra-high-speed analysis – 8 s with out compromising sample analysis
- Sign MOUs and new collaborations in N. America and Europe with leading medical institutions
- Commence lab accreditation in Q3 2022
- Complete 750 patients recruitment for the multimodal early lung cancer 4000 patient trial involving AZ; Pfizer; IUCPQ; Other international centres and 8 hospitals across Quebec
- GBM response to treatment and therapeutics PoC and In Vivo studies



VALUE PROPOSITION- ACTIONABLE DIAGNOSTIC TEST



Our technology solution – offers

- Early diagnosis and screening – Application in screening for aggressive and hard to detect cancers such as lung and brain cancers.
- Effective monitoring tool to assess treatment efficacy earlier so as to improve tailor treatment regimen.
- Additional surveillance tool to help monitor recurrence in aggressive cancers.

Solutions – *Continuum of care in cancer treatment and management*

MANAGEMENT TEAM

Rashid A.Bux - Founder & CEO

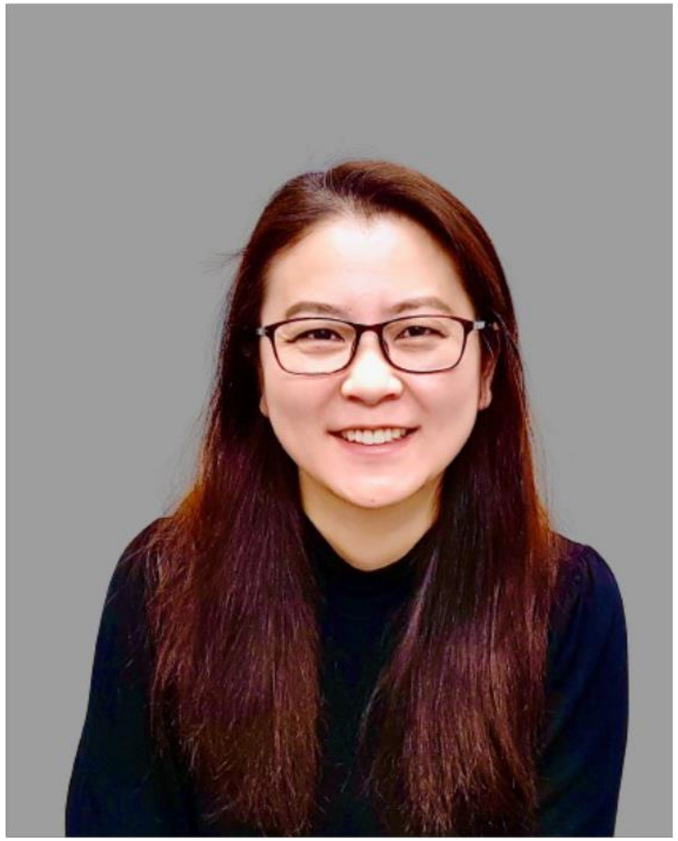
Rashid Ahmed - Founder and CEO of BioMark Diagnostics Inc, started his journey into the medical sector as a science student at Nairobi University. He holds a Master of Business Administration from the University of Western Ontario and a Bachelor of Science in Business Administration with a concentration in 3 majors from the Miami University in Ohio. Rashid is the co-founder and COO of Optima Health Solutions, a Non-invasive Orthopedic Spine Treatment centre, and helped establish 25 treatment centres in 12 countries. The technology was developed to offer the most advanced treatments of pain from back, neck and joint conditions. The treatment uses precise sound-generated waves to treat pain conditions of the back, neck, joints and nervous system. BioMark on the other hand is an oncology-focused company, based in Vancouver, BC. It is groundbreaking near-to-market liquid biopsy diagnostic technology that was established after a family member was diagnosed with late-stage cancer. This tragic incident catapulted Rashid into seeing the gap in our current system, and in the deep need for predictive accuracy in early-stage cancer diagnosis. He decided to license the first platform from the University of Manitoba in 2006 and managed to translate the discovery into a clinical application. The 14-year journey has been inspirational and transformative in the development of BioMark’s scientific and technical knowledge. The scientific mantra at BioMark is to invest in great science to yield trusted clinical outcomes.

