

# PharmAust LIMITED

## 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)[1] | US$500,000 |
| Sales (ttm) | US$1.8M (AU$2.6M) |

*Data as of January 11, 2016*

[1] EFIC loan to Epichem

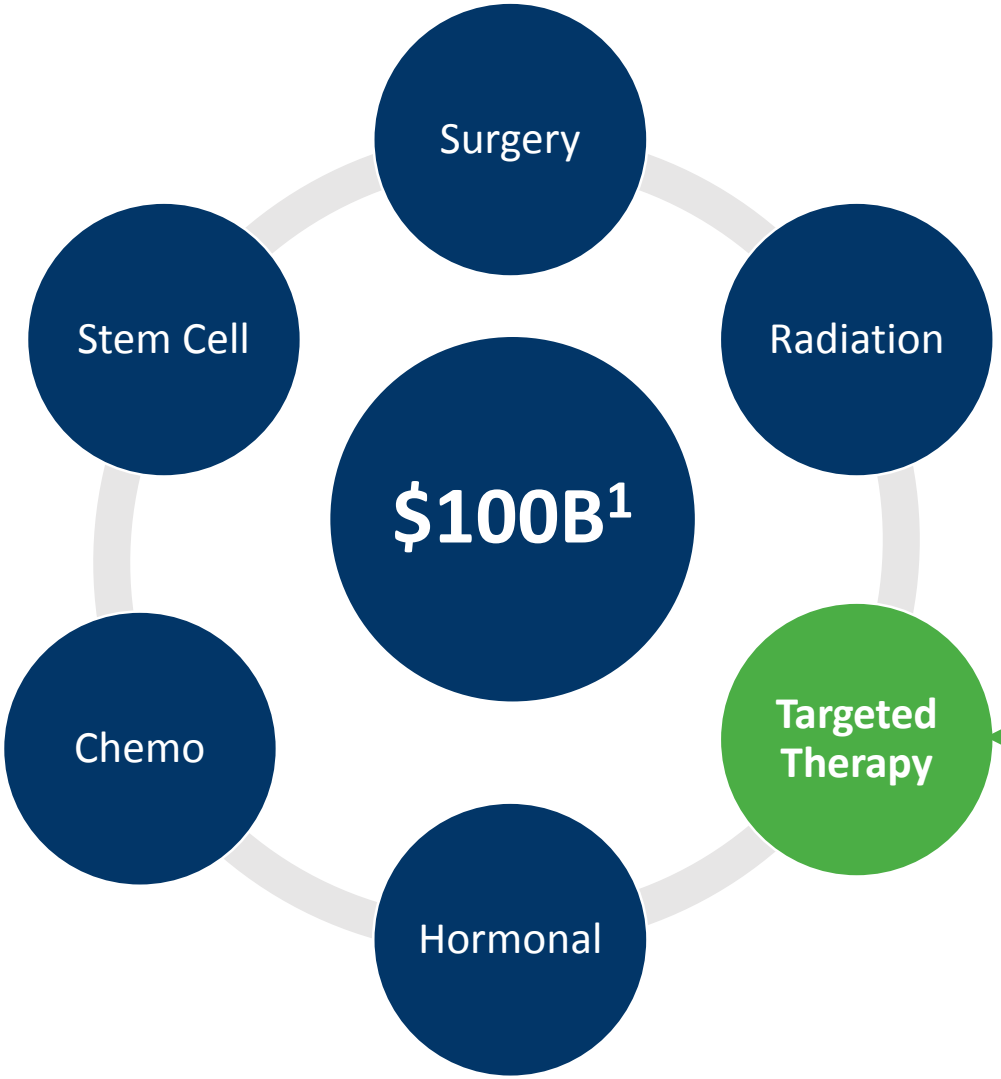
# Investment Highlights

- 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 [1]






