Quarterly Shareholder Update – December 2019

Dear Shareholder,

We ended 2019 with the disappointing news that Boehringer Ingelheim (BI) were discontinuing the development of the AOC3 inhibitor acquired from Pharmaxis in 2015 in the NASH indication. While we had no influence on this decision nor had we taken any part in the considerable investment made in the product since its acquisition, we felt this setback acutely. A reduction in our market valuation was an immediate consequence and I will use the rest of this editorial to outline our plan for recovering and growing shareholder value.

The first thing to emphasize is that whilst the news from BI was disappointing it makes no difference to our current cash position nor to our two-year plan to progress a number of programs to achieve defined commercial goals. The next milestone payments from BI are due if and when our compound is progressed into phase 3 which we had forecast to be 2022. While the NASH opportunity is now gone a separate study in diabetic retinopathy (DR) is still very much alive with phase 2 recruitment completed and a read out due in H2 2020. BI have emphasized in their discussions with us that the development track in DR will be assessed separately from NASH and that the degree of clinical benefit seen in the ongoing phase 2a study will be key in deciding whether to progress further.

The reduction in the Pharmaxis market value following the BI news in December therefore does not impact the following two programs:

- LOXL2 partnering
  I attended the JP Morgan conference in San Francisco earlier this month and 90% of my time there was devoted to discussions with companies interested in licensing our LOXL2 program. The discussions were with companies that have been engaged in due diligence since our last science updates in Q4 2019 and also some newcomers that are looking to build a portfolio in fibrotic disease after their own clinical trial successes in diseases such as Idiopathic Pulmonary Fibrosis, Chronic Kidney Disease and NASH. There continues to be interest in both global and regional partnerships.
- Systemic LOX program
  We will report on the ongoing phase 1 study later this quarter. Early results from the single ascending dose phase were encouraging. We are heartened by our discussions with key clinical opinion leaders in both myelofibrosis and pancreatic cancer, two serious diseases with significant unmet clinical need. We have opened formal discussions with the FDA and expect to submit an investigational new drug application in Q2 2020 with plans already underway for a phase 2 study in myelofibrosis to commence in H2 2020.

Meanwhile, the year is shaping well for the Pharmaxis mannitol business. We've seen sales for the recent half increasing 46% without a commensurate increase in underlying expenses. It's expected Chiesi will submit their response to the FDA Bronchitol complete response letter in Q2 this year with a decision expected by mid-year. With an anticipated US approval and growing Russian sales, the mannitol business remains on track to achieve profitability by the end of 2020.

Other programs in our pipeline will receive minimal investment until the partnering of the LOXL2 program is completed. I am confident that our strategy of laying off development risk on projects that require significant investment via partnering, and fast tracking programs like the systemic pan LOX inhibitor which can reach clinical proof of concept with smaller shorter clinical trials, are the right blend of risk mitigation and value driving events for shareholders.

Sincerely,

Gary Phillips – Chief Executive Officer

Authorised for release to the ASX by Pharmaxis Ltd Disclosure Committee.
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Drug discovery

Boehringer Ingelheim development of BI 1467335

BI 1467335 (formerly known as PXS-4728A) was acquired by Boehringer Ingelheim in 2015 with an upfront payment to Pharmaxis of $41 million to initially study the chronic liver condition Non-Alcoholic Steatohepatitis (NASH).

Boehringer initiated phase 2a proof of clinical principle trials for NASH in August 2017 and for the eye disease diabetic retinopathy (DR) in January 2018. The achievement of these development milestones resulted in Pharmaxis receiving a total of €28 million (A$42 million) in the 2018 financial year, bringing the total received from Boehringer to A$83 million.

Under the terms of the agreement Boehringer has total responsibility for the development program.

In December 2019 Boehringer advised it was discontinuing the development of BI 1467335 for the treatment of NASH. The reason provided by BI for the discontinuation after a successful phase 2a study that met its safety and efficacy endpoints, was the potential for drug interactions in NASH patients arising from another recently completed Phase I study.

The second study of the drug in DR will continue with future development to be determined by BI in H2 2020 following completion of the phase 2a study.

