



## PharmAust Ltd. (ASX: PAA)

**March 8, 2016**  
**Target Price: A\$0.35**  
**Recent Price: A\$0.12**

### Market Data

Fiscal Year	June
Industry	BioTech
Market Cap	A\$11.1M
Price/Earnings (ttm)	N/A
Price/Book (mrq)	1.4x
Price/Sales (ttm)	3.8x
Top 20 % Ownership	49.4%
Shares Outstanding	92.5M
Equity Float	30.1M
Avg. Volume (3 mo.)	43,203

*As of March 8, 2016*

### Income Statement Snapshot

	TTM
Revenue	A\$2.9M
Net Loss	A(\$1.8M)

### Balance Sheet Snapshot

	MRQ
Cash	A\$1.3M
Debt	A\$0.7M

**Company Website**  
[www.pharmaust.com/](http://www.pharmaust.com/)

### Company Overview

PharmAust Limited (“PAA,” “PharmAust,” or the “Company”) specializes in the relaunch of existing, established marketed products for oncology applications making the whole development, regulatory, and commercialization process much faster. Its pipeline includes human and veterinary proprietary medicines to treat cancer. PharmAust has two key strategic alliances with major pharmaceutical companies and products commencing Phase II trials. These products target substantial multi-billion dollar markets. In addition, PharmAust’s wholly-owned subsidiary, Epichem Pty Ltd, generates revenue of approximately A\$2.5M per annum from contract sales of synthetic drugs to the pharmaceutical industry. Epichem also facilitates the generation of new IP by synthesizing similar drug formulations for projects within the Company.

### Valuation

We are valuing PAA at A\$0.35, based on a NPV of the Company’s projected cash flows from MPL in esophageal cancer and dog cancer indications, cash flow from partnerships from ABZ and its mucin products, and projected cash flows from its Epichem business.

### Investment Highlights

- PAA’s lead product (MPL) is a new class of anti-cancer drug with remarkably low toxicity in animals and man
- PAA has three products in or near ready to enter human clinical trials; drugs have been repurposed and have already demonstrated safety in other indications
- PAA is focusing on treating solid tumor cancers with low survival rates and with no effective treatments; this reduces clinical trial time and cost
- Lead product MPL showed suppression of cancer biomarker p70s6k in a successful Phase I trial of advanced solid tumors
- Preclinical studies show reversal of chemoresistance and synergy with multiple chemotherapies
- MPL is scheduled to begin a phase II trial in esophageal cancer in 1H16
- Currently undergoing reformulation of MPL to improve taste; increasing patient compliance will be critical for trial results
- Revenue generated by Rapamycin (Novartis) and Everolimus (Pfizer) are in the billions
- Novartis Animal Health has registered MPL (“Zolvix”) to treat parasitic diseases in animals; MPL is being developed for cancer in dogs, and Novartis has an option on all veterinary cancer applications
- Two partnerships in place with global pharmaceutical companies
- Epichem revenue forecast to reach A\$10 million by 2020
- Second product line is designed to clear mucin from tumors; removal of mucin sensitizes highly resistant cancers to chemotherapy
- ABZ is a drug reformulation used to treat a variety of parasitic worm infestations; PAA is developing ABZ to treat ascites
- Tight capital structure with a market cap of A\$12M
- Low enterprise value in comparison to peer companies with similar portfolios

## **Investment Highlights**

**PAA has three products in or near ready to enter human clinical trials; drugs have been repurposed and have already demonstrated safety in other indications.** PharmAust's drug programs for Monepantel (MPL) and Albendazole (ABZ) take well established drugs that are already approved in other indications and repurpose them for oncology applications in both humans and animals. In our view, repurposing drugs gives PAA benefits in regards to data accumulation and safety. Hundreds of millions have already been spent on PharmAust's drugs by third parties as regards pharmacology, formulation, and safety data for non cancer applications. This accumulated data, giving, in our view, a good picture of the probable safety of PAA's products, along with giving information that can be used to determine the maximum tolerated dose (MTD) for each drug. This data has saved the Company time and funds in early-stage (preclinical and phase I) trials.

Repurposing drugs for use in different indications has seen a significant increase in interest from large pharmaceutical companies and government agencies. The National Institute of Health's New Therapeutic Uses for Existing Molecules program is designed to accelerate new uses for approved drugs as quickly as possible.

There have been multiple successful drug repurposes for cancer and other indications. Below are a few examples:

*Raloxifene:* Raloxifene was initially used to treat osteoporosis. This drug was approved to reduce the risk of invasive breast cancer in postmenopausal women in 2007.

*Thalidomide:* Thalidomide was originally used as a sedative in the late 50s, and was eventually used to prevent nausea in pregnant women, causing birth defects. In 1998, thalidomide was approved for leprosy and in 2006, gained approval for multiple myeloma.