**Targeted Therapy**
Typically small molecules or monoclonal antibodies

**MPL**

[1] 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**

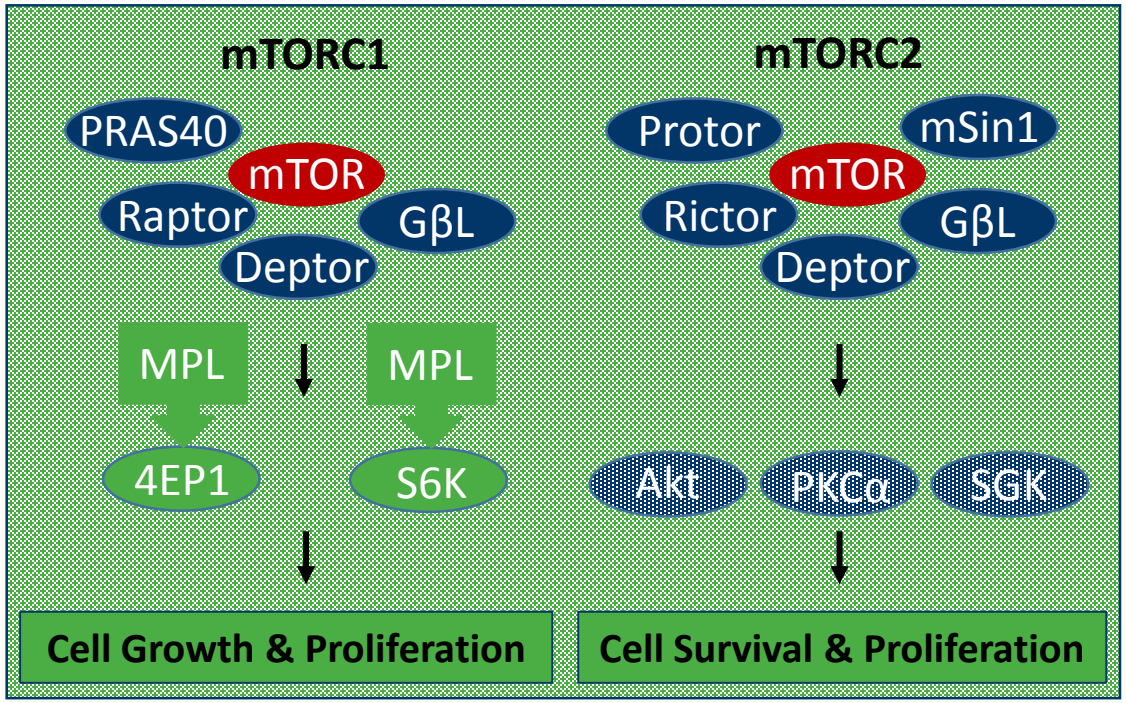
# High s6k Correlates with Multiple Negative Outcomes



High s6k (p70s6k) in patients correlates with:

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

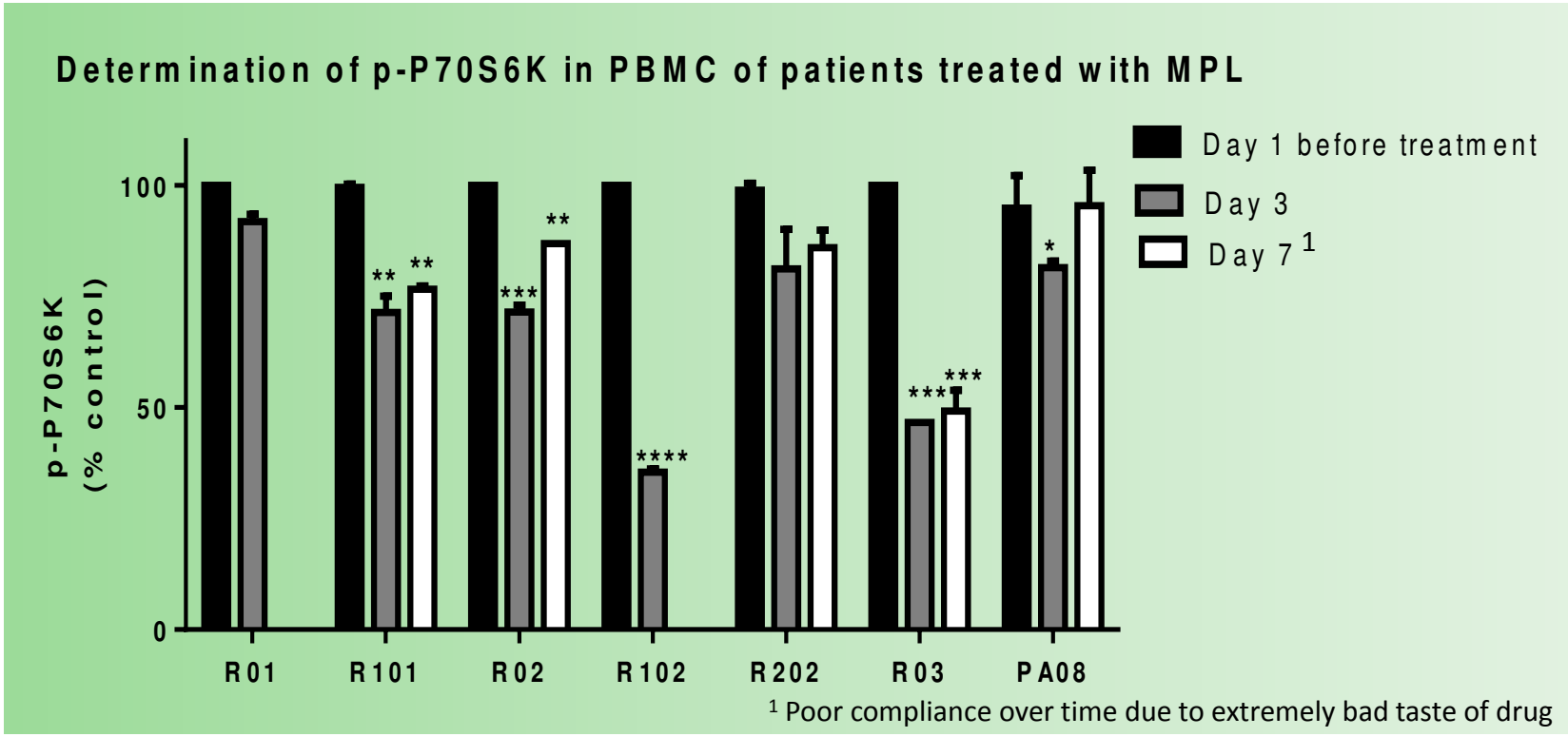
**Two complexes of mTOR**
(mammalian target of rapamycin)