MANAGEMENT TEAM

Dr. Jean-Francois Haince - CSO and GM

Dr. Haince holds a PhD in Cellular and Molecular Biology from the Faculty of Medicine at Université Laval. He cumulates over 15 years of experience in cancer research and authored over 20 peer-reviewed scientific publications. During his term at DiagnoCure from 2007 to 2015, he has been responsible for the development of new molecular diagnostic tests from product design to clinical validation. Dr. Haince also managed a multidisciplinary team of experts at a university technology transfer office, providing advice and project management support to the development and deployment of technological innovations stemming from cutting-edge research. He also sits on the Research and Innovation Committee at the l'Institut National du Sport du Québec, advising the Institut's scientific director on all issues related to its scientific and technical activities.

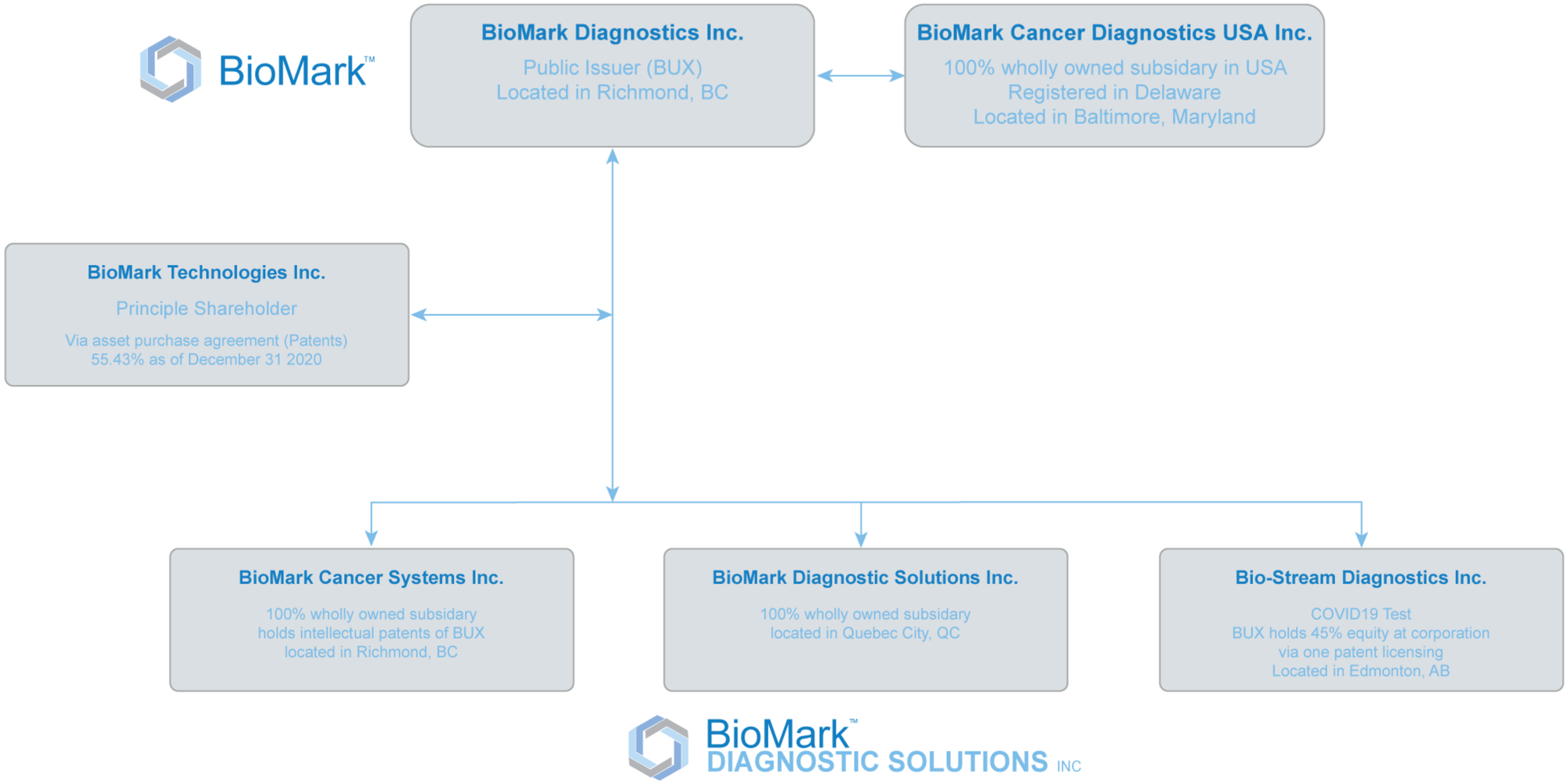
MANAGEMENT TEAM



Guoyu Huang – CFO

Guoyu (Gina) Huang, the CFO of BioMark Diagnostics Inc. and the President of BioMark Diagnostic Solutions Inc, has been a core management team member of BioMark since 2013. With the ability and experience to examine and understand business needs and deliver comprehensive solutions to the team, Gina has been instrumental in establishing a robust and transparent corporate structure, analyzing appropriate financial models, and implementing compliant reporting systems required by auditors and security agencies. Her international orientation has been important to work effectively alongside individuals from diverse backgrounds.
