



HARNESSING B-CELLS FOR CANCER IMMUNOTHERAPY

Leslie Chong
Managing Director & CEO

February-March 2019

NOTICE: FORWARD LOOKING STATEMENTS

Any forward looking statements in this presentation have been prepared on the basis of a number of assumptions which may prove incorrect and the current intentions, plans, expectations and beliefs about future events are subject to risks, uncertainties and other factors, many of which are outside Imugene Limited's control. Important factors that could cause actual results to differ materially from any assumptions or expectations expressed or implied in this brochure include known and unknown risks. As actual results may differ materially to any assumptions made in this brochure, you are urged to view any forward looking statements contained in this brochure with caution. This presentation should not be relied on as a recommendation or forecast by Imugene Limited, and should not be construed as either an offer to sell or a solicitation of an offer to buy or sell shares in any jurisdiction in which it would be a contravention of applicable law.

EXECUTIVE SUMMARY

Investment Highlights

01

- Novel immuno-oncology B-cell peptide vaccine technology
- Outstanding scientific provenance from leading U.S. and European universities
- Drug is safe and well tolerated
- Sound cash position
- Robust intellectual property portfolio & long patent life including checkpoint inhibitor combinations
- Manufacturing straightforward with low cost of goods
- Published in leading peer review journals

Imugene B-cell Vaccine Pipeline

02

- Phase 1 clinical data in Her-2 breast and gastric cancers
- HER-Vaxx:
Phase 1b recruitment completed
Phase 2 activity commenced
- B-Vaxx:
Phase 2 ongoing
- KEY-Vaxx:
pre-clinical work started
Phase 1 to commence in 2019

Experienced Management & Board

03

- Meeting milestones
- Successful M&A activity
- Internationally recognised members of the Scientific Advisory Board

A TEAM WITH A TRACK RECORD IN DRUG DEVELOPMENT



Leslie Chong
SYDNEY, AU
Managing Director & CEO

- Over 20 years of oncology experience in Phase I – III of clinical program development
- Leadership role involvement in two marketed oncology products
- Previously Senior Clinical Program Lead at Genentech, Inc., in San Francisco



Paul Hopper
SYDNEY, AU
Executive Chairman

- International & ASX biotech capital markets experience particularly in immuno-oncology & vaccines
- Former Chairman of Viralytics, Founder & Director of Prescient, Founder of Imugene & Polynoma LLC, former Director pSivida, Somnomed & Fibrocell Science



Dr Axel Hoos
PHILADELPHIA, USA
Non-Executive Director

- Senior Vice President and Head of Oncology at GSK
- Former Medical Lead for Yervoy, the first survival improving medicine in Immuno-Oncology
- Chairman of the BoD of the Sabin Vaccine Institute
- Co-Chair of the Cancer Immunotherapy Consortium Think-Tank



Mr Charles Walker
BRISBANE, AU
Non-Executive Director

- Experienced listed biotech CEO and CFO (ASX;ACL and ASX:IMU)
- Experienced in financial markets including executing 55 international tech corporate transactions
- Clinical experience includes managing pipeline of drugs in all stages from discovery, through to Phase III to launched products



Dr Mark Marino
CALIFORNIA, USA
Chief Medical Officer

- Over 28 years of experience in drug development
- Former CMO of Cytori, Head of Clinical Pharmacology at Eisai and Roche, Head of Research and Early Development at Mannkind, VP Clinical Development at Daiichi



Dr Nick Ede
MELBOURNE, AU
Chief Technology Officer

- Over 25 years peptide vaccine and drug development
- Former CEO Adistem, CEO Mimotopes
- VP Chemistry Chiron (now Novartis), Research Fellow CRC Vaccine Technology



Dr Anthony Good
SYDNEY, AU
Vice President of Clinical Research

- Over 20 years global clinical development experience.
- Integral to the development of significant new medicines including Viagra, Revatio, Lipitor, and Somavert.
- Ex Pfizer Global Research and Development, Ex Covance Clinical Services.