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

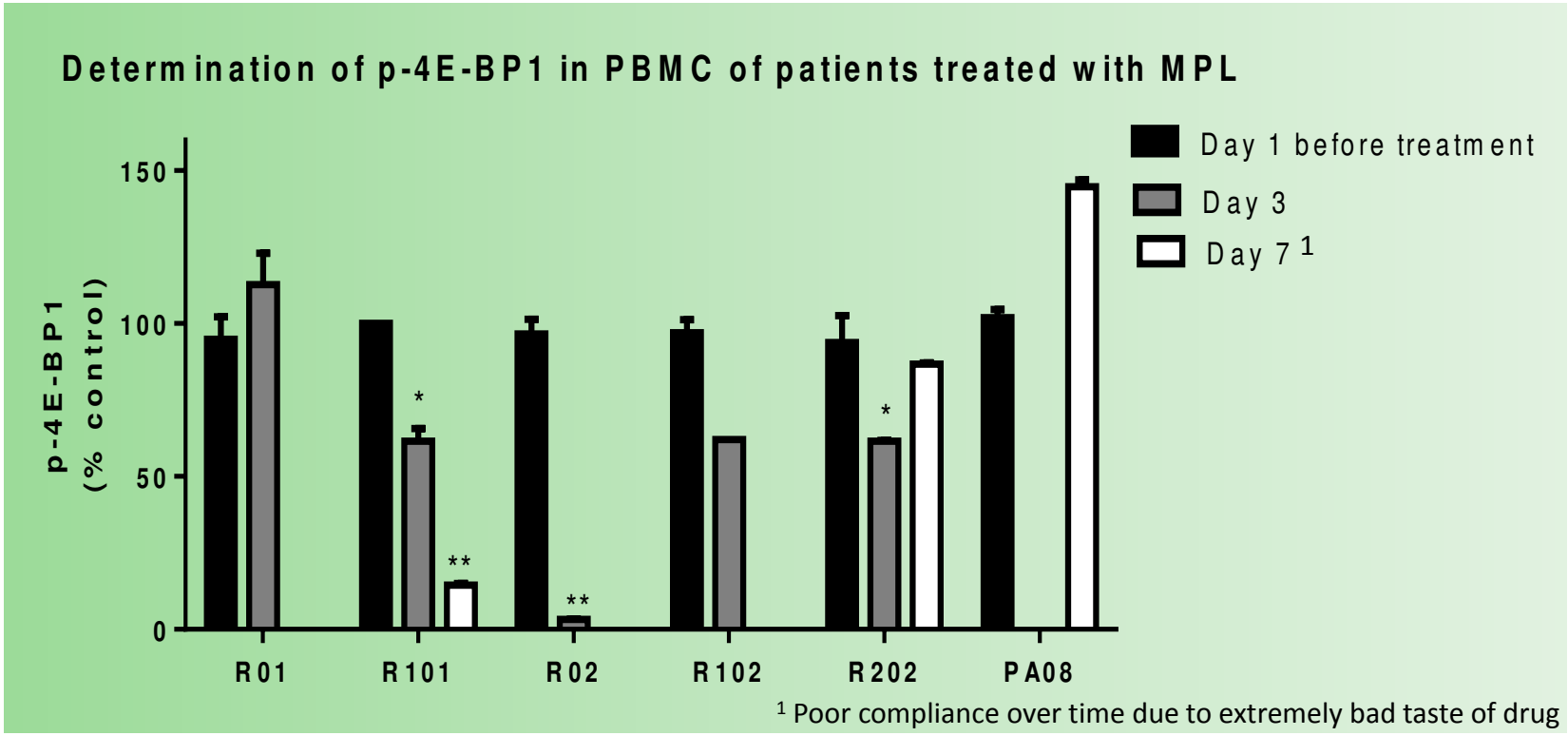





| COMPARISON | SIGNIFICANT | | p-VALUE |
|---|---|---|---|
| Day 1 vs. Day 3 | Yes | *** | 0.0004 |
| Day 1 vs. Day 7 | Yes | ** | 0.0020 |

