



PharmAust

L I M I T E D

ASX: PAA

ACN 094 006 023

Investor Presentation

August 2016

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Financial Snapshot

ASX Code	PAA
Total Shares on Issue	92,503,645
Market Cap (at 8.5c per share)	\$8.5M
Cash (last Qtr)	\$1.3M
Debt (last Qtr) ¹	\$500,000
Sales (est)	\$2.4M

Data as of June 30, 2016

¹ EFIC loan to Epichem

Business Overview

- **Proprietary Technology** based on New Use of a registered drug– **discovery of drug new class of targeted therapy for cancer**
- **Lead product Monepantel-MPL, registered for Veterinary Use by Novartis Animal Health (anti-parasitic)**
- **Research Option Agreement with Novartis** for veterinary cancer applications & **Joint patents with large Japanese chemical/pharma – Nihon Nohyaku**
- **Epichem subsidiary - profitable business, achieves estimated sales \$2.4M in 2016**
- **Phase II (VET) initiated in canine cancer at the Department of Veterinary Sciences, University of Cambridge UK – Phase II (MAN) Identifying Centres (Adelaide, Melbourne, USA)**
- **Signed a Mandate** with prominent New York-based investment bank, Joseph Gunnar & Co LLC, for a fully underwritten Registered Public Offering in the USA Funds to support Phase II

Investment Highlights 2016-2017

Investor value inflection points based on:

- **Phase II outcome man** – Phase I complete and Phase II centres being identified
- **Phase II (VET) outcome canine** – trials underway, Department of Veterinary Medicine of the University of Cambridge
- **Exercise of Option** by Novartis Animal Health if Phase II (VET) if clinical benefit shown
- **Epichem Business** enjoying growing revenues – forecast \$2.4M in 2016 and \$10M by 2021
- **Licence Agreement** for Phase II (MAN) if clinical benefit shown
- **Tight capital structure** - \$8.5M market cap Top 20 own approximately 50%
- **US Road Show in October 2016** for US NASDAQ Listing and Capital Raise
- **Initiation of pivotal registration trial** in dogs with global partner

Key Drivers for Phase II in Man and Canines

- **Phase I (MAN)** demonstrated safety and activity in patients that failed all “standard of care” (9 patients)
- **Phase I (VET)** demonstrated safety and activity in patients that failed all “standard of care” (11 patients)
- **Combinations of Chemo and MPL** did not result in toxicity
- **Cancer Markers** based on mechanism of action in both MAN and VET showed suppression
- **Phase II in canines** beginning recruitment in Australia (Dr Frimberger (NSW) and Dr Dobson (University of Cambridge))
- **Preclinical work at St George Hospital** demonstrated anticancer activity in over 20 cancers in cell culture and in mouse models
- **GenScript confirmed marker suppression** and inhibition of tumour growth
- **Very good safety** in both man and canines
- **Palatability issues** resolved by capsule formulation
- **MPL already in market** by Novartis
- **Drugs in market** based on proposed Mechanism generating substantial revenues for major pharma

Elevated p-RPS6KB1(p70s6k) is Associated with Poor Outcomes in Cancer

High p-RPS6KB1 in patients with colorectal, lung, ovarian, pancreatic and hepatic cancers correlates with:

- Resistance to therapy
- Aggressive disease
- Poor prognosis
- High metastasis

1) Rapamune – sirolimus (Pfizer): kidney rejection – tested in cancers:

2015 sales = US \$200 million

2) Afinitor - everolimus (Novartis): European Medicines Agency for renal cell carcinoma: 2015 annual sales = US \$300 million