*Rapamycin:* mTOR/p70s6k inhibitor Rapamycin was originally approved in 1999 to prevent organ transplant rejection. It has since been found to be effective in treating Autoimmune Lymphoproliferative Syndrome (the body produces too many immune cells), lymphangiomyomatosis (rare lung disease), and renal cancer, and has shown anticancer activity against a variety of solid tumors. Next-generation mTOR inhibitor everolimus is the standard of care for advanced pancreatic cancer, along with achieving approval for a number of other cancers.

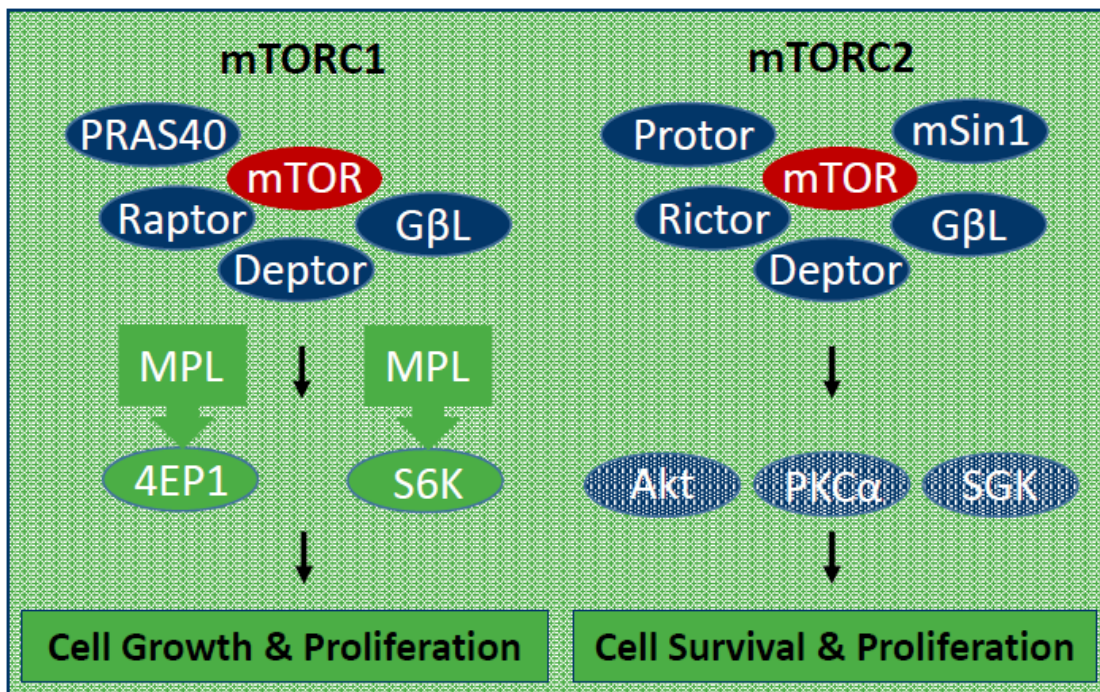
**PAA is focusing on treating solid tumor cancers with low survival rates and no effective treatments; this reduces clinical trial time and cost.** PAA's MPL programs will focus on advanced metastatic cancers with low survival rates and no effective treatments. This will lower clinical trial times (these cancers will have lower survival timeframes, thus shortening the overall treatment time and leading to faster data readouts) and lower trial cost (less time will lead to less cost). Strong efficacy and safety data could lead to faster approvals, as cancers without any effective treatments could obtain faster approval from regulatory authorities, due to the strong underlying need for new drugs.

**MPL showed suppression of p70s6k in a successful Phase I trial of advanced solid tumors.** P70s6k is a biomarker correlated with poor cancer prognosis and low survival. Patients who have a poor response to chemotherapy have high p70s6k levels. Overexpression of p70s6k in breast cancer patients correlates with a poor prognosis. Increasing mTOR/p70s6k signaling also leads to the increased viability of colorectal cancer cells. P70s6k has also been shown to lead to malignant transformation of cancers. Various

preclinical research has indicated that targeting p70s6k can potentially prevent cancer metastasis, as p70s6k is strongly correlated with aggressive cancer growth.