Pharmaxis receives payments upon achievement of certain development milestones. Future potential payments by Boehringer to Pharmaxis for the DR program include:

- Commencement of phase 3 clinical trial milestone: €37m (approximately A$62m)
- Filing, approval and pricing milestones: total of €140m (approximately A$230m)
- Sales related payments increasing from high single digits
- Sales milestones

Diabetic retinopathy is the leading cause of vision-loss in adults. Of an estimated 285 million people with diabetes mellitus worldwide, approximately one third have signs of DR and of these, a further one third is vision-threatening.

LOXL2 inhibitor program

The Lysyl Oxidase Like 2 (LOXL2) enzyme is fundamental to the fibrotic cascade that follows chronic inflammation in the liver disease NASH, cardiac fibrosis, kidney fibrosis, and idiopathic pulmonary fibrosis (IPF) and it also plays a role in some cancers.

The Pharmaxis drug discovery group developed two small molecule inhibitors to the LOXL2 enzyme which have completed phase 1 clinical trials and 3-month toxicology studies. Doses that resulted in 85% or greater inhibition over 24 hours of the target enzyme in the phase 1 studies were significantly below the human equivalent No Observed Adverse Effect Level doses in all toxicity studies and thus demonstrated an adequate safety margin to start phase 2 studies of at least 3 months in length.

The excellent pharmacokinetic parameters and the substantial and long-lasting inhibition of the target LOXL2 enzyme has demonstrated that these compounds are best-in-class.

Over the course of 2019 Pharmaxis re-analysed samples from existing studies and designed new pre-clinical studies that clearly showed the link between LOXL2 inhibition in diseased organs, a reduction in collagen crosslinking which is the cause of fibrosis and clinical effect as measured by the area of fibrosis.

We are currently adding to the LOXL2 data package with a small but important phase 1 study investigating the effect of food and different dosing regimens on the PK profile. This will report in Q1 2020.

Pharmaxis is currently pursuing a number of different partnering options to enable this drug to enter the clinic in phase 2 trials and will provide more information when the process concludes.

Systemic LOX inhibitor program

Pharmaxis is progressing two lysyl oxidase (LOX) programs from its amine oxidase chemistry platform, both of which are planned to be partnered after phase 2 clinical trials.

The most advanced LOX program has developed an oral drug that inhibits all lysyl oxidase family members (LOX, LOXL1, 2, 3 & 4) that is currently completing phase 1 studies.

The compound has shown significant reductions in fibrosis in in-vivo models of kidney, liver and

lung fibrosis, myelofibrosis and pancreatic cancer. It is suited to the treatment of severe fibrosis as well as cancer with prominent stroma (connective tissue) or fibrotic metastatic niches.

Following positive results from the clinical Phase 1A single ascending dose study the drug progressed into the multiple ascending dose stage (phase 1B) in October 2019. The single ascending dose stage (phase 1A) was conducted in 40 healthy subjects divided into five groups with each taking a different single oral dose or placebo. The drug was well tolerated and no safety signals were identified during the study. Importantly for potential clinical benefit, the data showed a drug with good pharmacokinetics and a dose related inhibition of members of the LOX family with the upper doses causing strong inhibition for a full 24 hours after a single application.

The completed phase 1 study is due to report in Q1 2020 and if successful Pharmaxis will have all the data required to support the commencement of clinical proof of concept studies in either myelofibrosis or pancreatic cancer. The Company has initiated discussions with the US FDA prior to the filing of an Investigational New Drug (IND) application that will support entering phase 2 studies in H2 2020.

Topical LOX inhibitor program

The Company's other LOX program has developed a drug for topical application with the potential for use in scar revision, keloid scarring and scarring from burn wounds.

A lead candidate has been selected and is currently in pre-clinical development including initial stability of the topical formulation, ongoing evaluation in various disease models of scarring and 13 week GLP toxicology studies that will report in H1 2020.

The program aims to commence phase 1 studies in 2020.

Mannitol business

Bronchitol and Aridol

Bronchitol® (mannitol) is an inhaled dry powder for the treatment of cystic fibrosis (CF) and has been the subject of three large scale global clinical trials conducted by Pharmaxis. The product is approved and marketed in Australia, Europe, Russia and several other countries.

Aridol® is an innovative lung function test designed to help doctors diagnose and manage asthma. Aridol is approved for sale in Australia, major European countries, the United States, Canada and South Korea.

United States

The Company's US partner Chiesi Group (Chiesi) is responsible for the commercialisation of Bronchitol in the United States.

