



# Transforming cancer outcomes

May 2019

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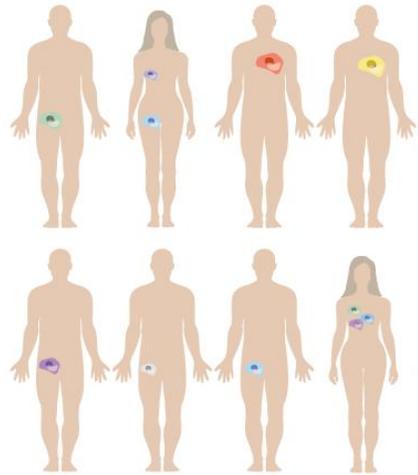
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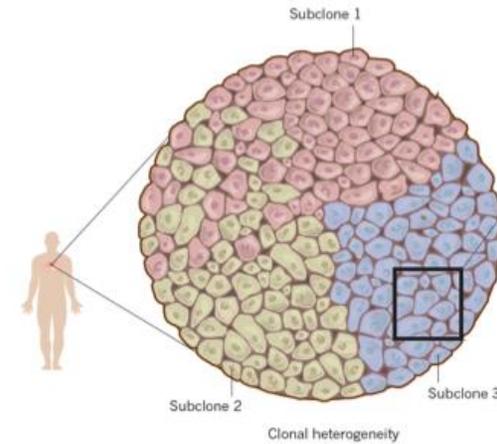
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# The problem: chemotherapy does not always work

## People are different



## Tumours are heterogenous



(Bartek & Swanton, Nature 2013)

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Unfortunately, chemotherapeutic treatments today are  
"one-size-fits-all."

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# The burden of cancer

THE GLOBAL CANCER BURDEN  
IS EXPECTED TO RISE TO  
**29.5 MILLION**   
in 2040

WORLDWIDE CANCER DEATHS  
Will increase by **71%** by 2040

CANCER TREATMENTS **35%** ARE EFFECTIVE

TREATMENT COSTS  
ARE    
RISING  
**TREATMENT OUTCOMES**  
HAVE NOT IMPROVED  
FOR MORE THAN 20 YEARS

# Pioneering Personalised Oncology

Addressing the vast and growing market need to improve cancer outcomes  
est. US\$200b for oncology by 2022\*

Improving patient outcomes via evidence based decision making  
Onco-PDO™ provides physicians with the missing datapoint to improve patient outcomes

First mover advantage  
commercialisation of novel technology in Europe and Asia underway

Highly-scalable business model  
versatile and powerful platform technology with wide applicability in multiple cancer indications

High calibre team experienced in commercialising novel technologies  
supported by leading international Scientific Advisory Board