MPL has shown the ability to lower both p70s6k and p-4E-BP1, both of which are downstream of the mTOR pathway and indicate aggressive cancer metastasis:

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

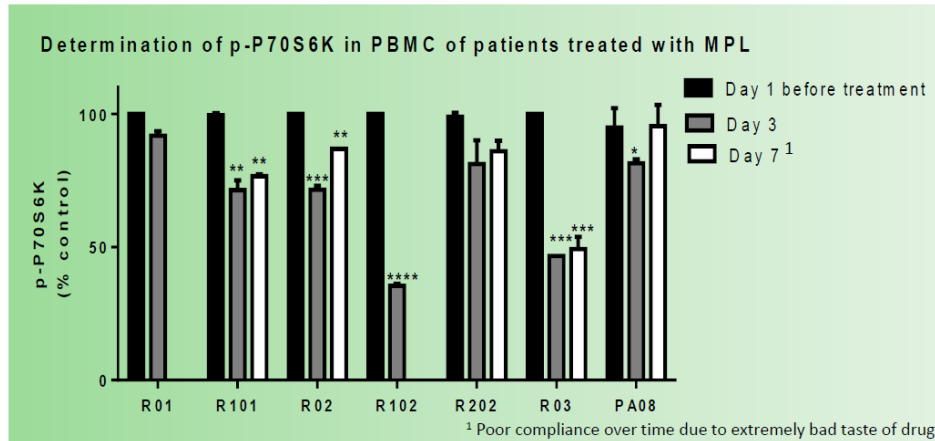


mTOR pathway depiction by:

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

MPL showed excellent safety in its phase I trial. The trial was a rising dose study, with the first three patients receiving the lowest dosage of the drug, and subsequent patients receiving higher drug doses. Additionally, significant suppression was shown in cancer biomarkers p70s6K and p4E-BP-1 that are correlated with poor cancer outcomes. The third patient (who was in the lowest dose cohort), had an approximately 50% reduction in p70s6K levels at days three and seven of treatment. The patient had suffered from lung cancer that metastasized to the liver, brain, and bone. The degree of p70s6k inhibition in the patient's blood was as high as 65%. Overall, extremely strong statistical significance was shown ( $p=0.0004$  at day 3,  $p=0.0020$  at day 7). All six patients that completed the trial showed a reduction in p70s6k. Full results are shown in the below graph:

## Suppression of p70s6k by MPL in Humans

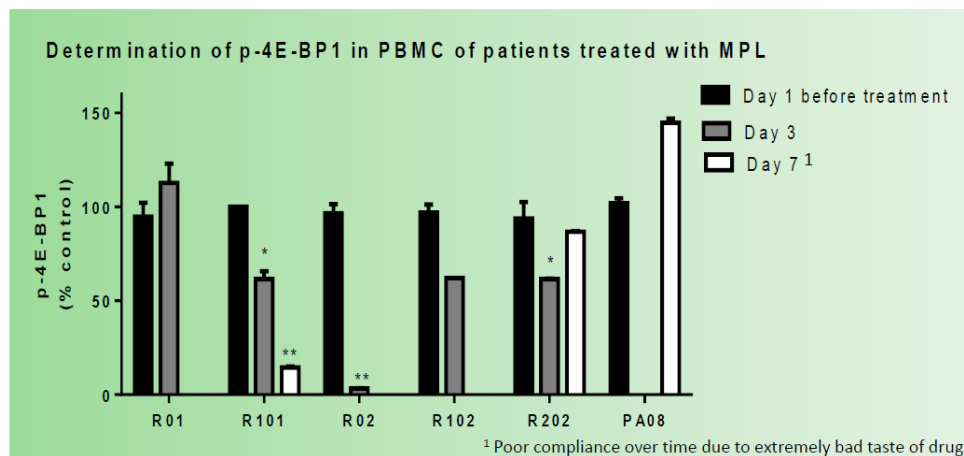


COMPARISON	SIGNIFICANT	p-VALUE
Day 1 vs. Day 3	Yes	*** 0.0004
Day 1 vs. Day 7	Yes	** 0.0020

P70s6k levels increased from day three to day seven due to poor patient compliance from the extremely bad taste of the drug. PAA is currently reformulating the drug to improve the taste, and we believe that better patient compliance gives a strong chance of lower p70s6k levels at day seven of treatment and beyond.

Four out of five patients treated with MPL also showed a reduction in 4E Binding Protein 1 (p-4E-BP1). Reductions as high as 90%+ were seen. Overall, results were significant at day three (p=0.044) and not significant at day seven (p=0.6086). The lack of significance at day seven is likely due to poor patient compliance resulting from the very poor drug palatability. Full results are below:

## 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

P-4E-BP1 expression in breast, ovarian, and prostate tumors has been shown to lead to malignant transformation of cancers. P-4E-BP1 is also a prognostic factor of survival time after surgery.