Following receipt of a complete response letter from the FDA in June 2019 and subsequent discussions with the FDA, Chiesi has revised its product packaging and user instructions for Bronchitol. Chiesi is completing a number of pilot studies before completing the human factor study (HFS) required to demonstrate that healthcare professionals can properly administer the mannitol tolerance test – an initial test to ensure patients hypersensitive to mannitol are not prescribed Bronchitol.

The FDA review of the Bronchitol NDA is expected to be completed in mid-year 2020.

Subject to approval, Pharmaxis will receive a US$10 million milestone payment on the commercial launch of Bronchitol in the US, mid to high teen percentage royalties and will be the exclusive supplier of Bronchitol for the US market.

Western Europe

In the EU, Chiesi is the Pharmaxis exclusive Bronchitol distributor for the markets of the UK, Ireland, Germany, Italy, Norway, Sweden, Finland, Denmark, Cyprus and Greece.

Pharmaxis also markets Bronchitol in Austria via its German based logistics provider and in Spain and Switzerland via exclusive distributors.

Other territories

Bronchitol is sold in Australia by Pharmaxis and in Turkey, the Czech Republic and Russia by exclusive distributors.

Bronchitol sales

Bronchitol sales for the quarter and half years ended 31 December 2019 and 31 December 2018 are as follows:

$'000	Quarter		Half year	
	2019	2018	2019	2018
Australia	273	294	571	543
Western Europe	28	44	862	81
Russia & Eastern Europe	639	(106)	735	33
Total	**$940**	**$232**	**$2,168**	**$657**

Pharmaxis ex-factory sales for the current quarter included product supplied to the Company's Russian distributor as well as to Chiesi for Western Europe. Unit in-market sales of Bronchitol by Chiesi in the UK, Germany and Italy for the half year increased 10% over the December 2018 half year.

Pharmaxis Bronchitol distributors typically order on a six monthly basis.

Aridol

Subsequent to approval from Canadian regulatory authorities in June 2019, Pharmaxis supplied launch stock to its North American distributor Methapharm in the December quarter of 2019.

Aridol sales

Aridol sales for the quarter and half years ended 31 December 2019 and 31 December 2018 are as below. Following two large orders in the previous financial year, there were no US Aridol orders during the half from the Company's North American distributor:

$'000	Quarter		Half year	
	2019	2018	2019	2018
Australia	118	117	259	235
Europe	246	252	502	456
USA & Canada	72	659	73	659
South Korea	172	77	257	230
Total	**$608**	**$1,105**	**$1,091**	**$1,580**

Corporate

Pharmaxis recognised as a top innovator company in Asia Pacific

Pharmaxis has been included in a new report which ranks it among the top 100 most innovative pharma companies in the APAC region.

The report prepared by Cortellis and entitled "Pharmaceutical innovation in the APAC region", studied a cohort of 929 companies (including multi-nationals) across 14 countries/regions that have or are developing innovative pharmaceutical products.

Pharmaxis was ranked 38 out of the 100 companies named as innovators in the small to medium- sized enterprises category. Amongst the 14 Australian companies included in the top 100, Pharmaxis was ranked second.

The Cortellis Report can be downloaded at: http://discover.clarivate.com/APAC_PharmaRanking

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Financials

Key financial metrics

A$'000	Three months ended		Six months ended	
(unaudited)	**31-Dec-19**	**31-Dec-18**	**31-Dec-19**	**31-Dec-18**
Income statements				
Sales of Bronchitol & Aridol	1,548	1,337	3,259	2,237
Total revenue	1,791	1,719	4,021	2,950
Total expenses	(6,354)	(6,772)	(14,340)	(15,537)
Net loss after tax	**(4,563)**	**(5,053)**	**(10,319)**	**(12,587)**
Segment results – adjusted EBITDA				
Mannitol business	(1,127)	60	(2,269)	(1,789)
New drug development	(2,255)	(2,714)	(4,029)	(5,923)
Corporate	(908)	(1,000)	(1,701)	(2,098)
Total	**(4,290)**	**(3,654)**	**(7,999)**	**(9,810)**
Statement of cash flows				
Cash inflow/ (outflow) from:				
Operations	3,417	(4,071)	(3,692)	(10,280)
Investing activities	(130)	(229)	(328)	(562)
Financing activities	(620)	(455)	(1,240)	21,772
Total cash generated/(used)	**2,667**	**(4,755)**	**(5,260)**	**10,930**
Cash at bank	**25,864**	**42,003**	**25,864**	**42,003**