3) Torisel - temsirolimus (Pfizer): EMA approval for renal cell carcinoma

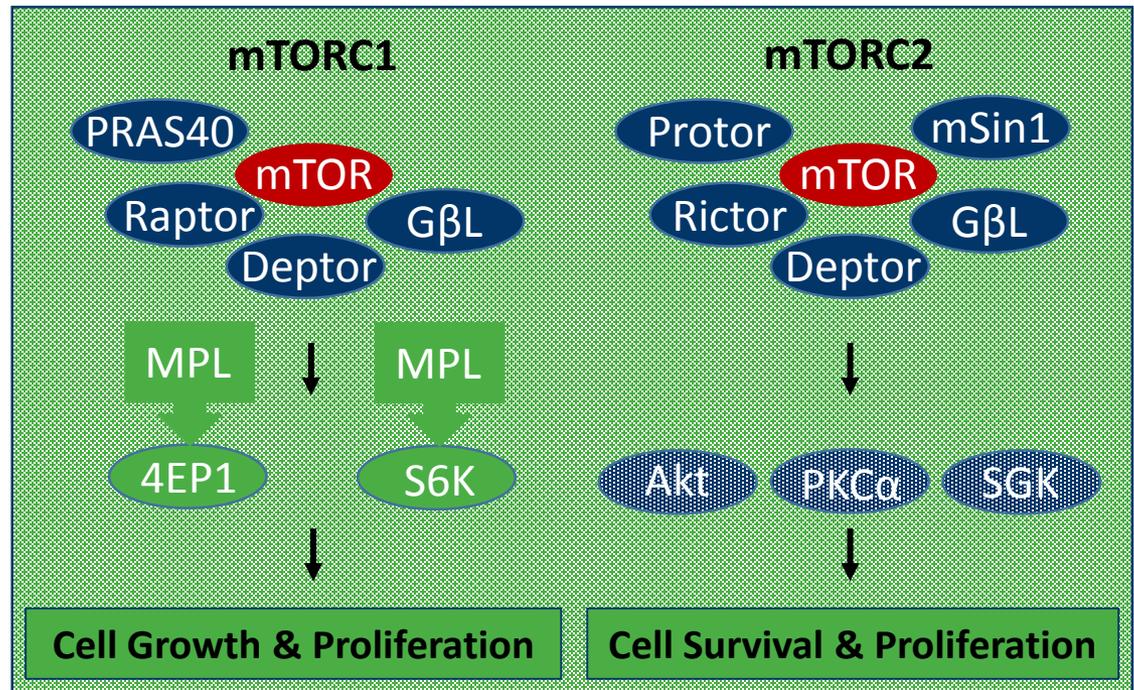
2015 annual sales = US \$300 million

High s6k Correlates with Multiple Negative Outcomes

High s6k (p70s6k) in patients correlates with:

- ❖ Resistance to therapy
- ❖ Aggressive disease
- ❖ Poor prognosis
- ❖ High metastasis

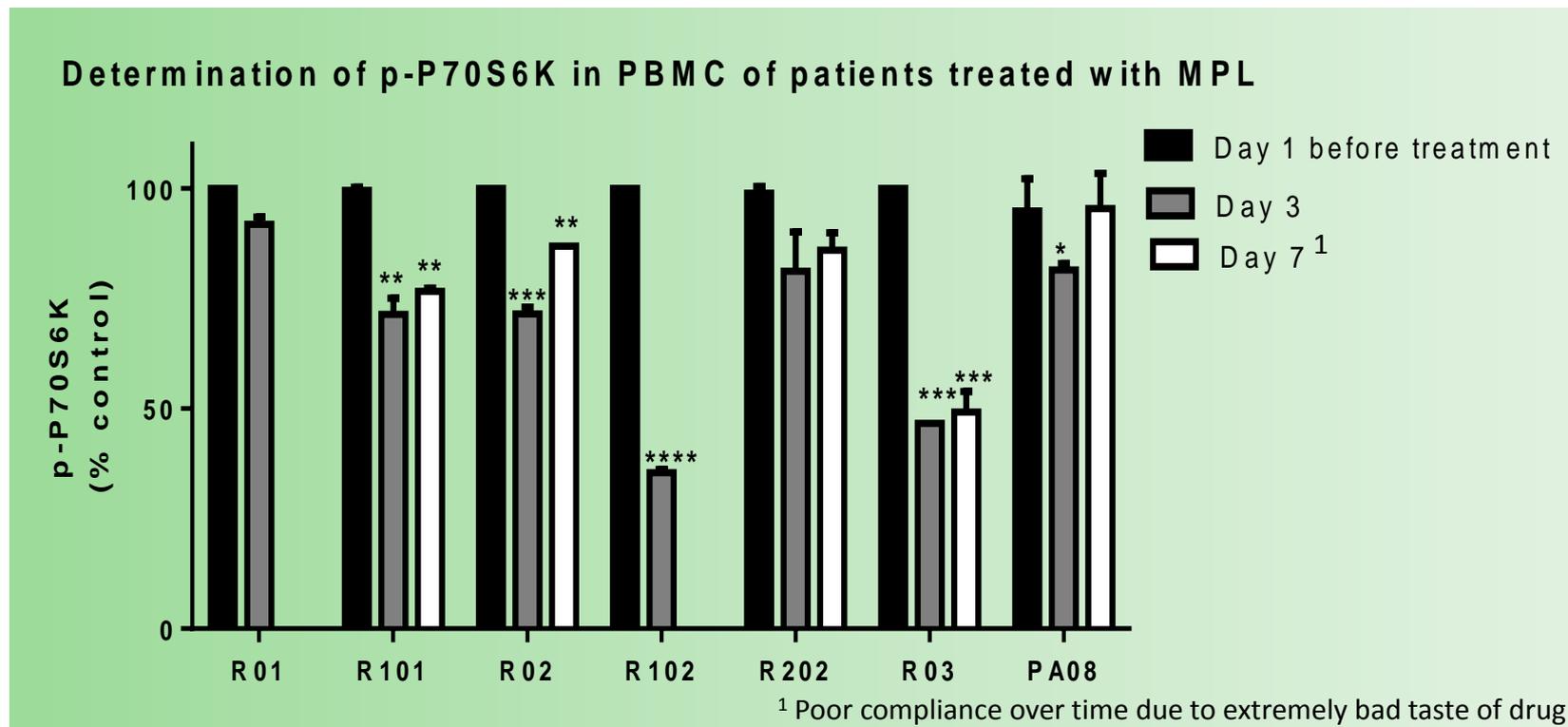
Two complexes of mTOR
(mammalian target of rapamycin)