IMUGENE SCIENTIFIC ADVISORY BOARD



Prof Pravin Kaumaya
OHIO STATE UNIVERSITY, USA

- Prof of Medicine Department of Obstetric Gynecology at Ohio State University
- Research focus in tumour immunology, mechanisms of tumour cell-immune cell interactions, and immune mechanisms
- Research focus on fields of vaccine with emphasis on peptide vaccines for cancer



Dr. Michael Galigiuri
CITY OF HOPE, USA

- President of City of Hope National Medical Center and holds the Deana and Steve Campbell Physician-in-Chief.
- Elected President of the American Association for Cancer Research (AACR) in 2017



Prof. Josep Tabernero
VALL D'HEBRON, BARCELONA, SPAIN

- President of European Society for Medical Oncology (ESMO)
- President of the Medical Oncology Department at the Vall d'Hebron
- Director of the Vall d'Hebron Institute of Oncology (VHIO)



Prof Tanios Bekail Saab
MAYO CLINIC, USA

- Professor of College of Medicine and Science
- Program Co-Leader, GI Cancer, Mayo Clinic Cancer Center
- Medical Director, Cancer Clinical Research Office (CCRO)
- Senior Associate Consultant, Mayo Clinic AZ



Prof Peter Schmid
BARTS CANCER INSTITUTE, QUEEN MARY UNIVERSITY OF LONDON

- Medical Oncologist
- Expertise in breast and lung cancer, cancer immunotherapy and early drug development
- Leads the Centre of Experimental Medicine at Barts Cancer Institute



Prof. Ursula Wiedermann-Schmidt
MEDICAL UNIVERSITY OF VIENNA, AUSTRIA

- Co-inventor of HER-Vaxx
- Professor of Vaccinology at Medical University of Vienna



Dr Neil Segal
MEMORIAL SLOAN KETTERING CANCER CENTER, USA

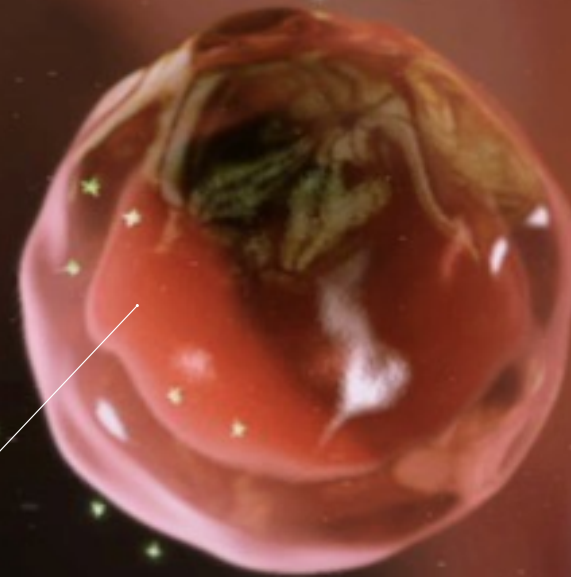
- Medical Oncologist
- Expertise in GI, Colon, Pancreatic cancers
- Active clinical immunology researcher
- Clinical lead in several trials using PD-L1 inhibitors



Dr Yelina Janjigian
MEMORIAL SLOAN KETTERING CANCER CENTER, USA

- Medical Oncologist
- Expertise in esophageal and stomach (gastric) cancer
- Active in GI clinical trials testing combinations of Her-2 and checkpoint inhibitor therapies

**Imugene develops
vaccines
to boost and direct the
body's immune system
to specifically target and
attack cancer cells**



**Monoclonal antibodies
are manufactured in a
facility**

For example, Merck's
PD-1 inhibitor Keytruda®



**IS THERE
A BETTER
WAY TO MAKE
ANTIBODIES
TO TREAT
CANCER?**



IMUGENE
**Using B-cells
in your body**

Teaching B-cells to
make antibodies using
peptide antigens

**B-cells are cells
in the human
body that
naturally
produce millions
of antibodies**

HER-VAXX MIMOTOPE: MECHANISM OF ACTION?



