



**PharmAust**

L I M I T E D

**ASX: PAA**

ACN 094 006 023

**Investor Presentation**

**January 2016**

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# Corporate Overview

- Proprietary Technology pipeline of clinical-stage oncology drugs – **focus on drug repurposing - new class of targeted therapy**
- Lead product PPL-1 (**Monepantel-MPL**) successfully completed Phase I/II – now Phase II ready **“New Class of Broad Spectrum Targeted Anti-Cancer Drug”**
- **Option with Novartis Animal Health** for veterinary cancer applications
- **Parallel development track** with both human and veterinary applications
- **Joint patents with large Japanese chemical/pharma** – Nihon Nohyaku
- Pipeline products **Mucin and Albendazole** will be developed with partners
- Epichem - **profitable business, forecast to achieve sales of AU\$2.6M (US\$1.8) in 2016**

# Financial Snapshot

ASX Code	PAA
ACN	094 006 023
Total Shares on Issue	92,503,645
Unlisted Options on Issue	675,000
Market Cap	US\$7.4M
Cash (mrq)	US\$1.25M
Debt (mrq) <sup>1</sup>	US\$500,000
Sales (ttm)	US\$1.8M (AU\$2.6M)

*Data as of January 11, 2016*

<sup>1</sup> EFIC loan to Epichem

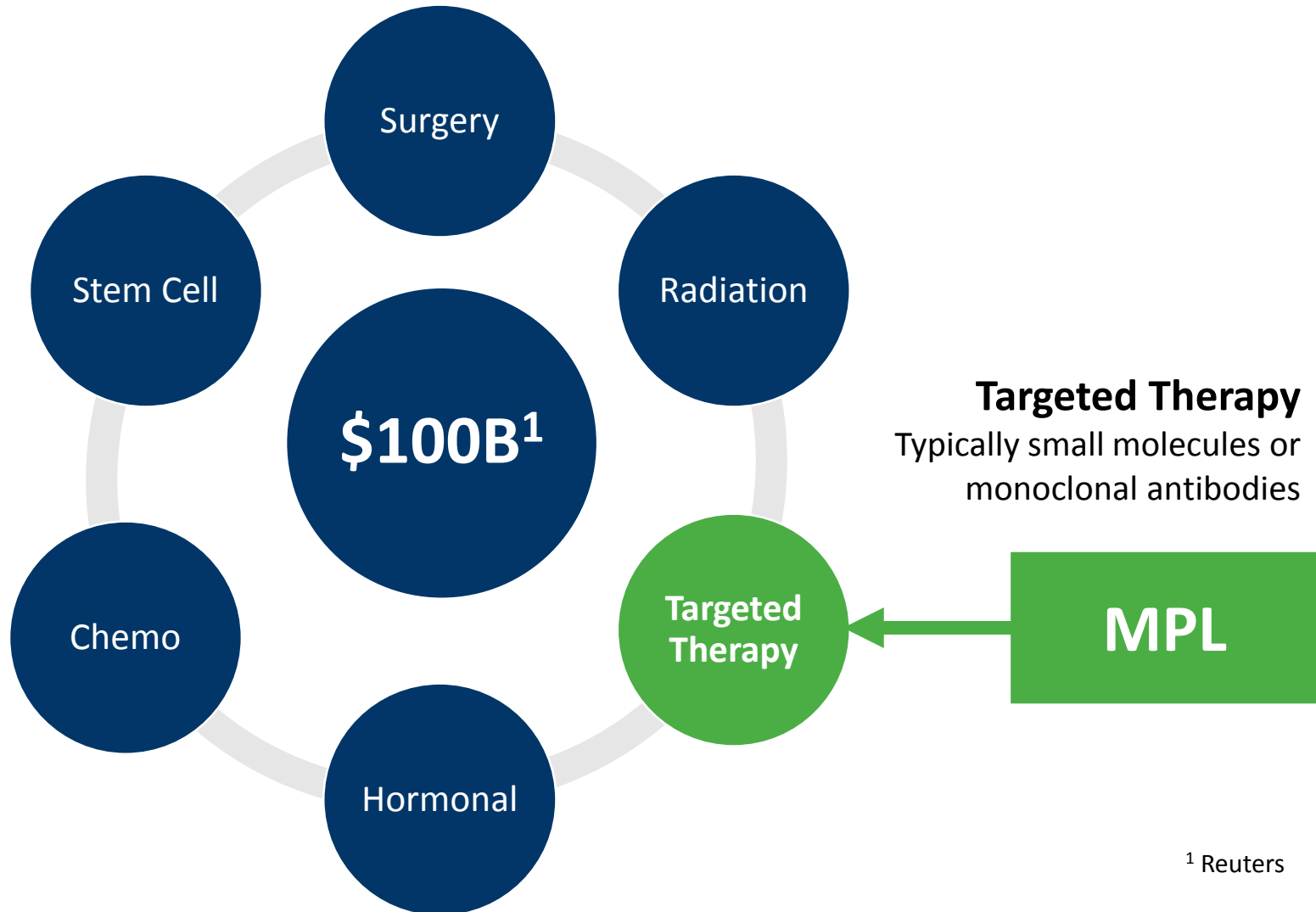
# Investment Highlights

- Significantly undervalued – substantial investor upside
- MPL proven to be active in Phase I trial
- Epichem Business enjoying growing revenues – forecast \$10M by 2020
- Potential for multi-billion dollar assets
- MPL already approved for veterinary application (Novartis Animal Health)
- Very tight capital structure - US\$7.4M market cap
- Low enterprise value and significant leverage to success
- Proven management

# Multiple Key Performance Drivers in 2016



# MPL is a New Targeted Therapy within the \$100B Cancer Treatment Market<sup>1</sup>



<sup>1</sup> Reuters