Highlights

- Revenue
  - See above for detail and commentary on Bronchitol and Aridol sales.
  - The Company has not booked an estimated R&D tax incentive of $0.5 million and $1.4 million in relation to quarter and half respectively as it expects revenue for the financial year to be above the $20 million cap after which the incentive is not payable.
- Expenses
  - The reduction in total expenses compared to the prior quarter and half is primarily due to lower clinical trial and drug discovery expenditure.
- Cash
  - The Company finished the quarter with $26 million in cash.
  - Operational cash flows for the quarter and half included receipt of the 2019 R&D tax incentive of $6.2 million.

Segment information

A$'000	Segment information - three months ended							
(unaudited)	31-Dec-19				31-Dec-18			
Income statements	Mannitol Business	New Drug Developm't	Corporate	Total	Mannitol Business	New Drug Developm't	Corporate	Total
Revenue								
Sale of Bronchitol	940	-	-	940	232	-	-	232
Sale of Aridol	608	-	-	608	1,105	-	-	1,105
	1,548	**-**	**-**	**1,548**	**1,337**	**-**	**-**	**1,337**
Tax credit	-	-	-	-	-	-	-	-
Other revenue	5	-	126	131	5	-	126	131
	1,553	**-**	**126**	**1,679**	**1,342**	**-**	**126**	**1,468**
Expenses								
Employee costs	(1,518)	(724)	(459)	(2,701)	(1,484)	(640)	(475)	(2,599)
Clinical trials	98	(1,043)	-	(945)	621	(426)	-	195
Drug discovery	-	(374)	-	(374)	-	(1,526)	-	(1,526)
Changes in inventories	(388)	-	-	(388)	427	-	-	427
Other expenses	(872)	(114)	(575)	(1,561)	(846)	(122)	(651)	(1,619)
Total expenses	(2,680)	(2,255)	(1,034)	(5,969)	(1,282)	(2,714)	(1,126)	(5,122)
Adjusted EBITDA	**($1,127)**	**($2,255)**	**($908)**	**($4,290)**	**$60**	**($2,714)**	**($1,000)**	**($3,654)**

Commentary for the quarter

- Mannitol Business:
  - Sales of Bronchitol and Aridol are detailed and discussed in the commentary above.
  - Clinical trial credits were received in both the December 2019 and December 2018 quarters from the contract research organisation that managed the clinical trial CF303.
  - Employee and other expenses for the quarter were consistent with the prior period.
  - Changes in inventory include the net transfer of manufacturing labour and overhead to and from inventory. The current period includes a number of one-off costs to upgrade and prepare the manufacturing facility to supply the US market. The large credit balance in the December 2018 quarter relates to a significant increase in manufacturing activity and inventory levels at that time.
- New Drug Development:
  - Clinical trial expenses include the phase 1 trial for the Systemic LOX program that commenced in the March quarter of 2019 ($945,000) and a limited phase 1 dosing study in LOXL2 ($99,000). In 2018, the clinical trial expenses related to the main phase 1 trials conducted in the LOXL2 program.
  - Drug discovery expenses include work on the Topical LOX topical program ($147,000 for the quarter; $296,000 in 2018). Prior period expenses included work on the Systemic LOX program ($276,000 in 2018) and on the LOXL2 program ($571,000 in 2018).

A$'000	Segment information - six months ended							
(unaudited)	31-Dec-19				31-Dec-18			
Income statements	Mannitol Business	New Drug Developm't	Corporate	Total	Mannitol Business	New Drug Developm't	Corporate	Total
Revenue								
Sale of Bronchitol	2,168	-	-	2,168	657	-	-	657
Sale of Aridol	1,091	-	-	1,091	1,580	-	-	1,580
	3,259	**-**	**-**	**3,259**	**2,237**	**-**	**-**	**2,237**
Tax credit	-	259	-	259	-	-	-	-
Other revenue	10	-	263	273	14	-	250	264
	3,269	**259**	**263**	**3,791**	**2,251**	**-**	**250**	**2,501**
Expenses								
Employee costs	(3,037)	(1,529)	(901)	(5,467)	(2,881)	(1,414)	(1,034)	(5,329)
Clinical trials	98	(1,168)	-	(1,069)	621	(1,062)	-	(441)
Drug discovery	-	(1,311)	-	(1,311)	-	(3,201)	-	(3,201)
Changes in inventories	(746)	-	-	(746)	(58)	-	-	(58)
Other expenses	(1,853)	(280)	(1,063)	(3,197)	(1,722)	(246)	(1,314)	(3,282)
Total expenses	(5,538)	(4,288)	(1,964)	(11,790)	(4,040)	(5,923)	(2,348)	(12,311)
Adjusted EBITDA	**($2,269)**	**($4,029)**	**($1,701)**	**($7,999)**	**($1,789)**	**($5,923)**	**($2,098)**	**($9,810)**