CURRENT PHASE 1B/2, IN GASTRIC CANCER

Phase 1b - Complete



Trial

- Phase 1b
- Open label



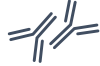
Patients

- Gastric Cancer
- Up to 18 patients in 3 cohorts (10, 30 and 50 µg)



Study

HER-Vaxx in combination with chemo: Cisplatin and 5FU or capecitabine



Endpoints

- Recommended Phase 2 Dose of HER-Vaxx
- Safety and Toxicity
- Immunogenicity (anti-HER-2 antibody titres)



Study Results

- 50 µg selected as the RP2D
- No safety or toxicity issues
- All patients had increased antibody response
- Best Response Rates
 - **1 Complete Response**
 - **5 Partial Response**
 - **4 Stable Response**

2H, 2017
PHASE 1B
PATIENTS
ENROLLED

2H, 2018
PHASE 1B
COMPLETED



CURRENT PHASE 1B/2, IN GASTRIC CANCER

Phase



Trial

- Phase 2
- Open label



Patients

- Gastric Cancer
- Up to 70 patients



Study

Randomized
HER-Vaxx in combination with standard of care chemotherapy

Or
Standard of care chemo: Cisplatin and 5FU or capecitabine or oxaliplatin



Primary Endpoints

- OS
- PFS

Secondary Endpoints

- Safety and Tolerability
- Immune response

1H, 2019:
COMMENCE
PHASE 2

TBD:
INTERIM
PHASE 2
DATA
AVAILABLE

**STRATEGIC
AQUISITION**

Three year
R&D contract with
access to Ohio
translational labs



Access to
experience and
expertise with
Prof. Pravin
Kaumaya and
team

Six additional
clinical candidates
Her-1, Her-2, Her-
3, VEGF, IGF-1R
CD28

Six patent
families,
22 patents

Worldwide
exclusive
license

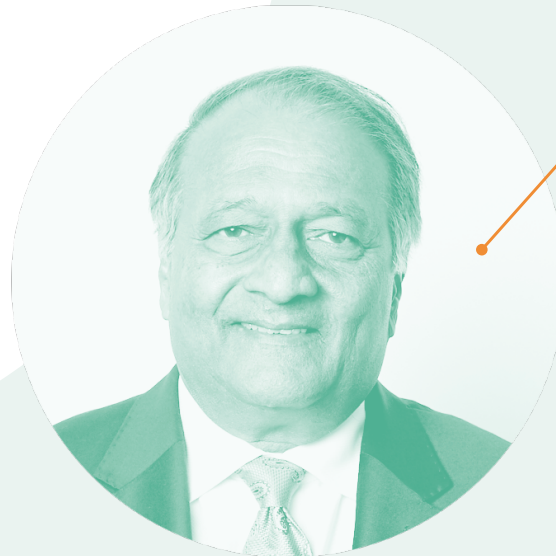
IND ready
PD-1 clinical
trial (Phase 1)

Ongoing Her-2
clinical trial
(Phase 2)

COULD PRECISION- ENGINEERED PEPTIDE EPITOPES/ VACCINES BE THE KEY TO A CANCER CURE?



DR TANIOS BEKAII SAAB
MAYO CLINIC, USA

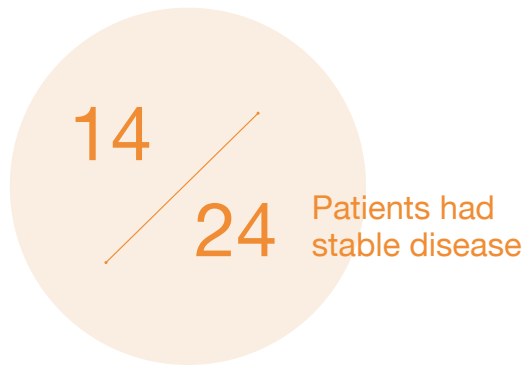


“Combination cancer vaccines with peptide mimics have the potential to treat existing cancer and prevent its reoccurrence.”