# 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 with many cytotoxic drugs currently in use
5. **Cost** – Showed optimal use of funds



# Strong Confidence in Phase II Performance of MPL

- Substantial pre-clinical package in cancer models
- Substantial 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 industry
- Other mTOR inhibitors generating **billion dollar sales**

# MPL Active in Phase I Trial in Patients Who Fail Other Available Treatments

## *Implications for MPL*

- As a new class of cancer drug with a novel mechanism of action it provides the opportunity to be effective where “Standard of Care” has failed
- Preclinical studies show reversal of drug resistance and synergy with chemotherapy, thus potential for combination therapy
- Novel mechanism of action (mTOR – autophagy) potentially circumvents resistance points of known drugs
- The very low toxicity of MPL avoids the dosing-limitations and toxicities of many approved anticancer drugs

# 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 80 MPL analogues are available for development and accessible to PharmAust
- PharmAust holds patents on the use of MPL and other amino-acetonitriles (AADs) in cancer
- Epichem has synthesized further novel compounds

# Elevated p70s6k is Associated with Poor Outcomes in Cancer

- Patients who have a poor response to chemotherapy have high p70s6k levels
- p70s6k has been implicated to promote malignant transformation of cancers
- **Rapamycin-sensitive** p70s6k pathway is a potential novel target for therapeutic intervention in small cell lung cancer
- Overexpression of p70S6K in breast cancer patients is associated with aggressive disease and poor prognosis
- Patients with breast cancer with increased p70s6k phosphorylation have poor survival and increased metastasis