Prior to joining BioMark, Gina managed her own consulting firm, which offered financial and market-related services, that are directly invested in various high-tech start-ups. Gina obtained her Master of Business Administration from Vancouver Island University and a Master of Science from the University of Hertfordshire. She received training in Good Clinical Trial Practices in Saint Boniface Research Hospital and attended additional courses in Financing, Governance and Compliance at Simon Fraser University, topping off her degree with a certifying program in the Real Estate Trading Service Licensing at the University of British Columbia.

BIOMARK CORPORATE STRUCTURE



CURRENT FACILITIES IN NORTH AMERICA & GOBAL NETWORK

Clinical Laboratory
Québec, Canada

Head Office
Vancouver, Canada

Astrazeneca Global
UK

University of Brescia
Italy

China

Bangladesh

Pfizer
Canada

France

Mount Sinaï
New York, USA

Brazil

BIOMARK CAP TABLE SUMMARY

• Trading Symbols:	**CSE: BUX / OTCMKTS: BMKDF / FSE: 20B**
• Common Shares Issued and Outstanding:	**83,286,229**
• Warrants (@ $0.45):	**6,177,579**
• Options (@ $0.15 - $0.30):	**4,135,000**
• Insiders ownership:	**65%**
• Capital Raised (to-date):	**CAD $ 14.5 m**

WHAT WE OFFER

- Disciplined scale
- Growth oriented
- Solid Platform for hard to detect and treat cancers -Near commercial ready assays
- Strong sponsored research – peer reviewed/validation
- IP portfolio
- Defined route to revenue. Strategy and approach is defensible
- Clinical partners
- Execution focused team with value creating mindset

Contact Details

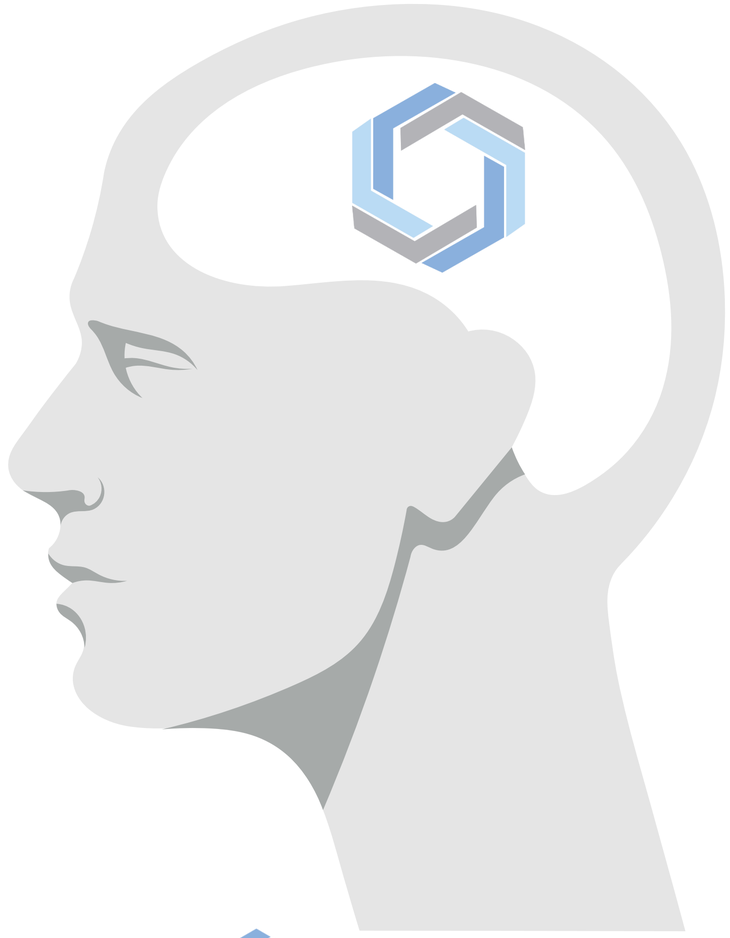
Rashid Bux

Founder and CEO

rahmed@biomarkdiagnostics.com

Mobile: 1- 604-836-6950

www.biomarkdiagnostics.com



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