\*<https://www.iqvia.com/institute/reports/global-oncology-trends-2018>

# Onco-PDO™

Right Drug | Right Patient | Right Time

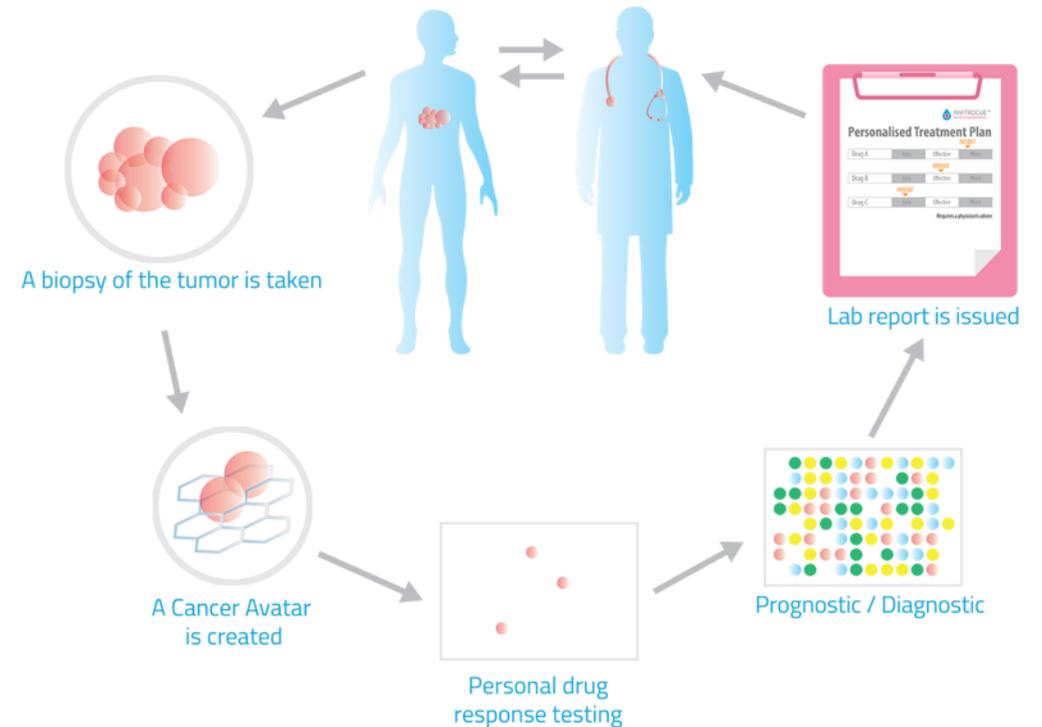


# Onco-PDO™

## How it works

- Fresh tumour taken from biopsy or surgery
- Panel of **over 80 approved chemotherapy drugs** available for testing on patient-derived cancer cells
- Turnaround time of **2 weeks**, real time and clinically actionable
- Detailed lab report generated

## Onco-PDO™ PERSONALISED DRUG TESTING



Onco-PDO™ provides a key datapoint to drive more informed clinical decisions

# Onco-PDO™

## Benefits

Tumour avatars are **representative** of individual patient's tumour (preserves heterogeneity)

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**Simulates drug response** of patients' cancer cells to different chemotherapies (including selected Immunotherapeutics)

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Provides oncologists with **actionable insights** to inform treatment decisions

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**Minimizes** side effects and wasted resources from **unnecessary treatments**

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# Onco-PDO™

Available today with multiple competitive advantages

	Patient-derived Organoids (PDO)	Patient-derived Xenografts (PDX)	Genomic Sequencing
Results in less than 2 weeks	✓	✗	✓
Predicts drug response	✓	✓	?
Cost effective	✓	✗	✓
Possibility for high throughput	✓	✗	✓
Patient-specific	✓	✓	✗

# Scientific Publications Recognised by International Medical Community

Scientific data on the effectiveness of Onco-PDO™ published in multiple peer-reviewed medical journals



**BioMed Research  
International**



nature  
**medicine**

**Biomaterials**



Wolters Kluwer

## Global expansion strategy

- First commercial revenue for Onco-PDO™ received in 2018
- Increasing number of patients utilising our test
- Global Key-Opinion-Leader education program initiated
- 3 international clinical validation studies ongoing
- International accreditation underway

Establishing Invitrocue laboratories in key markets to serve multiple countries



# Addressable incidence rates\*

Cancer Indication	Asia excl. India	Aus/NZ	Europe**
Head & Neck	437,973	9,767	97,168
Breast	515,932	22,062	237,493
Colorectal	627,329	21,217	218,938
Liver	496,213	2,921	34,601
<b>Total</b>	<b>2,077,447</b>	<b>55,967</b>	<b>588,200</b>

Source: World Health Organisation (WHO)