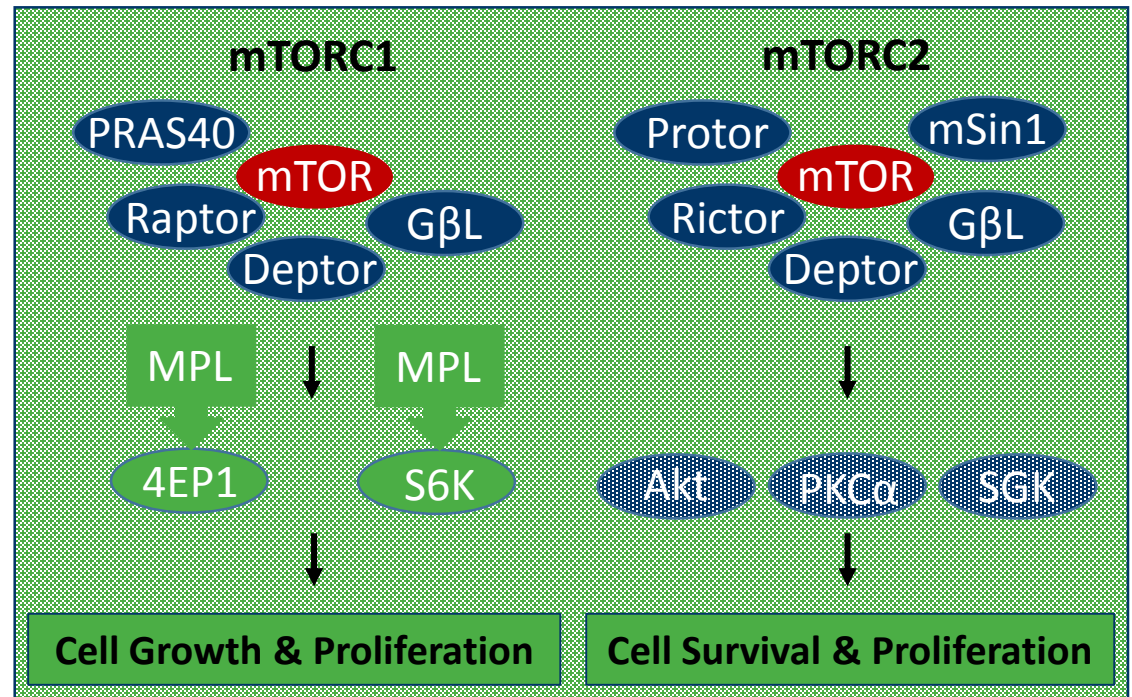
**Rapamycin-based Rapamune (Pfizer) & Afinitor (Novartis) both inhibit p70s6K and interfere with mTOR, generating billions in sales**

# High s6k Correlates with Multiple Negative Outcomes

High s6k (p70s6k) in patients correlates with:

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

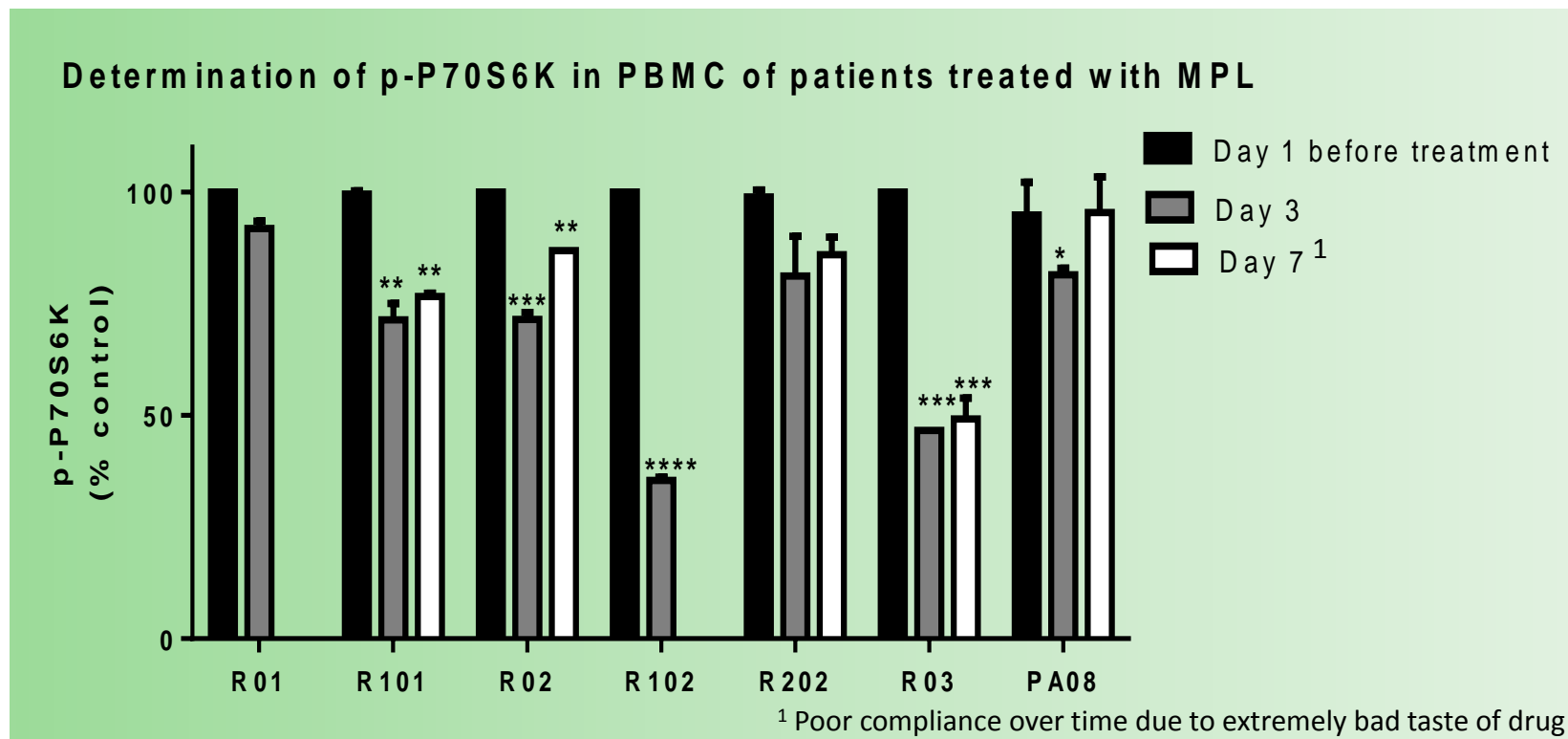
Two complexes of mTOR  
(mammalian target of rapamycin)



mTOR pathway depiction by:

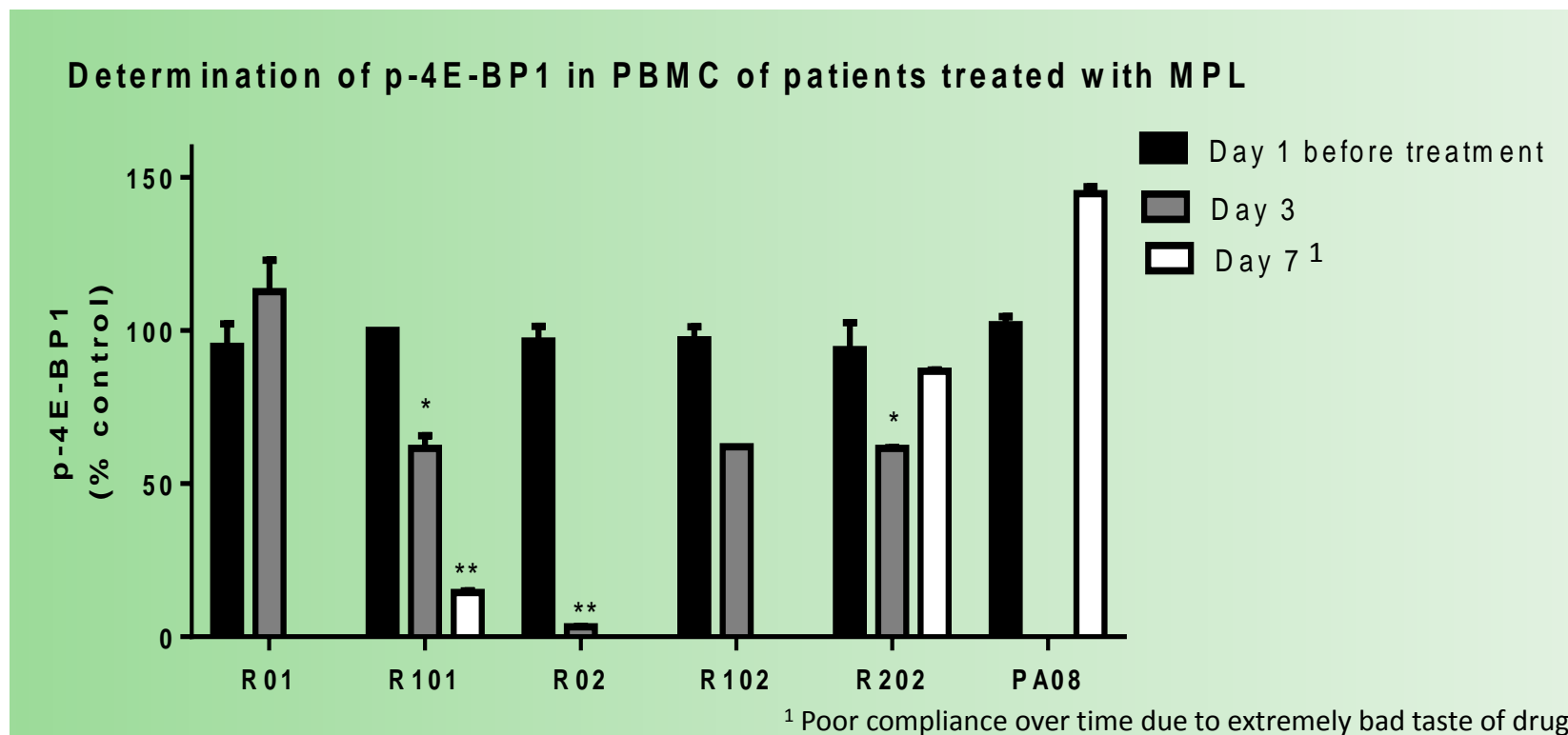
Marc Dufour, Anne Dormond-Meuwly, Nicolas Demartines and Olivier Dormond  
*Cancers* 2011, 3, 2478-2500; doi:10.3390/cancers3022478