mTOR pathway depiction by:

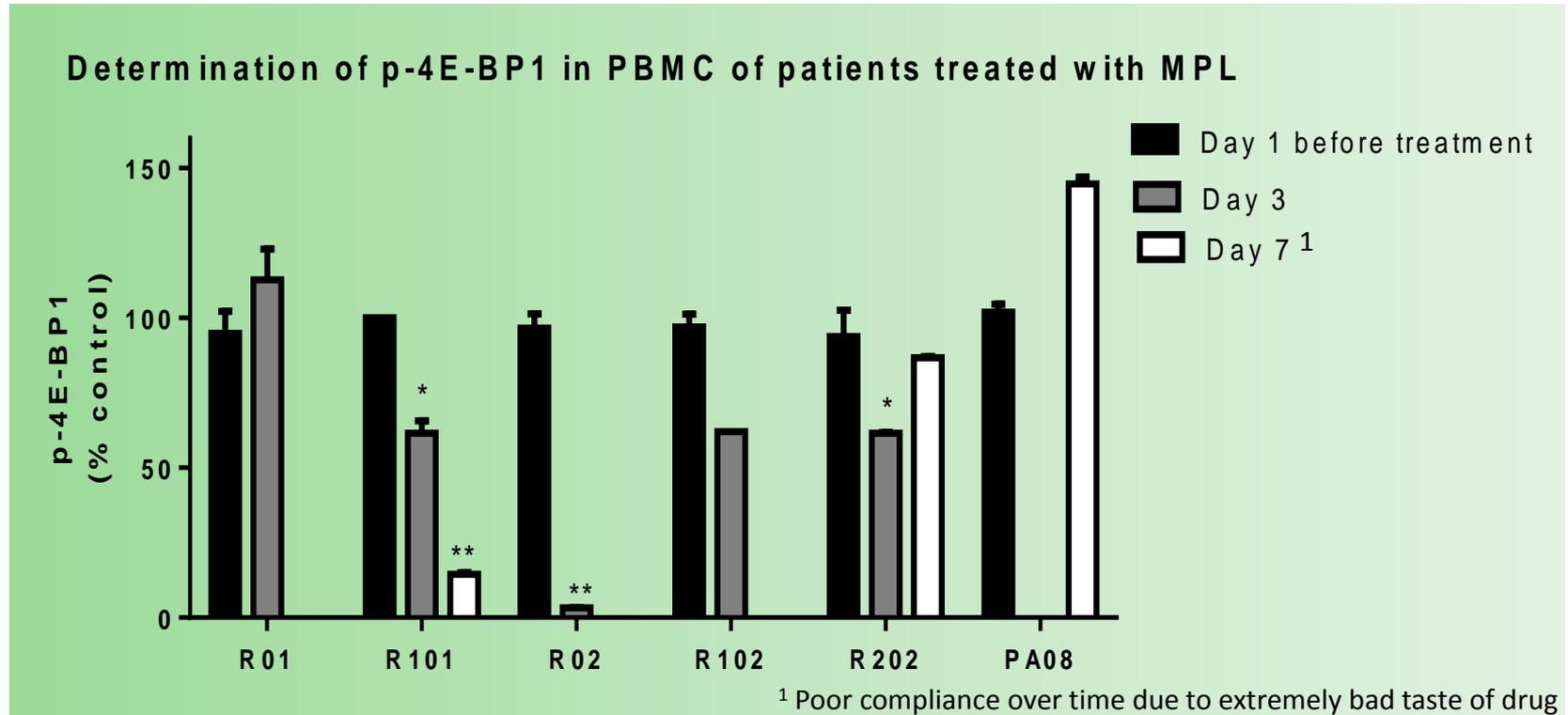
Marc Dufour, Anne Dormond-Meuwly, Nicolas Demartines and Olivier Dormond
Cancers 2011, 3, 2478-2500; doi:10.3390/cancers3022478