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






[1] Poor compliance over time due to extremely bad taste of drug

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

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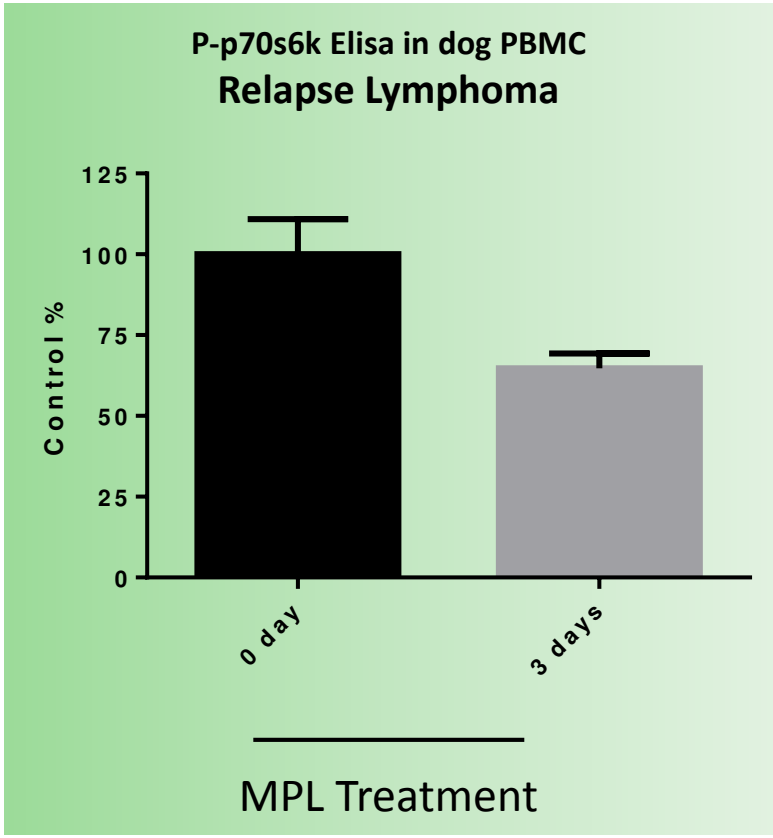
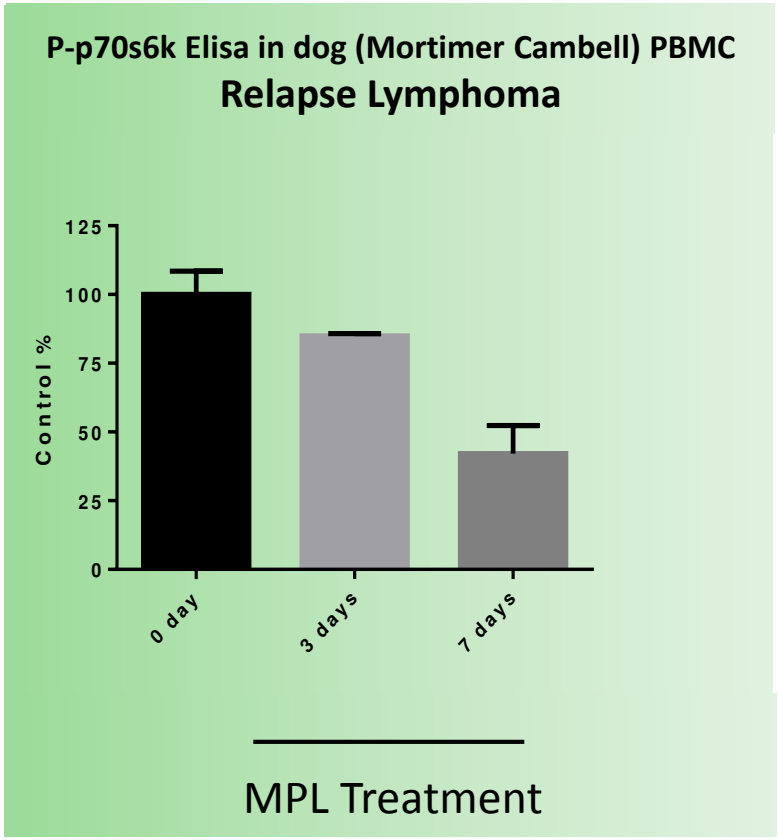
# Suppression of p70s6k by MPL in Canines