# Suppression of p70s6k by MPL in Humans



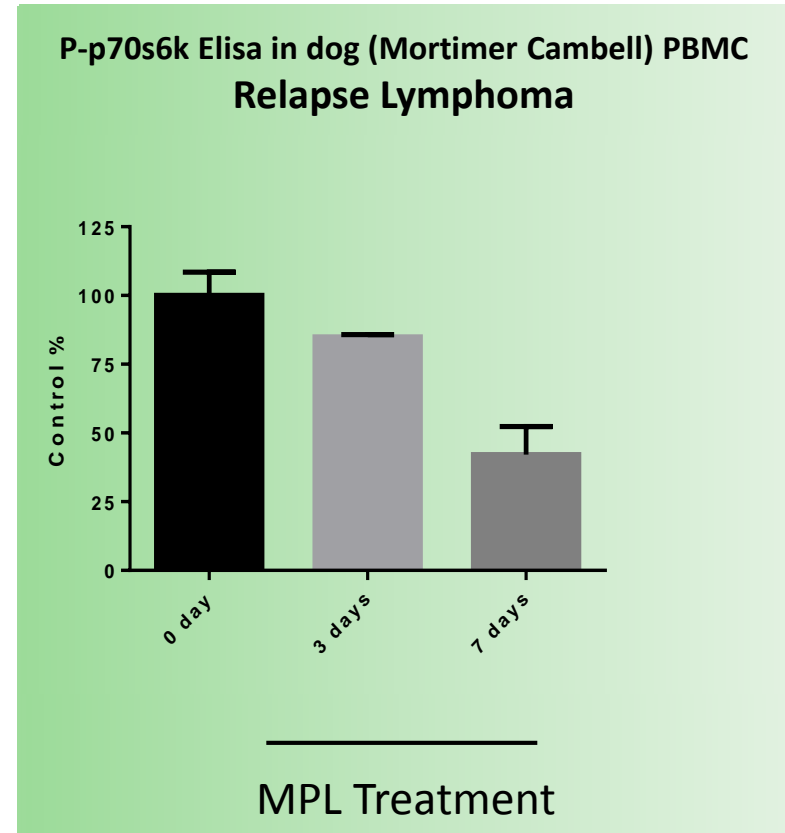
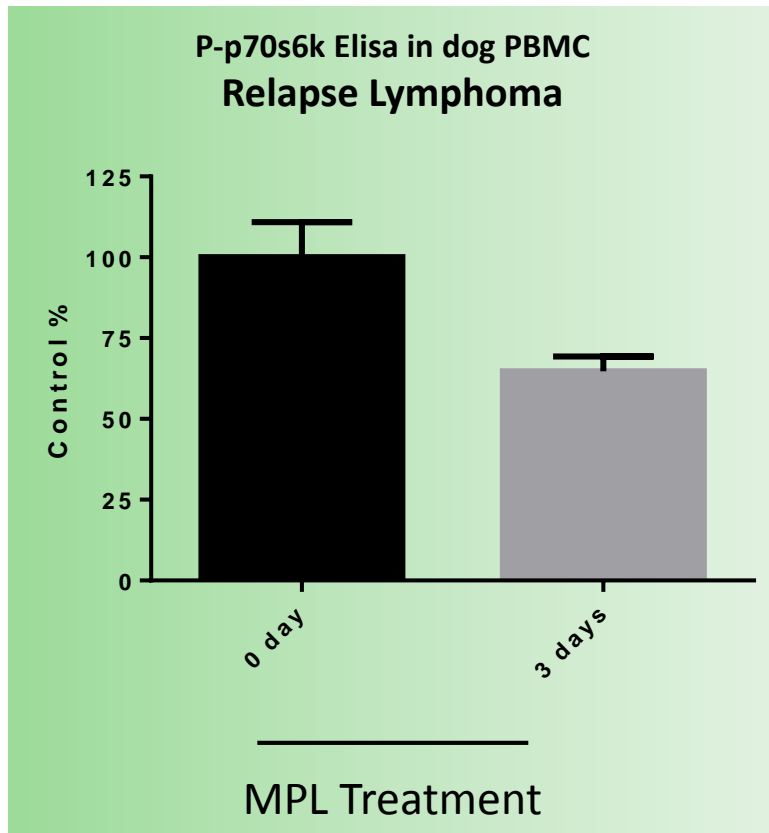
COMPARISON	SIGNIFICANT	p-VALUE
Day 1 vs. Day 3	Yes	*** 0.0004
Day 1 vs. Day 7	Yes	** 0.0020

