BELL POTTER

9 December 2021

Speculative
See key risks on Pages 5 and 6 and Biotechnology Risk Warning on Page 9. Speculative securities may not be suitable for Retail Clients.

Analyst
John Hester 612 8224 2871

Authorisation
Dr Anubhav Saxena 612 8224 2846

Paradigm Biopharmaceuticals (PAR)

FY23 - Rich In New Data

Recommendation
Buy (unchanged)
Price
$1.31
Valuation
$2.20 (unchanged)
Risk
Speculative

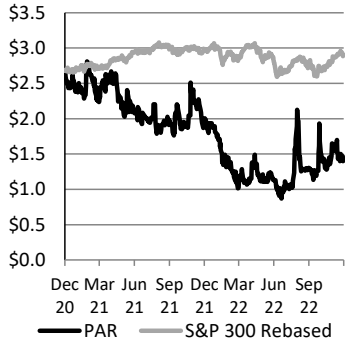
GICS Sector
Pharmaceuticals & Biotechnology

Expected Return	
Capital growth	67.9%
Dividend yield	0.0%
Total expected return	67.9%
Company Data & Ratios	
Enterprise value	$274.8m
Market cap	$366.8m
Issued capital	279.9m
Free float	92%
Avg. daily val. (52wk)	$873,000
12 month price range	$0.85 - $2.15

Price Performance

	(1m)	(3m)	(12m)
Price (A$)	1.39	1.29	1.94
Absolute (%)	1.08	9.34	-27.61
Rel market (%)	-2.84	4.32	-26.77

Absolute Price



SOURCE: IRESS

CY23 – Rich In Long Term Efficacy Data

Paradigm Biopharmaceuticals is well funded and in the midst of an extensive clinical program investigating the efficacy of its lead drug candidate Zilosul for the treatment of pain and the underlying disease in osteoarthritis (OA).

The company recently reported headline data from its synovial fluid biomarker trial (OA-008) with further data concerning 6 and 12 month efficacy expect to report in late 1Q CY23 and 2H23. Further evaluation on serum and urine biomarker correlations, and further longer-term clinical outcomes are in progress and are expected to report throughout the course of 2023.

By mid year we expect the final dosing regime for the phase 3 studies in OA will have been determined and recruitment to finally commence in 2H CY23. Once final dosing is determined, recruitment is expected to accelerate rapidly with dozens of sites expected to open within weeks of enrolment commencement.

Ex Zilosul, treatment landscape remains bleak

The high unmet need for new drugs to treat osteoarthritis follows years of clinical trials investigating various biological agents to block inflammatory pathways all of which failed in clinical trials or had adverse safety profiles. Work has continued to investigate the role of Non steroid anti inflammatory drugs (NSAIDs) and corticosteroid injections for the long term relief of symptoms associated with OA. New data which emerged from the recent RSNA conference once and for all extinguishes any argument regarding the efficacy of NSAIDs as a long term treatment for the condition. Similarly for intra articular corticosteroids, data from recently published randomised trials found no evidence of long term pain relief from these therapies.

Investment View: Retain Buy (Speculative) Valuation $2.20

There are no changes to earnings. We retain our Buy (Speculative) rating and valuation of $2.20. The company had $92.3m in cash at 30 September and recently reported the receipt of $7.4m R&D tax incentive refund.

Earnings Forecast

June Year End	FY22	FY23e	FY24e	FY25e
Revenues	0.1	0.0	64.5	62.2
EBITDA $m	-39.4	-59.0	12.2	40.0
NPAT (underlying) $m	-39.4	-58.5	12.7	40.5
NPAT (reported) $m	-39.4	-58.5	12.7	40.5
EPS underlying (cps)	-16.9	-20.0	4.4	13.9
EPS growth %	na	na	na	2.2
PER (x)	nm	nm	30.1	9.5
FCF yield (%)	nm	nm	3.4	1089%
EV/EBITDA (x)	nm	nm	21.5	6.6
Dividend (cps)	-	-	-	-
Franking	0%	0%	0%	0%
Yield %	0.0%	0.0%	0.0%	0.0%
ROE %	na	na	20.4%	39.8%

SOURCE: BELL POTTER SECURITIES ESTIMATES

NSAIDs and IACs - no long term benefit

Treatment Landscape For Osteoarthritis

Over the years, numerous developers have attempted to make a difference in the lives of patients suffering the debilitating effects of pain associated with OA. These include the use of Non Steroid Anti Inflammatory Drugs (NSAIDS) and corticosteroids. Not surprisingly neither drug class has any impact on disease modification and limited long term impact on pain.