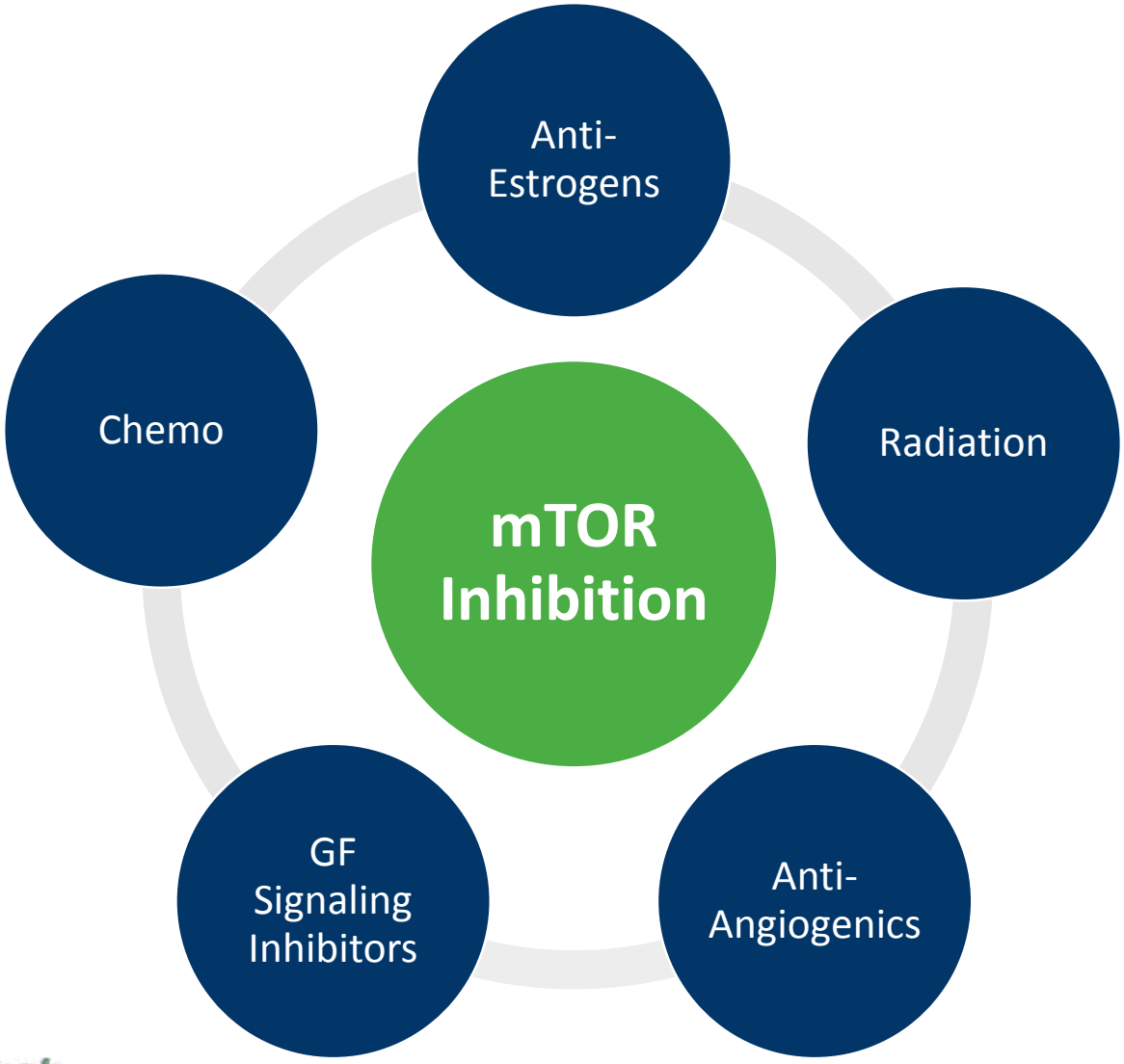




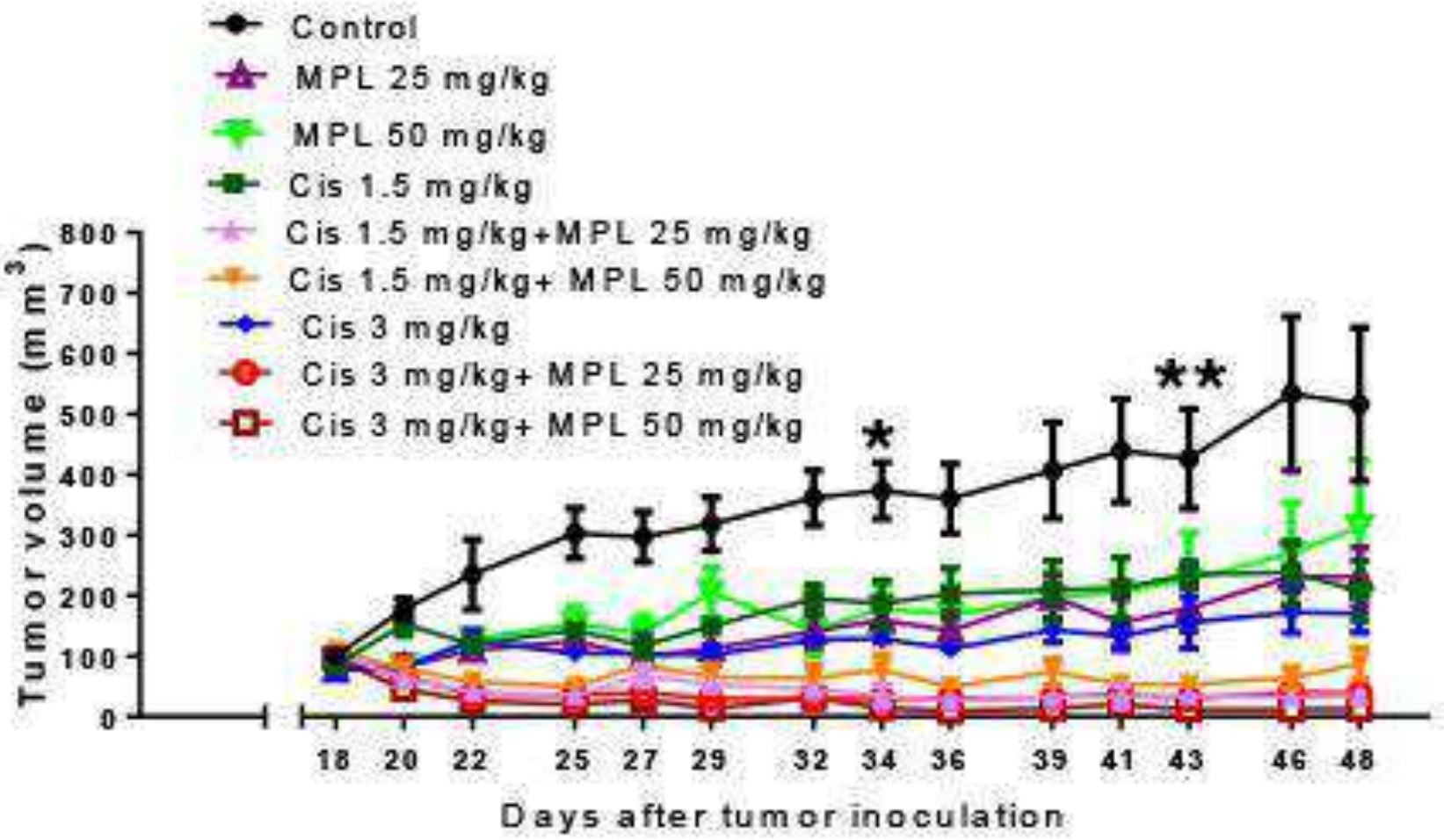
# mTOR Inhibition May Enhance Antitumor Effects of Other Therapies