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



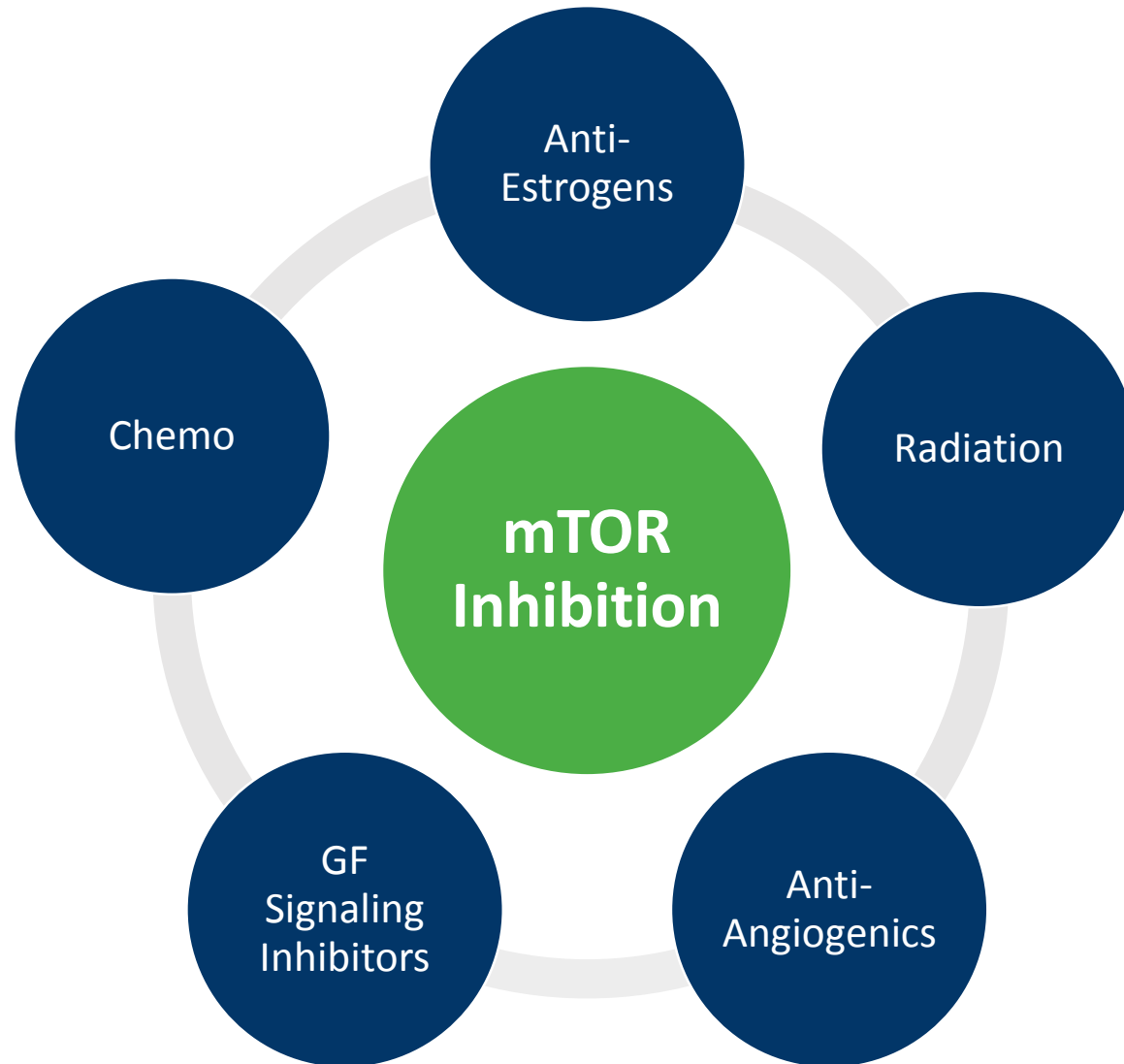
COMPARISON	SIGNIFICANT		p-VALUE
Day 1 vs. Day 3	Yes	*	0.0440
Day 1 vs. Day 7	No	ns	0.6086