Commentary for the six months

- Mannitol Business:
  - Sales of Bronchitol and Aridol are detailed and discussed in the commentary above.
  - Changes in inventories of $294,000 (2018: $574,000) reflect the net transfer of manufacturing labour and overhead to inventory associated with the build-up of inventory.
  - While sales have increased 46%, employee and other expenses for the half year were consistent with the prior period.
  - Changes in inventory include the net transfer of manufacturing labour and overhead to and from inventory. The current period also includes several one-off costs to upgrade and prepare the manufacturing facility to supply the US market. The December 2018 period includes a large credit arising from a significant increase in manufacturing activity and inventory levels at that time.
- New drug development:
  - Clinical trial expenses include the phase 1 trial for the Systemic LOX program that commenced in the March quarter of 2019 ($987,000) and a limited phase 1 dosing study in LOXL2 ($181,0000. In 2018, the clinical trial expenses related to the main phase 1 trials conducted in the LOXL2 program.
  - Drug discovery expenses include work on the Topical LOX topical program ($340,000 for the half; $449,000 in 2018) and the Systemic LOX program ($413,000 for the half; $1.0 million in 2018). Prior period expenses included work on the LOXL2 program ($731,000 in 2018).

Income statements

A$'000	Three months ended		Six months ended	
(unaudited)	**31-Dec-19**	**31-Dec-18**	**31-Dec-19**	**31-Dec-18**
Revenue				
Revenue from sale of goods	1,548	1,337	3,259	2,237
Interest	101	250	230	449
R&D tax incentive	-	-	259	-
Other	142	132	273	264
Total revenue	**$1,791**	**$1,719**	**$ 4,021**	**$ 2,950**
Expenses				
Employee costs	(2,968)	(2,918)	(6,005)	(5,989)
Administration & corporate	(641)	(624)	(1,153)	(1,198)
Rent, occupancy & utilities	(255)	(349)	(483)	(679)
Clinical trials	(945)	195	(1,069)	(441)
Drug development	(377)	(1,526)	(1,311)	(3,201)
Sales, marketing & distribution	(347)	(281)	(668)	(534)
Safety, medical and regulatory affairs	(153)	(167)	(487)	(478)
Changes in inventories	(387)	427	(746)	(58)
Other	(156)	(204)	(374)	(420)
Depreciation & amortisation	(808)	(651)	(1,616)	(1,292)
Foreign currency exchange gains & losses	833	(547)	(121)	(1,245)
Finance costs	(150)	(127)	(307)	(2)
Total expenses	**(6,354)**	**(6,772)**	**(14,340)**	**(15,537)**
Net profit (loss) before tax	**(4,563)**	**(5,053)**	**(10,319)**	**(12,587)**
Income tax credit/(expense)	-	-	-	-
Net profit (loss) after tax	**($4,563)**	**($5,053)**	**($10,319)**	**($12,587)**

Summary balance sheets

A$'000 (unaudited)	31-Dec-19	30-Jun-19
Assets		
Cash	25,864	31,124
R&D tax incentive	-	5,962
Accounts receivable	1,223	1,171
Inventory	2,452	2,116
PP&E	10,315	10,264
Other	2,423	2,031
	$42,277	**$52,668**
Liabilities		
Accounts payable and accrued expenses	2,871	4,194
Lease liability (Frenchs Forest facility)	8,997	7,171
Financing agreement (not repayable other than as a % of US & EU Bronchitol revenue)	23,587	23,626
Other liabilities	1,789	2,863
	$37,244	**$37,854**
Net Assets	**$5,033**	**$14,814**