Suppression of p70s6k by MPL in Humans



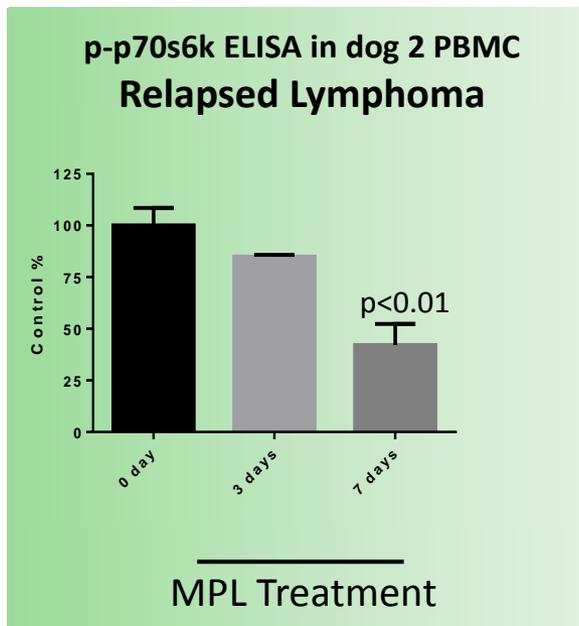
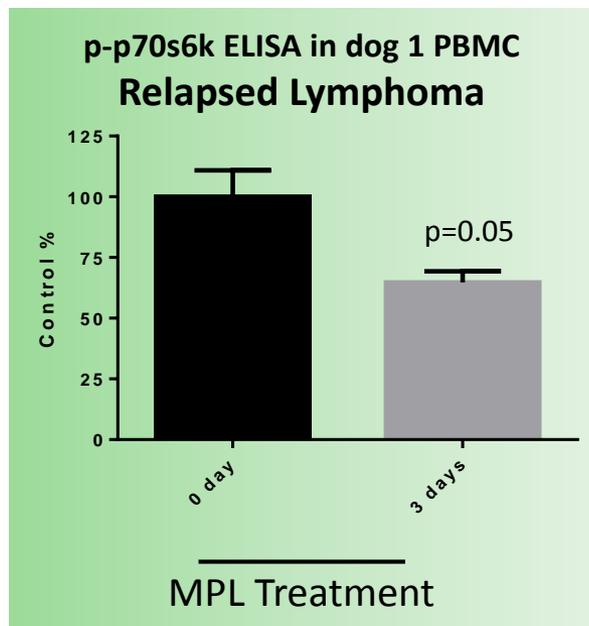
COMPARISON	SIGNIFICANT	p-VALUE
Day 1 vs. Day 3	Yes	*** 0.0004
Day 1 vs. Day 7	Yes	** 0.0020

Suppression of p-4E-BP1 by MPL in Humans



COMPARISON	SIGNIFICANT		p-VALUE
Day 1 vs. Day 3	Yes	*	0.0440
Day 1 vs. Day 7	No	ns	0.6086

Suppression of p70s6k and tumour size and increased QOL by MPL in Canines



8 dogs (Lymphoma, Melanoma, Adenocarcinoma, Osteosarcoma) – increased QOL but poor taste