PROF PRAVIN KAUMAYA
OHIO STATE UNIVERSITY, USA

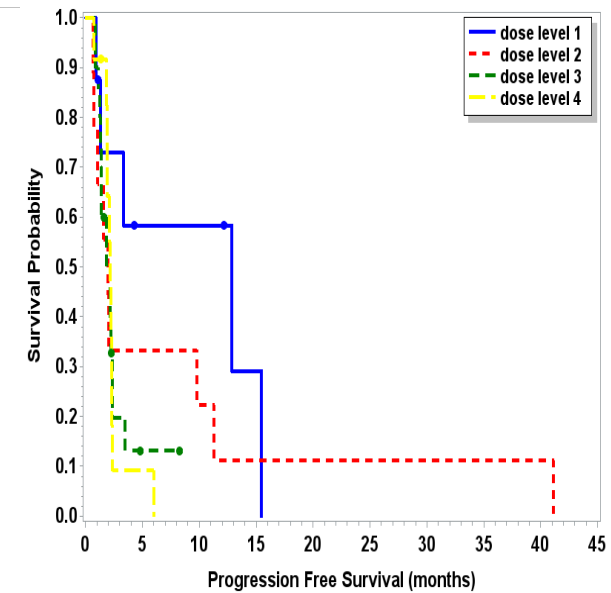
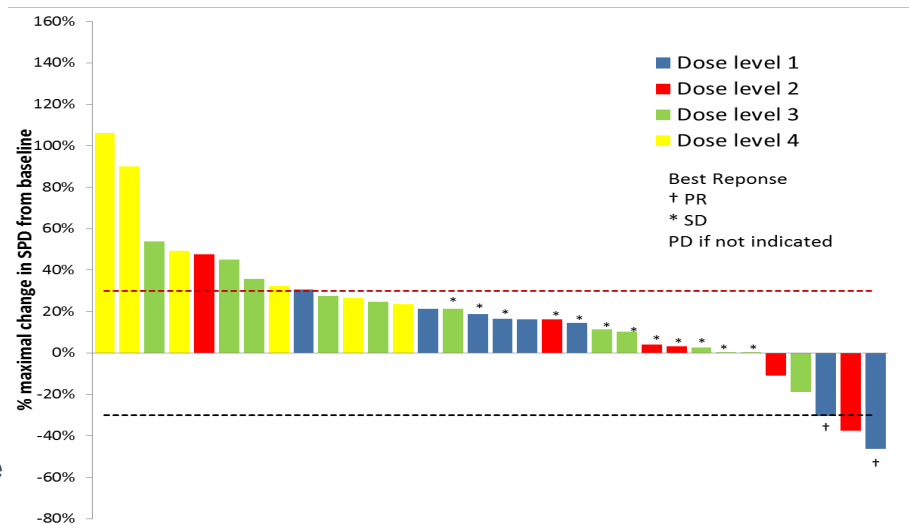
ACQUIRED HER-2 VACCINE (B-VAXX)