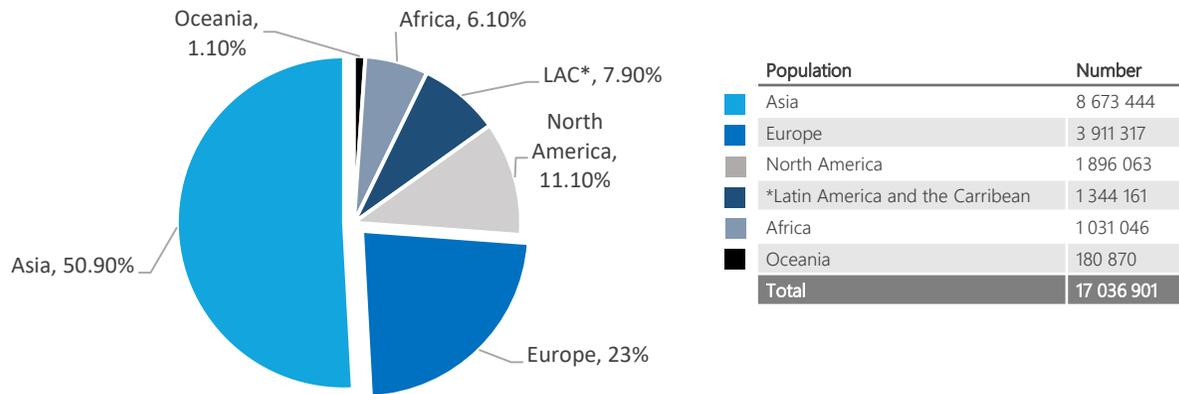
Research is ongoing with our collaborators to optimise protocols and expand indication menu.  
Future indications will include: Ovarian, Lung

\*Refers to absolute patient cases

\*\*Refers to Germany, Spain, UK, Austria, Russia

# The markets we address

Invitroque currently offers services in top 2 continents in cancer cases

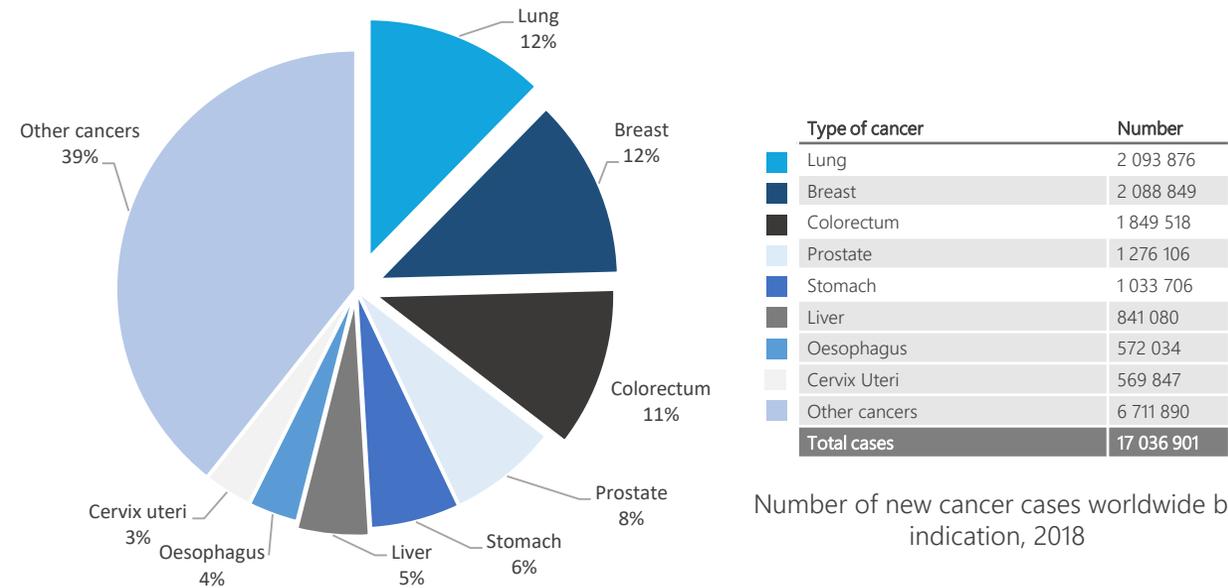


Onco-PDO™ is currently available in:

**Asia:** China, Philippines, Singapore, Thailand, Malaysia, Indonesia, Vietnam, Thailand, Australia, New Zealand

**Europe:** Germany, Spain, UK, Austria

Onco-PDO is available for 4 of the top 6 cancer indications worldwide



Number of new cancer cases worldwide by indication, 2018

# Onco-PDO™

## Our path ahead

Growing international **availability** via new partnerships in key markets

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**Strengthening** research capabilities and relationships via broadened **advisory board**

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Expanding indication menu

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Ongoing **clinical data generation**

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**Automation** to scale volume and revenue

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**Become standard-of-care** test to be reimbursed by healthcare systems

# Human liver cell services and products



## Liver Cell products and offering

### **Pre-clinical liver assay services:**

- Drug Metabolism (DMPK) assays
- Liver toxicity assays
- Infectious diseases assays testing for Hepatitis B and C
- Liver disease modeling

### **Humanised products:**

- Fresh hepatocytes (liver cells)
- Mice carrying humanised liver cells

## Rising need for *in vitro* human liver models for screening for liver disease drugs due to:

- Growing geriatric population and increasingly unhealthy lifestyle patterns driving increase in global liver disease cases
- Current lack of an available effective cure for a number of liver diseases:
  - Hepatitis B
  - Fatty liver and non-alcoholic steatohepatitis (NASH)
- Global liver disease treatment market valued at \$12.4 billion in 2009, and is expected to reach \$19.5 billion in 2022

Most **new drugs** **fail** in clinical trials due to **liver toxicity**

Human liver products:  
**Market opportunity**

# Focus for 2019

- Growing number of patients using Onco-PDO™
- Establish dedicated Onco-PDO™ lab facilities to service European market
- Validate Onco-PDO™ in new cancer types
- Expand clinical datasets in multiple indications
- Grow commercial offering via complementary tests
- Launch cancer-specific proprietary kits for scale-up in other labs
- Continued revenue growth based on commercial validation of core cell-based assaying business

A close-up photograph of two hands shaking, symbolizing agreement or partnership. The hands are positioned on the left side of the slide, with one hand being darker-skinned and the other lighter-skinned. A blue rounded rectangle is overlaid on the top right of the image, containing the text 'Reasons to invest'.

## Reasons to invest

### First mover advantage addressing large unmet market needs

- Serving the clear need for physicians and patients to improve treatment outcomes as cost of cancer soars
- Providing the datapoint to make more informed treatment decisions

### International roll-out underway, driving revenue growth

- Immediate go to market model
- Test readily integrates into routine clinical practice
- Clinical validation studies underway

### Clear growth prospects

- New cancer indications
- Continued international expansion
- High scalability

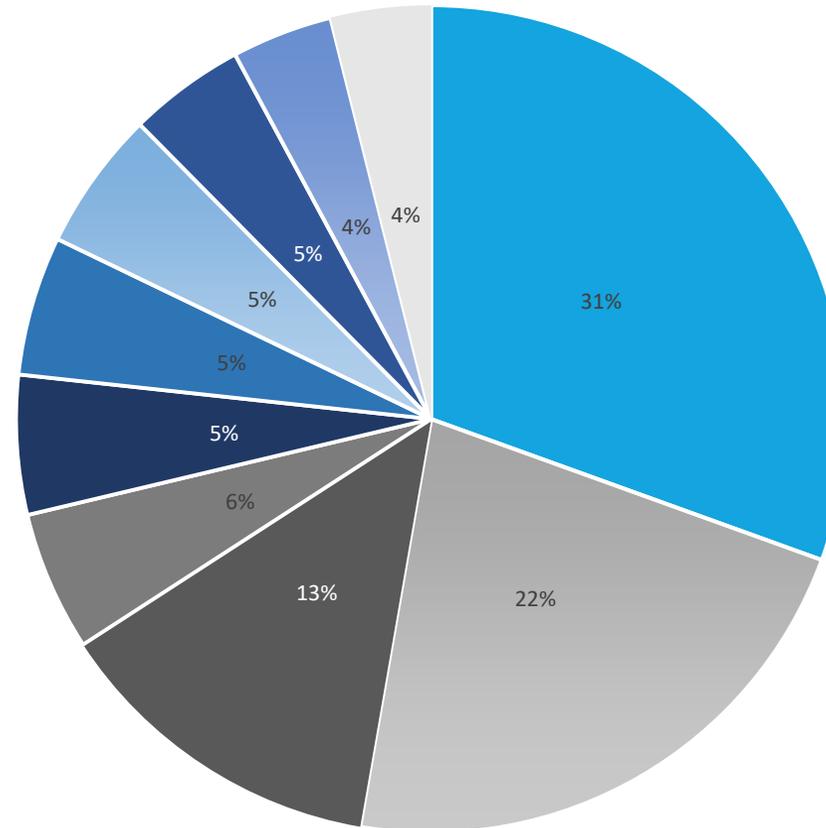
### Growing and diversified revenue stream