COMPASSIONATE USE CHEMOTHERAPY COMBINATION							
Dog	Tumour Type	Capsule	Dose (mg/kg bw)	Combination Therapy	Duration (days)	Outcome	Safety Events
Dog 1	Oral malignant melanoma nodal metastasis	Yes	3.5	Carboplatin, 250 mg/m ²	28	PD	None
Dog 2	Appendicular OSA pumonary metastases	Yes	4.8	Carboplatin, 250 mg/m ²	23	PD - anecdotal improved QOL	None

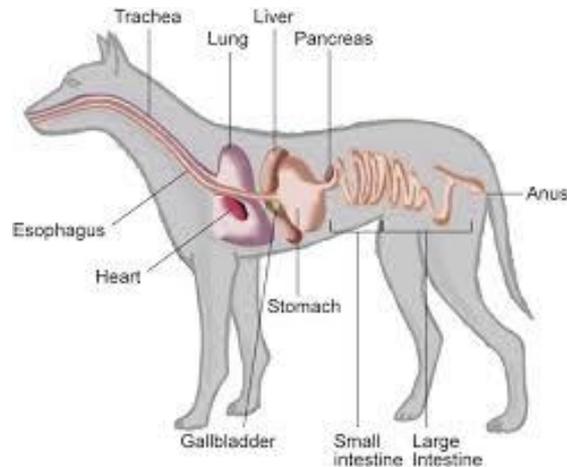
Canine Cancer Trial

Department of Veterinary Medicine,
University of Cambridge



Aims:

- Extend on Phase I canine cancer trial undertaken in Sydney which showed suppression of cancer marker p-Rps6kb1
- Demonstrate tumour regression or progression free survival
- Outcome trigger for Co-development with partner