ENCOURAGING PHASE 1 TRIAL RESULTS



2 out of 24 patients had partial response
1 patient had PFS at 40+ months

**NO TOXICITY
OBSERVED**



IMUGENE PIPELINE

Clinic or
Clinic-ready

Program

Pre-clinical

Phase 1

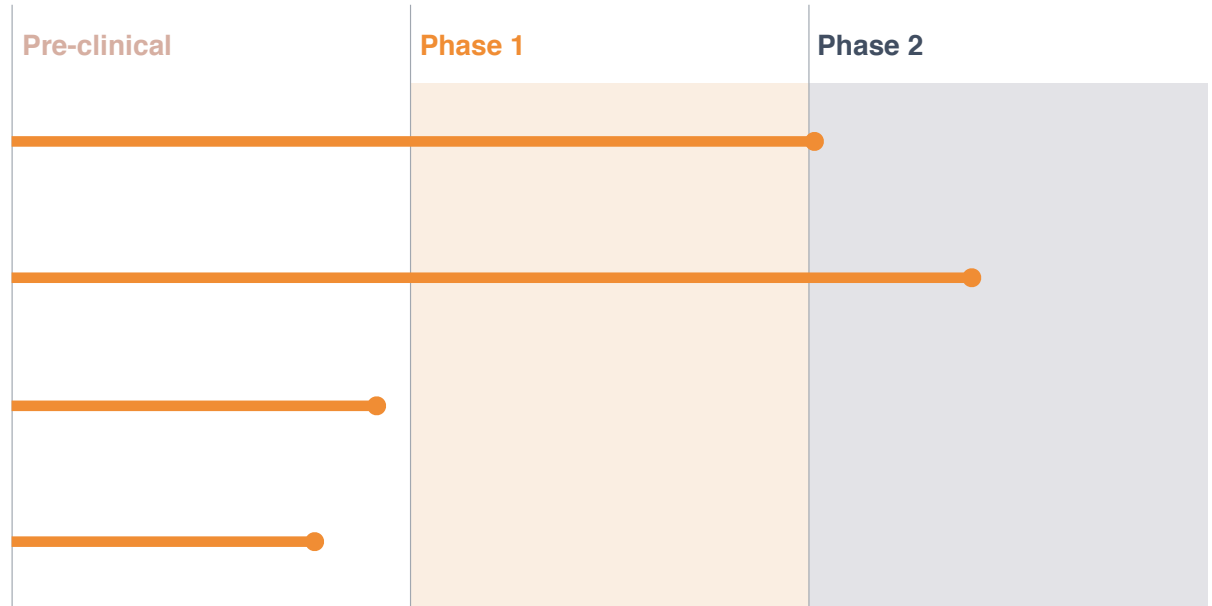
Phase 2

HER-Vaxx (HER2)

B-Vaxx (HER2)

KEY-Vaxx (PD-1)

Her-2 & PD-1 Combo



IMUGENE PIPELINE

Discovery Pipeline

Program

Pre-clinical

ID of candidate

Her-1 (EGFR)

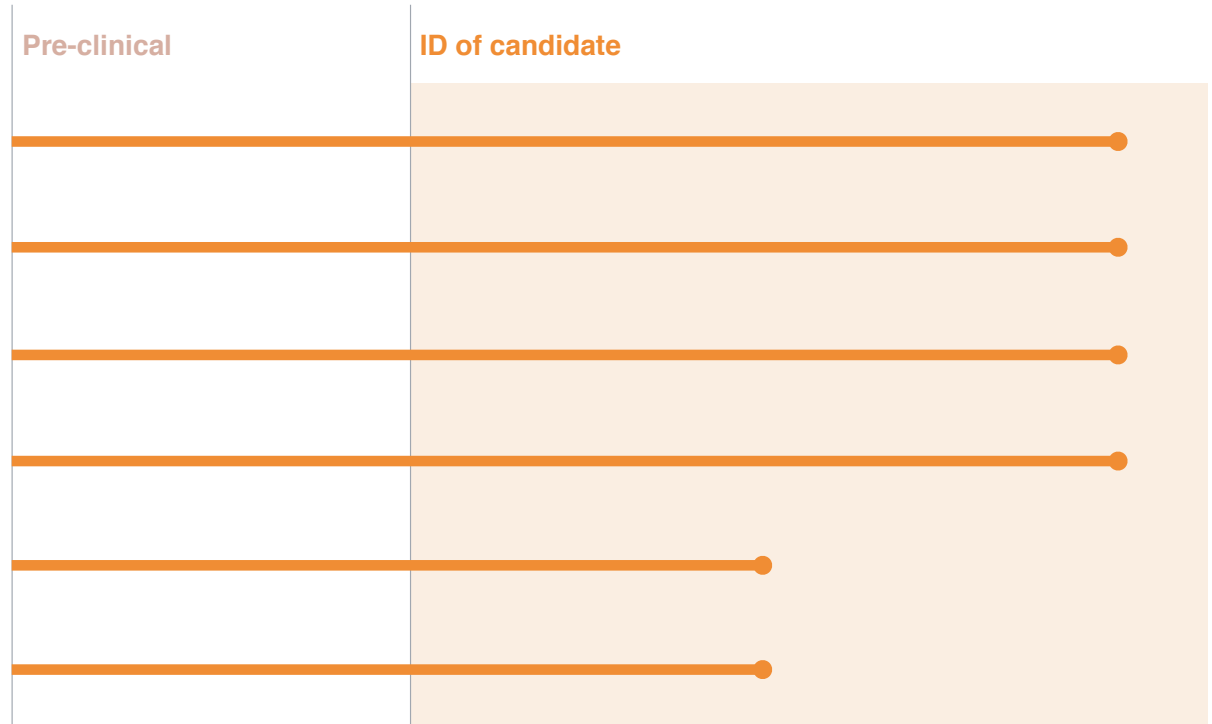
Her-3

IGF-1R

VEGF

Combination
(numerous)

PD-L1



WHY SELECT & TARGET PD-1 FOR B-CELL VACCINATION?