- Human liver cell business and HiMICE reduces operating risks

# Financial overview

<b>Exchange/ticker</b>	<b>ASX: IVQ</b>
Total ordinary shares outstanding	<b>525.33m</b>
Market Capitalization	<b>36.77m AUS</b>
Share Price	<b>0.07 AUS</b>

(As of 10 May 2019)



## Ownership structure

- FANG BOON SING
- CITICORP NOM PL
- YU HANRY
- NG MAN CHI
- CHAN KOC TIE
- CHAN YAT KEI
- CHEN YOU QUEN
- ICURE LTD
- J P MORGAN NOM AUST LTD
- INBRIDGE VENTURES PTE LTD

1. Derived from 4C report as of 30<sup>th</sup> September 2018  
2. Derived from 2018 Annual Report

# Led by Experienced Management Team



**Dr Steven Fang, PhD, MBA**  
Executive Chairman and Founder



**Mr Martin Bach, MBA**  
Vice President, Operations



**Dr Sunny Tan, PhD**  
Senior VP Scientific Affairs &  
Business Development



**Dr. Andreas Lindner, PhD**  
CEO of Invitrocue Europe AG

# Global Advisory Board



**Prof. Narayanan  
Gopalakrishna Iyer**  
Chair, Clinical Advisory Board  
Singapore



**Prof. Chng Wee Joo**  
Clinical Advisor  
Singapore



**Dr. Christian Peschel**  
Clinical Advisor  
Germany



**Dr. Stefan Paepke**  
Clinical Advisor  
Germany



**Prof. Jesús  
García-Foncillas**  
Clinical Advisor  
Spain



**Prof. David Waugh**  
Clinical and Scientific Advisor  
Australia



**Prof. Ariel Zeng**  
Scientific Advisor  
China



**Dato' Dr. Sharifuddin  
Abdul Wahab**  
Global Insurance Advisor  
Malaysia



**Prof. Masakazu Toi**  
Clinical Advisor  
Japan



**Dr. Alex Matter**  
Pharmaceutical Advisor  
Singapore



# Thank You

For more information please contact:

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# Appendix

# Board of Directors



**Dr Steven Fang**

Chairman and Founder



**Prof. Henry Yu**

Non-Executive Director and  
Scientific Mentor and Advisor



**Ms Ng Ee Ting**

Non-Executive Director



**Dr Gary Pace**

Non-Executive Director  
Former Director of  
ResMed



**Dr Andreas Lindner**

CEO of Invitrocue Europe AG



**Mr Kit Wei Lui**

Non-Executive Director

# Business model overview



## Onco-PDO™

- Targeted and personalised approach to cancer treatments
- Ranks the therapeutic options best suited for each individual's cancer
- Developed in collaboration with A\*STAR's Genome Institute of Singapore
- Commercialised in Europe and Asia
- International clinical validation studies underway



## Human Liver Services and Products

- Well-established, revenue generating business unit
- Engineering in vitro & in vivo liver models for safety and efficacy testing
- Predictive in vitro models for biotech, pharmaceutical industry, and consumer health companies
- Reduces clinical trial spend by highlighting liver toxicity early in development phase