UNIVERSITY OF
CAMBRIDGE

Major palatability drawback of MPL in human and canine trials now resolved

 **Juniper**
PHARMA SERVICES

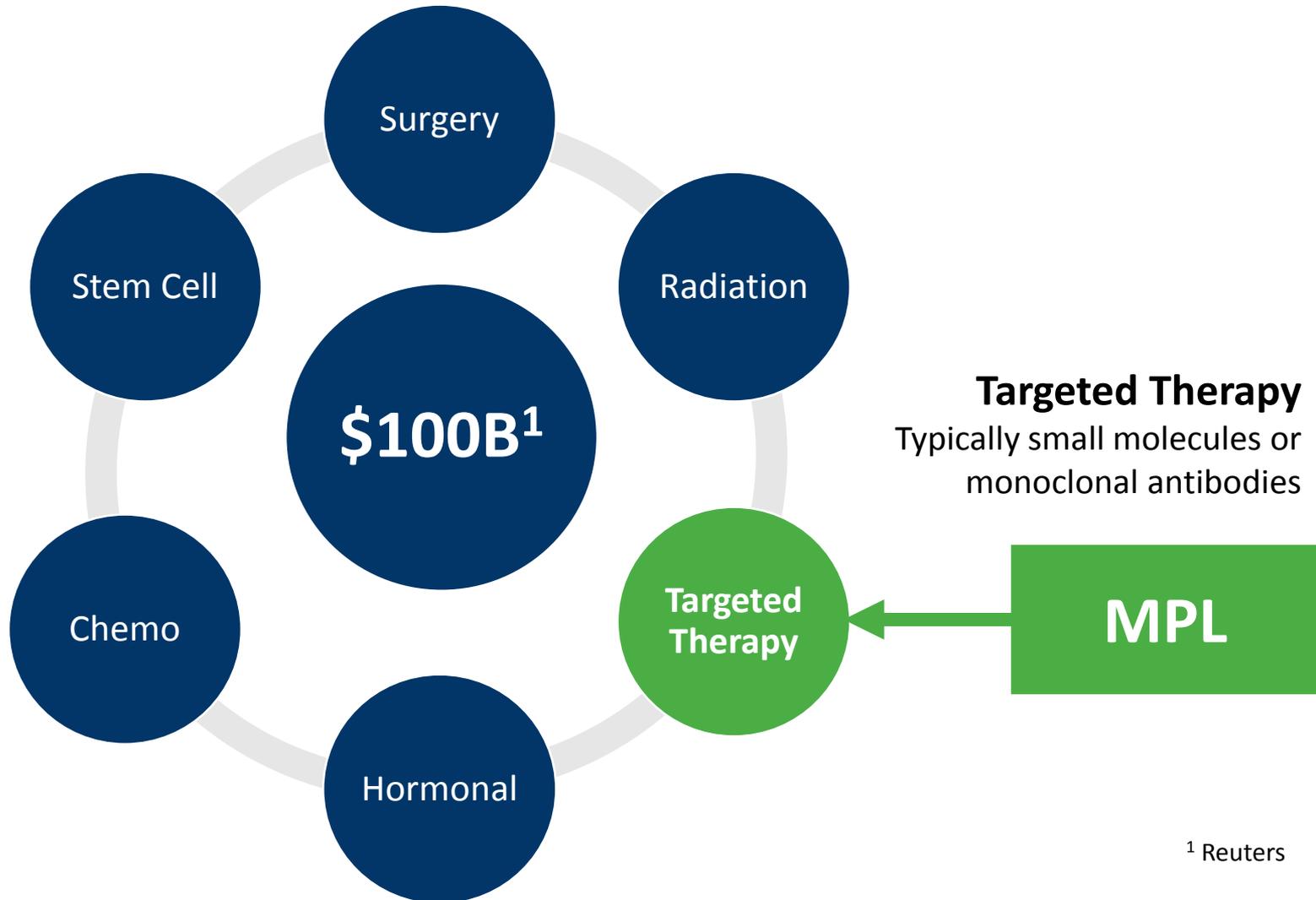


GMP

Reformulation of MPL into capsules ready
for Phase II

Compliance for more than 3 days of treatment in both man and canines was challenging in Phase I due to the remarkably foul taste of the MPL (Zolvix) liquid formulation manufactured by Novartis.

MPL is a New Targeted Therapy within the \$100B Cancer Treatment Market¹



¹ Reuters

In Summary

MPL Achieved All Key Phase I Endpoints

1. **Safety** – Excellent safety profile as predicted from pre-clinical models
2. **Active dose** – Identified dosage of MPL from effects on cancer markers in man
3. **Efficacy** – Determined efficacy by markers and effects on tumours (p70s6K and p4E-BP-1)
4. **Synergy** – Demonstrated synergy in model systems with many cytotoxic drugs currently in use

In Summary

Phase II Performance supported by Preclinical and Phase I data pack

- Considerable pre-clinical R&D package in cancer models
- Substantial third party pre-clinical package as MPL on market with global major (Novartis Animal Health)
- Activity in naturally occurring canine cancers
- Activity in a range of human cancers (Royal Adelaide Hospital) – **broad spectrum potential**
- Synergy with existing standards of care
- mTOR - Mechanism now a **major target** for oncology
- Other mTOR inhibitors generating **substantive dollar sales**

In Summary

MPL Already Approved for Veterinary Applications

- Novartis Animal Health registered Zolvix (MPL) for the treatment of parasitic diseases in animals
- Extensive manufacturing and toxicology already established by global major pharma company
- Over 50 MPL analogues are available for development and jointly owned with Nihon Nohyaku
- PharmAust holds patents on the use of MPL and other amino-acetonitriles (AADs) in cancer
- Epichem has synthesized further novel compounds for PharmAust

Experienced Management

Dr. Roger Aston, Executive Chairman

Dr Aston is both a scientist and seasoned biotechnology entrepreneur, with a successful track record in both fields. Previously at Wellcome Research Laboratories, Peptech, Cambridge Antibody Technology, QinetiQ, pSivida, Clinuvel, HalcyGen and Ascent Pharma Health. More recently CEO of Mayne Pharma Group.

Robert Bishop, Executive Director

30 years experience in corporate finance and equity capital markets both as a lawyer and an investment banker.

Dr. Wayne Best, Director

Nearly 30 years experience in synthetic and medicinal chemistry both in academia, government and industry. He is also the Managing Director of PharmAust's subsidiary Epichem Pty Ltd.

Sam Wright, Director & Company Secretary

20 years experience in the pharmaceutical, biotech and healthcare industry. Extensive experience in the administration of ASX listed companies, corporate governance and corporate finance.



PharmAust

L I M I T E D

SAM WRIGHT

Director & Company Secretary

sam@pharmaust.com

Phone: 61 (0) 408 900 277

DR ROGER ASTON

Executive Chairman

rogeraston@pharmaust.com

Phone: 61 (0) 402 762 204

ASX: PAA

ACN 094 006 023