# Suppression of p70s6k by MPL in Canines

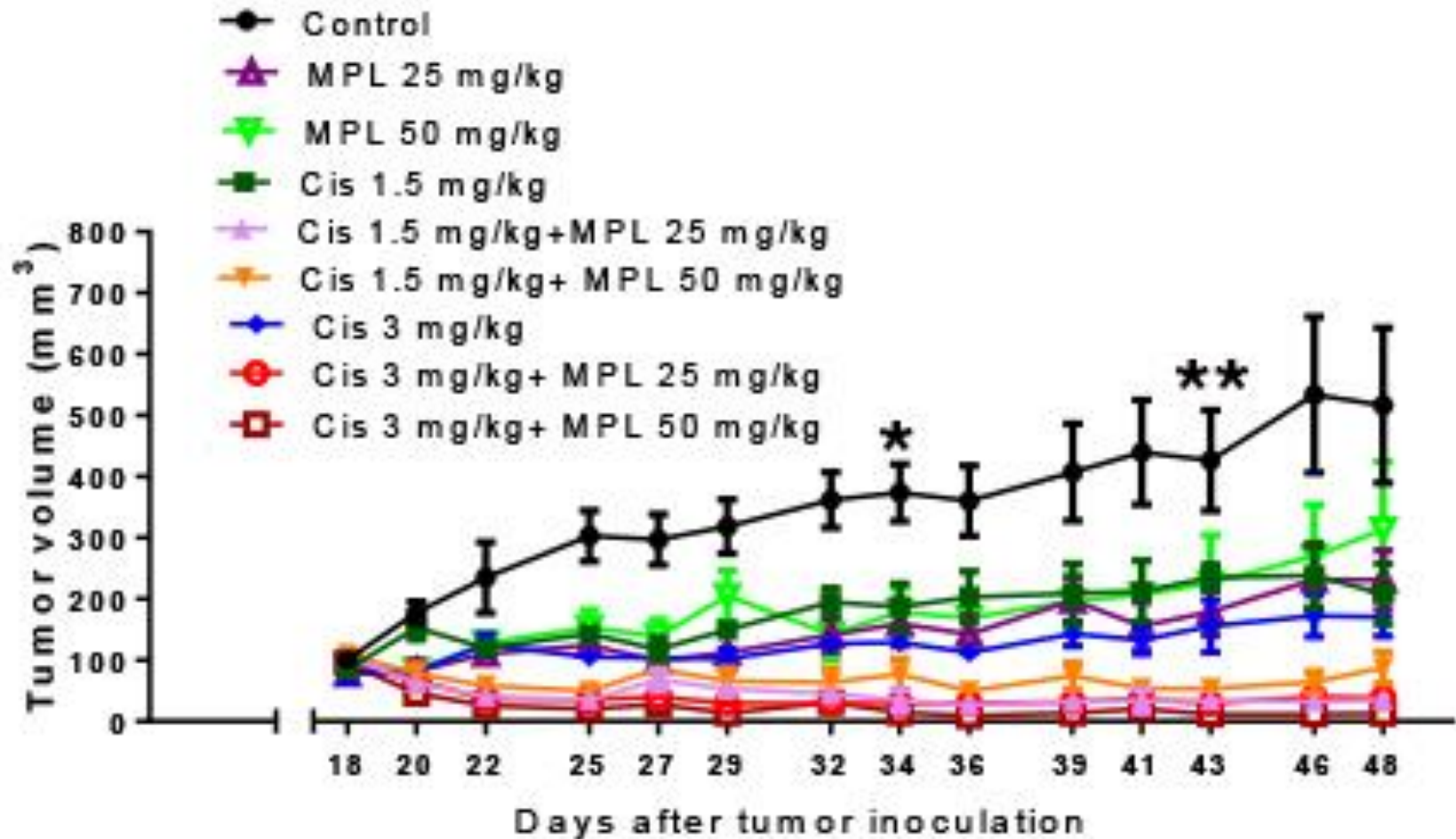




# mTOR Inhibition May Enhance Antitumor Effects of Other Therapies



# Synergy Between MPL & Cytotoxic Drugs<sup>1</sup> Provides Potential for Combination Therapy



<sup>1</sup> Synergy demonstrated on ovarian cancer grown in xenograft-mice

# Commercialization of MPL

Option on veterinary cancer applications

**Novartis  
Animal  
Health**

Joint patent with  
Japanese major

**Nihon  
Nohyaku**

(strong IP position)

**PharmAust**

# Experienced Management

## **Dr. Roger Aston, Executive Chairman**

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.

## **Dr. Wayne Best, Director**

Nearly 30 years' experience in synthetic and medicinal chemistry both in academia, government and industry.

## **Sam Wright, Director & Company Secretary**

Over 15 years' experience in the pharmaceutical, biotech and healthcare industry.



# PharmAust

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