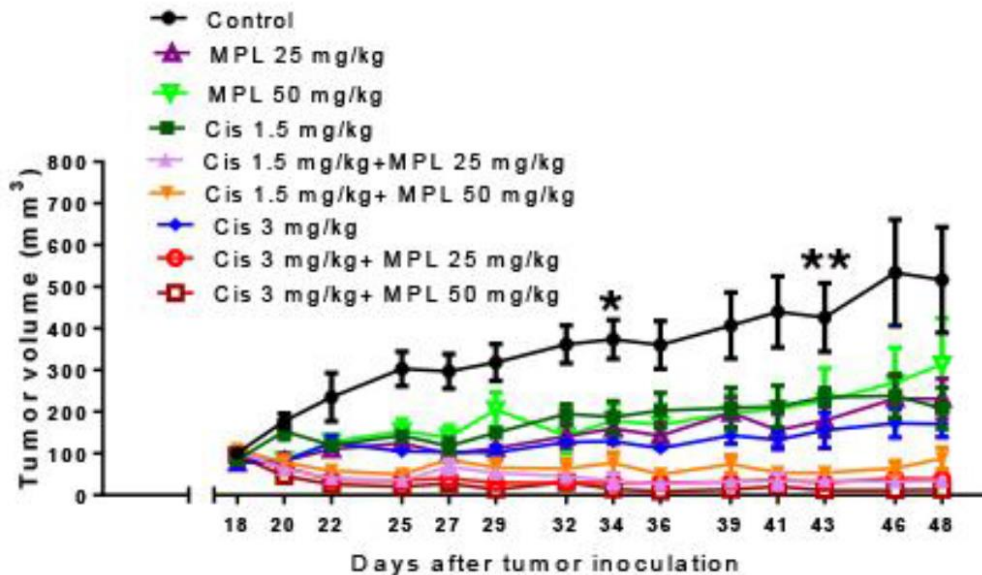
This result, combined with the mechanism of action of MPL (autophagy), gives a potential indication of efficacy. Autophagy also gives an indication that MPL may inhibit the mTOR pathway, a widely targeted cancer pathway that already has multiple multibillion dollar drugs (these drugs obtain much of their sales from indications other than cancer, but mTOR inhibitors are considered a strong and viable cancer research target).

The phase I trial at the Royal Adelaide Hospital was conducted in advanced stage, metastatic cancer patients with a variety of tumors of origin. The patients in the trial had failed “standard-of-care” medications and were no longer on other medications for treating their cancers. MPL was clearly active where all known therapies have failed. The broad-based action shown across a variety of solid tumors gives the potential indication that MPL could be used as a platform drug across a wide variety of solid tumor cancers. There are indications that paclitaxel may operate through inactivation of p70s6k. Paclitaxel is currently approved for a dozen cancer indications, indicating its efficacy in a range of cancers. Early indications, based on early and small amounts of human data, indicate that MPL could potentially have this type of wide ranging platform appeal.

**Preclinical studies show reversal of chemoresistance and synergy with multiple chemotherapies.**

Preclinical studies showed that temozolamide resistant cancer cells were killed by MPL. Given this fact, MPL could potentially be used as a combination therapy with standard of care chemotherapy. Combination therapy with MPL is a key focus for PharmAust moving forward. Studies in combination with cytotoxic drugs show a significant reduction in tumor volume when chemotherapy is combined with MPL, as compared to chemotherapy alone (control line in the below graph):

## 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

These preclinical studies indicate that MPL could potentially enhance the anti-cancer effects of a range of traditional chemotherapy without increasing harmful side effects.

In vitro and in vivo research studies also showed that MPL in combination with gemcitabine or doxorubicin reduced the survival rates of malignant cells while having no effect on the survival rates of non-malignant cell survival rates.

Further preclinical work is currently being done to assess MPL in combination with chemotherapy. These studies should provide further data used to justify using MPL in combination with chemotherapy in human clinical trials.

**Importantly, MPL is scheduled to begin a phase II trial in esophageal cancer in 1H16.** This trial will include patients with late-stage cancer, using MPL either alone or in combination with standard of care chemotherapy.

Esophageal cancer is the sixth leading cause of cancer death and the eighth most common cancer worldwide, with 456,000 new cases in 2012. 75% of esophageal cancer cases are in Asia, and over 80% of cases are diagnosed in developing countries. In the majority of developed countries, adenocarcinoma is now the most common type of esophageal cancer, although squamous-cell carcinoma still comprises a large amount of cases. Esophageal cancer is extremely difficult to detect, meaning most esophageal cancer is detected in advanced stages. In fact, only 20% of patients are eligible for treatment to cure their cancer, and the long-term survival rate is only 13%. The goal with most metastatic esophageal cancer patients is to manage their cancer care and prolong their quality of life.