Monoclonal antibody immunotherapies Keytruda® (Merck) and Opdivo® (BMS) targeting PD-1 sold **USD\$3.8B and \$4.9B**, respectively, in 2017.

The combination of the PD-1 vaccine with the acquired Phase II Her-2 vaccine **significantly inhibits tumor growth** c/w mAb control in a Her-2+ model of colon cancer.

In industry-recognised mouse cancer models (colon cancer), the PD-1 targeting B-cell vaccine is **more superior than the gold standard mouse PD-1 monoclonal antibody** (used in preclinical model testing for Keytruda and Opdivo).

Whilst acknowledging the rapid rise in clinical trials involving PD-1 and their combination with other treatments*, a PD-1 B-cell vaccination approach represents a **paradigm shift in cancer immunotherapy.**

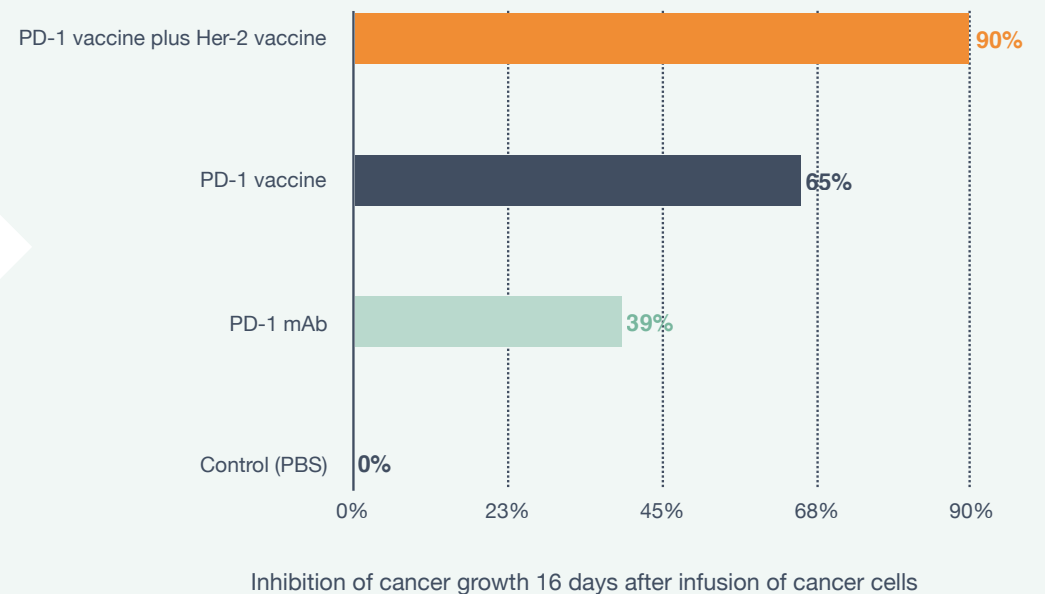
* Tang et al. Comprehensive analysis of the clinical immuno-oncology landscape, Annals of Oncology, 2017