# Synergy Between MPL & Cytotoxic Drugs[1] Provides Potential for Combination Therapy





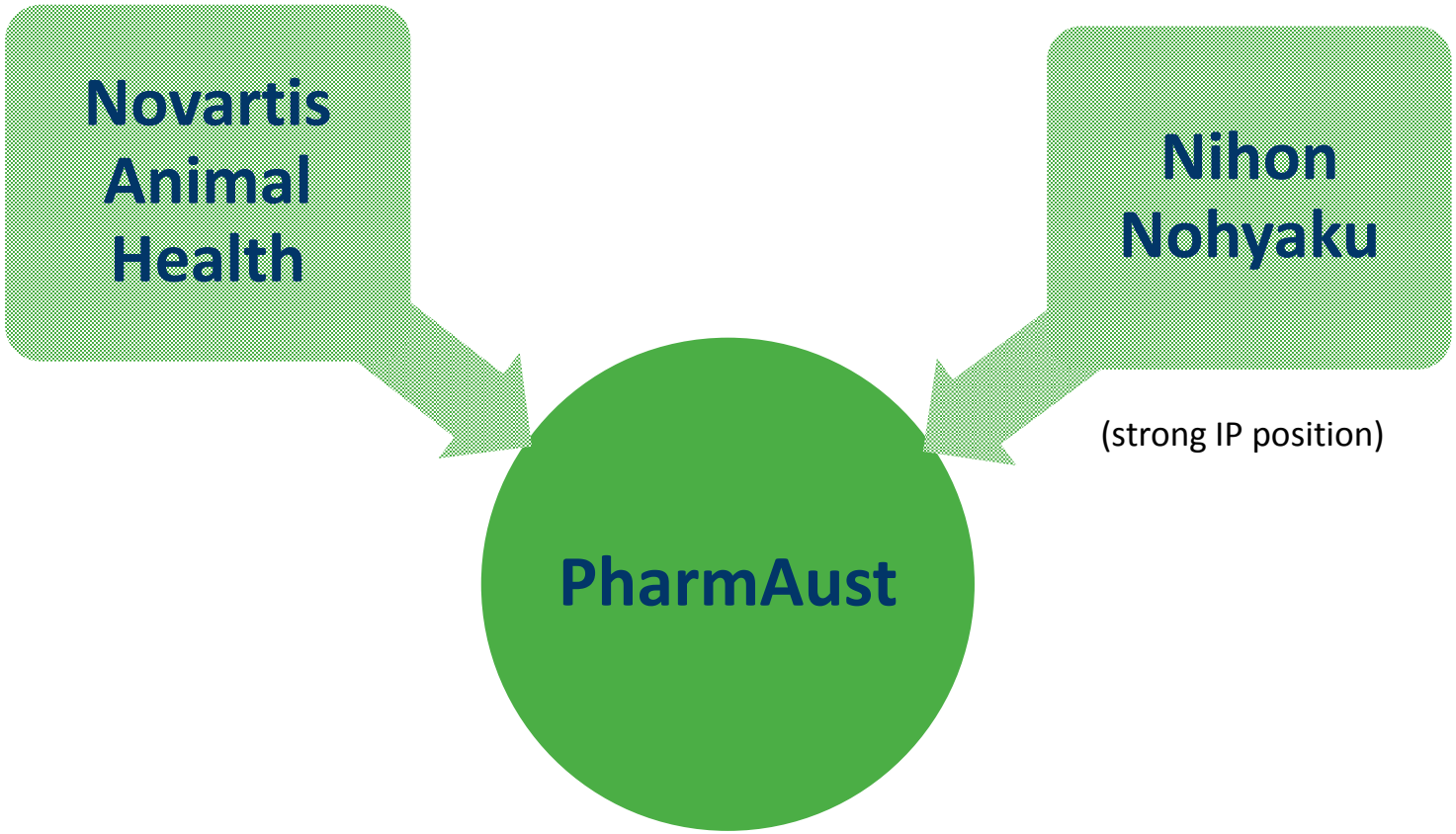

[1] Synergy demonstrated on ovarian cancer grown in xenograft-mice

# Commercialization of MPL



Option on veterinary cancer applications

Joint patent with Japanese major



# 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.

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