**Currently undergoing reformulation of MPL to resolve palatability issues; increasing patient compliance will be critical for trial results.** The Company is currently undergoing reformulation studies of MPL to make it more palatable for patient taste. Juniper Pharma Services, a subsidiary of Juniper Pharmaceuticals, Inc. (Nasdaq: JNP), is generating the reformulation. In our view, successfully completing this reformulation will be critical for trial efficacy. Only three patients completed the phase I trial in MPL, and this is most likely related to its very poor palatability of the drug, reducing patient compliance and ultimately lowering the degree of p70s6k inhibition at later trial dates. Adverse events in the phase I trial were nausea, vomiting, diarrhea, and decreased appetite. These effects are thought to be associated with the poor taste of MPL. Improving the palatability of MPL will be key in generating positive, longer-term efficacy results in patients.

**Revenue generated by Rapamycin (Novartis) and Everolimus (Pfizer) are in the billions.** Rapamycin and Everolimus both inhibit p70s6k and interfere with mTOR. Both drugs have also shown significant anti-cancer properties. Rapamycin has been approved by the FDA for renal cancer. A 2011 study testing everolimus in patients with locally advanced progressive neuroendocrine tumors of the pancreas (pNET) or metastatic low-grade or intermediate-grade pNET showed that there was a 65% lower risk of the disease getting worse in the everolimus group. Everolimus is now a standard of care for patients with advanced pNET. Everolimus is also used as treatment for subependymal giant cell astrocytoma, advanced hormone receptor-positive, HER2-negative breast cancer, and advanced renal cell carcinoma after failure of treatment with sunitinib or sorafenib.

The success of these drugs indicates that targeting mTOR/p70s6k is regarded as an effective way to potentially treat different types of major cancers.

**Novartis Animal Health has registered MPL (“Zolvix”) to treat parasitic diseases in animals; MPL is being developed for cancer in dogs, and Novartis has an option on all veterinary applications.**

Novartis Animal Health already uses MPL for the treatment of worms in sheep. Zolvix received approval from New Zealand’s Environmental Risk Management Authority and the Agriculture and Veterinary Medicines authority in 2009 and from the Australian Pesticides and Veterinary Medicines Authority in 2010. PAA owns the patents for MPL in veterinary cancer applications, and Novartis Animal Health has an option from PAA on all veterinary cancer applications.

In June 2015, PAA reported that MPL suppressed p70s6k in two dogs, and that it was well tolerated and shown to be safe in all 11 dogs in the clinical study. The first dog showed a 40% reduction in p70s6k three days after treatment, and the second dog showed p70s6k suppression of approximately 20% and 55% after three and seven days, respectively. The trial has been moved into the next stage, which involves combining MPL with standard of care chemotherapy. A reformulation of MPL into a fish oil like capsule for dogs has improved the taste for dogs and led to improved canine usage. The liquid form of the drug caused vomiting in some dogs.

The pet cancer market is estimated at \$550 million in the United States (assuming \$1,500 per chemotherapy treatment). Estimates for overall clinical trial costs for dogs range from about \$3 million to \$7 million, and a blockbuster dog cancer therapy could bring in annual sales of \$50 million to \$100 million.

**Two partnerships in place with global pharmaceutical companies.** PAA has given an option on MPL to Novartis Animal Health for the use of MPL in the treatment of veterinary cancers.

PAA also has joint patents with a large Japanese chemical company, Nihon Nohyaku.

These companies potentially provide “built-in” partners to facilitate the development the Company’s products.

**Epichem revenue forecast to reach A\$10 million by 2020.** Epichem provides medicinal and synthetic chemistry services to customers. Epichem has synthesized new and difficult to obtain standards, which are exclusive to Epichem. Epichem also serves as support for the MPL program.

Epichem has a new lab that was recently opened in Perth, Australia. Epichem’s new facility has provides extra capacity, which should lead to increased revenues. Revenue has been constrained to date by the size of the original lab. The new lab is 2.4 times larger than the previous lab. Epichem has received multiple awards for export of synthetic products.

Revenue from Epichem is forecast at A\$2.6 million for FY16 (up from A\$1.9 million for FY15) and is expected to increase to A\$10 million by FY20. Revenue for 6MFY16 is A\$1.1 million. The majority of Epichem’s revenue currently comes from a contract with the Drugs for Neglected Diseases initiative, which is worth A\$1.16 million annually and runs through to December 2017. Revenue from the sales of Reference Standards were a record \$200,000 in 4QFY15.