PD-1/HER-2 VACCINE COMBINATION

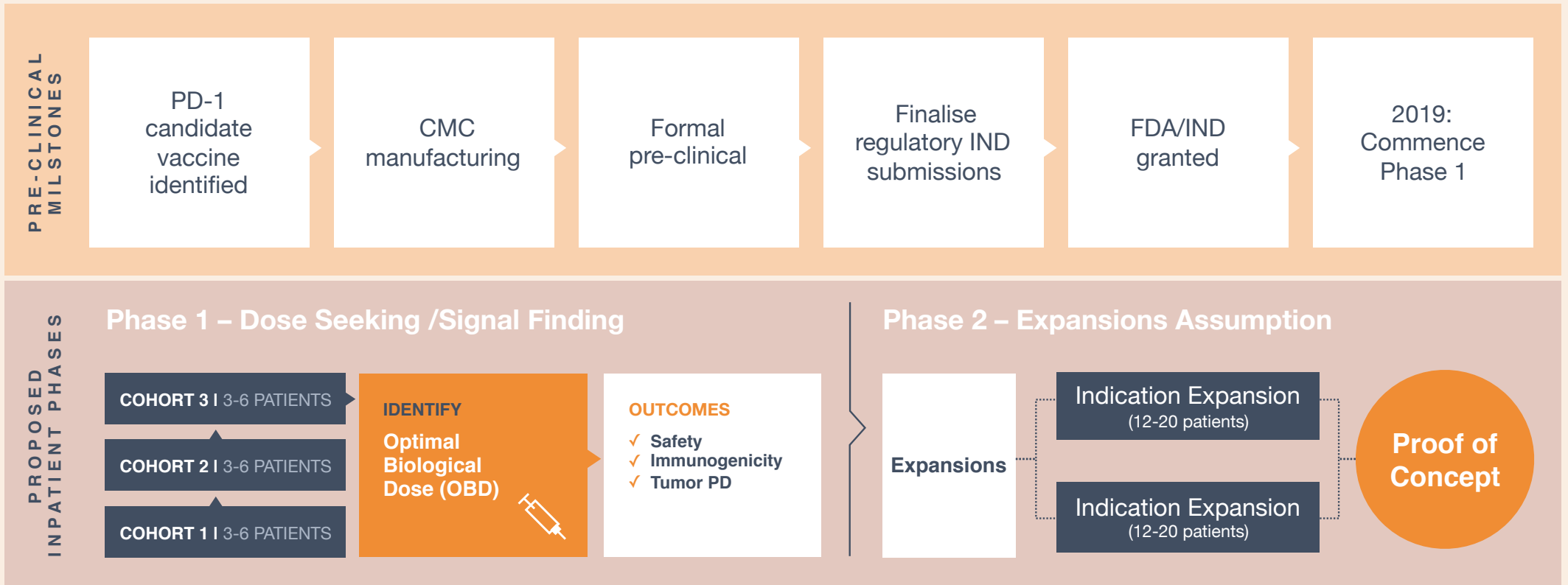
Active in model of colorectal cancer with no signs of toxicity

- ✓ All mice vaccinated over a period of 9 weeks showed no signs of scruffiness, lesions, and lethargy.
- ✓ Organs (spleen, liver, heart, lung, kidney, and tumor) from the Balb/c mice vaccinated with combination peptides (HER-2 and PD-1) were collected from mice and submitted for analysis.
- ✓ No significant lesions were noted in any of the organs submitted for histologic evaluation.
- ✓ There were also no overt biochemical abnormalities noted.

% Cancer growth inhibition in colorectal cancer model



PD-1 'KEY-VAXX' VACCINE PHASE 1 DEVELOPMENT PATH 2018-2019



FINANCIAL SUMMARY

Options on issue	NO. OF OPTIONS	EXERCISE PRICE	EXPIRY
Listed: (IMUOA)	242.5M	\$0.026	30/11/2020
Listed:(IMUOB)	248.3M	\$0.04	30/11/2021
Unlisted:	134.5M	\$0.0247*	09/03/2020*
Total:	625.3M	\$0.03*	02/01/2021*

Top 5 shareholders (as at January 2019)	NO. OF SHARES	% CAPITAL
Private Portfolio Management	224,551,412	6.22%
Platinum Asset Management	141,246,879	3.91%
Dr. Nicholas Smith	100,000,000	2.77%
Paul Hopper, Executive Chairman	76,178,722	2.11%
Sarah Cameron	60,000,000	1.66%

* Average



Market Cap

(Jan 19)

\$64.9M AUD

\$46.5M USD



12 month price range

1.3c – 4.0c

AUD



Investment to date

~\$42.5M PUBLIC

~\$5.5M VC



Ordinary shares

3.610B



Average daily volume

6.4M shares

(Oct 18 – Jan 19)



Cash & Equivalents

\$24.05M

(as at 31 Dec 2018)



Leslie Chong
Managing Director & CEO
leslie.chong@imugene.co
m
+61 458 040 433