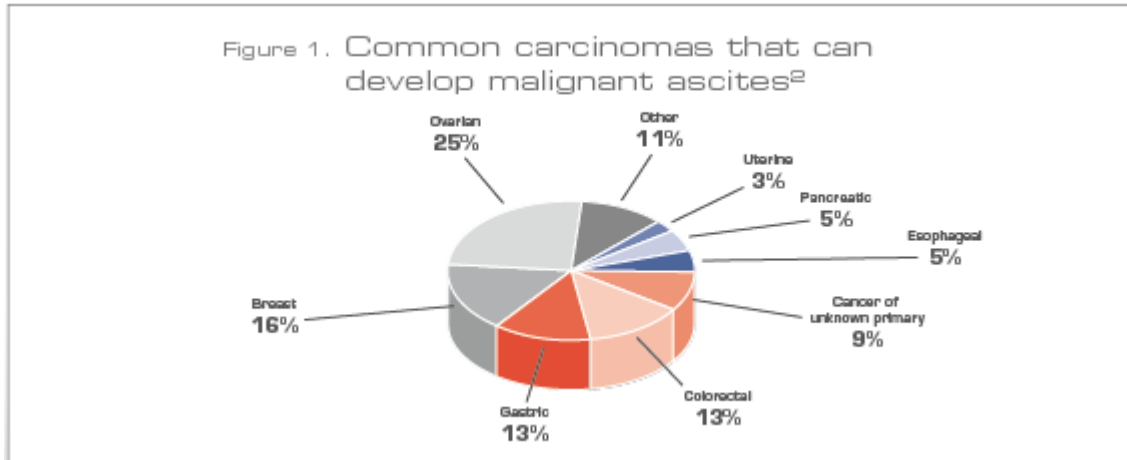
Going forward, Epichem has the ability to take advantage of the lower Australian dollar to obtain clients internationally. Epichem currently has clients in 33 countries. Epichem’s cash flows can also provide a small amount of internal funding for the Company’s clinical trial programs.

**The Second product line is designed to clear mucin from tumors; removal of mucin sensitizes highly resistant cancers to chemotherapy.** PAA’s second product line involves using specific enzymes to

challenge a tumor’s ability to resist chemotherapy. Some abdominal cancers have large amounts of mucin associated with them, which reduces the efficacy of cancer drugs. Currently, mucin is removed through surgery. Removing mucin is a challenge, and PAA’s formulation dissolves the mucin in situ.

There is little to no competition in this market, potentially giving PAA significant market share if a product is completed successfully. The market size for mucin is estimated at approximately \$300 million, and the length of the clinical program, up through product launch, is estimated at approximately 2.5 years. PAA intends to develop mucin with a partner.

**The Third product line, ABZ is a drug reformulation currently used to treat a variety of parasitic worm infestations; PAA is developing ABZ to treat ascites.** Ascites are a buildup of fluid which distends the abdomen and reduces life expectancy. Ascites affect approximately 10% of abdominal cancers, and malignant ascites are most common in abdominal, breast, colon, ovarian, and uterine cancers. The most common types of cancer that can develop malignant ascites is shown in the following chart from Fresenius Biotech:



Albendazole has been shown to be a significant inhibitor of Vascular Endothelial Growth Factor (VEGF). VEGF-A is associated with poor prognosis in breast cancer, and overexpression of VEGF-A correlates with an increased risk of metastasis. As the following table shows, multiple cancer drugs targeting VEGF have been very successful:

Indication	VEGF Inhibitors	2014 Revenue
2nd Line Renal Cell Carcinoma	Inlyta	\$410 million
1st Line Hepatocellular Carcinoma	Nexavar	\$1 billion
2nd Line Soft Tissue Sarcoma	Votrient	\$150 million
Colorectal Cancer, Lung Cancer	Avastin, Cyramza, Zaltrap, Stivarga	>\$5 billion

Two clinical trials have already been completed, and the maximum tolerated dose of the drug was discovered. ABZ is currently phase II ready.



In preclinical studies (20 mice study; 10 in treatment, 10 in control), the ABZ treated group had a survival rate of 100%, while the control group only had a 20% survival rate after four weeks.

Albendazole's formulation enables localization of the drug in the abdomen with minimal systemic toxicity. Albendazole enters the abdomen quickly and exits shortly thereafter.

PAA intends to develop Albendazole with a partner. Albendazole was previously approved as an anti-parasitic drug by the FDA in 1996.

The only product currently on the market for ascites-related malignancy is Removab.

## Valuation

Company Name	Ticker	Share Price (USD)	Market Cap (USD)	Cash (MRQ, USD)	Total Debt (MRQ, USD)
Microlin Bio Inc	MICB	\$1.50	\$30.M	\$0.1M	\$2.5M
BIND Therapeutics Inc	BIND	\$1.95	\$40.5M	\$40.9M	\$3.3M
PharmaCyte Biotech Inc	PMCB	\$0.06	\$44.8M	\$2.7M	\$0.0
TRACON Pharmaceuticals Inc	TCON	\$6.45	\$78.6M	\$52.2M	\$8.8M
Mirna Therapeutics Inc	MIRN	\$4.32	\$90.M	\$9.3M	\$0.0
Kura Oncology Inc	KURA	\$4.38	\$93.6M	\$1.1M	\$2.5M
<b>PharmAust Ltd</b>	<b>PAA</b>	<b>\$0.09</b>	<b>\$7.9M</b>	<b>\$1.M</b>	<b>\$0.6M</b>

Source: ThomsonReuters, as of March 08, 2016

We are valuing PAA at A\$0.35, based on a NPV of the Company's projected cash flows from MPL in esophageal cancer and dog cancer indications, cash flow from partnerships from ABZ and its mucin products, and projected cash flows from its Epicchem business.

The valuation comparables that have been chosen are companies in early-stage trials focusing on advanced solid tumor and metastatic cancers. We believe that this represents the closest comparables for PAA. While PAA is in a phase II trial for esophageal cancer, MPL's phase I results indicate that MPL could potentially be used in a wide variety of solid tumor cancers, both in early- and late-stages.

In general, the indications that PAA is pursuing have lower cost and shorter time duration trials. These indications also have little to no competition in the marketplace. This leads to lower overall dilution, a faster time to commercialization, and greater market share penetration than would be expected in cancers with larger patient populations and greater competition among therapies. Conversely, the ultimate potential reward is smaller, due to the smaller patient populations of these indications.

The main impediment for PAA to fully develop MPL and its other products is funding. However, strong phase II results in esophageal cancer could open the potential for a significant fundraising that could allow PAA to pursue other cancers with low survival rates and no effective treatment. We believe that PAA would likely partner with a larger company if it decided to pursue clinical trials in larger cancers such as breast and ovarian cancer.

## **Risks**

**There is no guarantee that the Company's Phase II trial for esophageal cancer will show statistically significant efficacy.** There is no guarantee that the Company will achieve its primary endpoint in its upcoming phase II trial for esophageal cancer. However, the Company has shown very promising efficacy data in previous trials for MPL.

**PAA's future capital needs are uncertain.** PAA is currently entering a phase II trial for esophageal cancer. While near-term capital needs are fairly certain, longer-term capital needs are uncertain, and will be driven by such factors as clinical trial results, potential partnering with other pharma or biotech companies, cash flows received from Epichem, and initiating clinical trials in new diseases. Depending on how multiple factors occur, the Company's capital raise needs could change significantly.

**There is no guarantee that PAA will find a partner for ABZ or mucin.** There is no guarantee that PAA will find a partner for ABZ or for its mucin product. If PAA cannot find a partner for these products, this would reduce our valuation, although not materially, as the majority of the Company's valuation is based around MPL. Conversely, finding a partner for one of these products, and depending on the terms of the deal, could lead to an increase in our valuation for PAA.

**There is no guarantee that PAA will be able to effectively reformulate MPL to improve its taste.** If the Company cannot sufficiently improve the taste of MPL, this will likely lead to lower patient compliance and worse efficacy results. PAA has hired a high quality firm, Juniper Pharma Services, to complete this reformulation.

<b>Esophageal Cancer</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>
Advanced esophageal cancer patients WW - developed countries	62,000	63,860	65,776	67,749	69,782	71,875	74,031	76,252	78,540	80,896	83,323	85,822	88,397	91,049	93,781
Price of MPL per patient	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Penetration Rate	0%	0%	0%	0%	0%	0%	5%	10%	20%	30%	35%	33%	31%	29%	27%
Total Sales	0	0	0	0	0	0	44,418,745	91,502,616	188,495,388	291,225,375	349,955,625	339,857,100	328,837,491	316,850,834	303,849,024
Royalty Rate							10%	10%	10%	10%	10%	10%	10%	10%	10%
Royalty Revenue	0%	0%	0%	0%	0%	0%	4,441,875	9,150,262	18,849,539	29,122,537	34,995,583	33,985,710	32,883,749	31,685,083	30,384,902
License Fee (assuming successful phase 2 trial)			50,000,000												
Milestone Payment (assuming successful phase 3 trial)					110,000,000										
Milestone Payment (assuming successful NDA)						60,000,000									

Discount Rate	13%
NPV (License Payment)	AS\$4.2M
Prob of Success (License Payment)	30%
NPV (Milestone Payment & Royalties)	AS\$143.0M
Prob of Success (Milestone Payment & Royalties)	15%
Combined NPV	AS\$34.7M

<b>Dog Cancer</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>
U.S. Pet Cancer Market Size	550,000,000	566,500,000	583,495,000	600,999,850	619,029,846	637,600,741	656,728,763	676,430,626	696,723,545	717,625,251	739,154,009	761,328,629	784,168,488	807,693,542	831,924,349
RoW Pet Cancer Market Size	275,000,000	283,250,000	291,747,500	300,499,925	309,514,923	318,800,370	328,364,382	338,215,313	348,361,772	358,812,626	369,577,004	380,664,314	392,084,244	403,846,771	415,962,174
Penetration Rate - U.S.	0%	0%	0%	0%	0%	0%	1%	3%	5%	7%	7%	7%	7%	6%	6%
Penetration Rate - RoW	0%	0%	0%	0%	0%	0%	0%	1%	2%	2%	2%	2%	2%	2%	2%
Total Sales	0	0	0	0	0	0	7,650,890	23,641,250	40,584,146	58,522,339	60,278,009	60,312,454	60,294,715	60,221,631	60,089,896
Royalty Rate	0%	0%	0%	0%	0%	0%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Royalty Revenue	0	0	0	0	0	0	765,089	2,364,125	4,058,415	5,852,234	6,027,801	6,031,245	6,029,472	6,022,163	6,008,990
License Fee (assuming successful phase 3 trial)						30,000,000									

Discount Rate	13%
NPV	AS\$24.9M
Prob of Success	40%
NPV	AS\$10.0M

<b>ABZ</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>
Malignant ascite patients WW - developed countries	100,000	102,000	104,040	106,121	108,243	110,408	112,616	114,869	117,166	119,509	121,899	124,337	126,824	129,361	131,948
Price of ABZ per patient	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Penetration Rate	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	2%	2%	2%	2%	2%
Total Sales	0	0	0	0	0	0	0	0	7,029,956	14,341,111	21,941,900	29,840,983	30,437,803	31,046,559	31,667,490
Royalty Rate	0%	0%	0%	0%	0%	0%	0%	0%	8%	8%	8%	8%	8%	8%	8%
Royalty Revenue	0	0	0	0	0	0	0	0	562,397	1,147,289	1,755,352	2,387,279	2,435,024	2,483,725	2,533,399
Initial License Fee		1,000,000													
Milestone Payment (assuming successful phase 2 trial)				4,000,000											
Milestone Payment (assuming successful phase 3 trial)							10,000,000								
Milestone Payment (assuming NDA)								3,000,000							

Discount Rate	12%
NPV (Initial License Payment)	AS\$0.9M
Prob of Success (License Payment)	75%
NPV (Milestone Payment Phase 2)	AS\$3.6M
Prob of Success (Milestone Payment Phase 2)	25%
NPV (Milestone Payment Phase 3/NDA + Royalties)	AS\$0.0M
Prob of Success (Milestone Payment Phase 3/NDA + Royalties)	10%
Combined NPV	AS\$2.5M

<b>Mucin</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>
Market Size WW	300,000,000	306,000,000	312,120,000	318,362,400	324,729,648	331,224,241	337,848,726	344,605,700	351,497,814	358,527,771	365,698,326	373,012,293	380,472,538	388,081,989	395,843,629
Penetration Rate	0%	0%	0%	0%	0%	0%	0%	1%	2%	3%	4%	5%	5%	5%	5%
Total Sales	0	0	0	0	0	0	0	3,446,057	7,029,956	10,755,833	14,627,933	18,650,615	19,023,627	19,404,099	19,792,181
Royalty Rate	0%	0%	0%	0%	0%	0%	0%	8%	8%	8%	8%	8%	8%	8%	8%
Royalty Revenue	0	0	0	0	0	0	0	275,685	562,397	860,467	1,170,235	1,492,049	1,521,890	1,552,328	1,583,375
Initial License Fee		700,000													
Milestone Payment (assuming successful phase 2 trial)				3,000,000											
Milestone Payment (assuming successful phase 3 trial)							7,500,000								
Milestone Payment (assuming NDA)								2,000,000							

Discount Rate	12%
NPV (Initial License Payment)	AS\$0.6M
Prob of Success (License Payment)	75%
NPV (Milestone Payment Phase 2)	AS\$2.7M
Prob of Success (Milestone Payment Phase 2)	25%
NPV (Milestone Payment Phase 3/NDA + Royalties)	AS\$6.4M
Prob of Success (Milestone Payment Phase 3/NDA + Royalties)	10%
Combined NPV	AS\$1.8M

<b>Epichem</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
Epichem Revenue	2,600,000	3,120,000	3,900,000	5,070,000	7,098,000	9,582,300	11,019,645	11,570,627	11,917,746	12,275,278
Operating Margin	2%	5%	10%	15%	20%	20%	20%	20%	20%	20%
Epichem Cash Flow	52,000	156,000	390,000	760,500	1,419,600	1,916,460	2,203,929	2,314,125	2,383,549	2,455,056

Discount Rate	8%
NPV	AS\$8.1M

Combined NPV	AS\$57.0M
Net Debt	-AS\$0.6M
Cash from options/warrants	AS\$0.1M
Fully Diluted Shares Outstanding (includes additional shares to represent potential future equity raises)	163.2M
Price Per Share	AS\$0.35

## **Additional Information**

Auditor: RSM Bird Cameron Partners

[Company Information](#)

[Company Website](#)

### **About RedChip**

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