Large pharma companies have conducted extensive clinical trials investigating the potential of anti IL1 and anti TNF biologics with the aim of blocking pro-inflammatory pathways. These studies found no significant difference in function and pain with considerable adverse side effects.

In the following section we highlight two more recent studies which largely serve to re-confirm that which has been long suspected in relation to NSAIDs and Corticosteroid Injections in addition to shedding new light on the potential for disease acceleration.

NON STEROID ANTI INFLAMMATORY DRUGS

Non Steroid Anti-inflammatory drugs including the likes of naproxen and ibuprofen are commonly prescribed for osteoarthritis pain and inflammation, however, there is no data regarding long term effects of these drugs on disease progression. In particular there is no data regarding the long term effects on synovitis – being inflammation of the membrane lining the knee joint.

The goal of this latest study was to analyse whether NSAID treatment influences the development or progression of synovitis and to investigate whether cartilage image biomarkers are impacted by NSAID treatment.

The patient group included the following:

- 129 participants each with moderate to severe OA and sustained treatment with NSAID for at least one year; and
- The control group consisted of 592 participants who were not treated with NSAIDs.

All participants underwent MRI imaging at baseline and at 4 years with images scored for biomarkers of inflammation including cartilage thickness as a marker for evaluating disease progression.

Not surprisingly in our view, the results showed no long term benefit from NSAID use. Joint inflammation and cartilage control were worse at baseline in the group taking NSAID's compared to the control group, and worsened after four year follow up, however, these differences between the two groups did not reach statistical significance.

The lead investigator concluded, that there were no protective mechanisms from NSAIDs in reducing inflammation or slowing down progression of OA of the knee joint[1].

The key limitation of the study is that it was not randomised and the period under therapy appears to range from 1 to 4 years. Nevertheless, the data is instructive and confirms that NSAIDs have no function in disease modification.

INTRA ARTICULAR CORTICOSTEROID INJECTIONS

Intra-articular corticosteroid injections (IACs) have been used for decades in the management of symptomatic osteoarthritis of the knee and remain a common practice.

[1] Impact of Non steroidal anti inflammatory drugs on synovitis and the progression of osteoarthritis: data from osteoarthritis initiative. Abstract presented at RSNA 2022.

The pain relief from a steroid injection is thought to work by reducing inflammation within the arthritic knee. Substantial variability remains among providers with regard to the technique used to perform the procedure, including the site of the injection, the medications injected, and the level of sterility.

The success of steroid injections in relieving arthritic knee pain most often occurs in the short term – up to about 6 weeks. However, the efficacy of intra-articular corticosteroid injections varies within the published literature. The latest American Academy of Orthopaedic Surgeons clinical practice guideline does not support conclusive recommendations about the use of intra-articular corticosteroid injections for symptomatic knee osteoarthritis.

The study by *Zeng et al* further quantifies the extent of the potential safety issues involved with long term use of intra articular corticosteroids. The key points from the study were:

- The investigators examined the relationship of IAC use to radiographic osteoarthritis progression in the real world setting;
- The trial involved 148 patients treated with IAC's and 536 controls;
- 65 knees (21.7/100 person years) in the IAC cohort experienced worsening Kellgren Lawrence Scores – being an increase in grade >1, verses the control group where 90 knees (7.1/100 person years) experienced a worsening of the Kellgren Lawrence grade.

The investigators made the following key observations:

- IAC's may be associated with increased risk of OA disease progression with the risk increasing with continued use;
- Repeated use of IAC's led to larger cartilage volume loss compared to saline; and
- The initiation of IAC's and continued use may have a detrimental effect on knee OA progression.

We conclude that neither NSAIDs or IACs represent a viable, safe solution to relief from pain associated with moderate to mild OA. There is no data to suggest anything other than short term pain relief and no evidence of any disease modification of the underlying disease.

Recap of PAR OA-008

For the purposes of completeness we include here a summary of the key points from the recent headline data from PAR008 concerning the use of iPPS (aka Zilosul) for the treatment of knee OA.

The headlines data was reported in October 2022. Detailed analysis will follow in 2023 and is expected to be presented at a major medical conference in conjunction with the release of a peer reviewed publication of the results.

The aim of OA-008 was to provide novel scientific evidence to test the hypothesis that iPPS acts locally in the knee joint of OA subjects as well as provide data on whether biomarker changes correlate with clinical outcome (WOMAC pain and function assessments). Further evaluation on serum and urine biomarker correlations, and further longer-term clinical outcomes are in progress.

OA-008 was a randomised, double blinded controlled study in 61 patients covering three dose cohorts. Of these, we expect the dose for the upcoming phase 3 trials will be PPS twice weekly at 2mg/kg for 6 weeks[2].

[2] Being the cohort responsible for generating reductions in pain and improvements in function.

PRIMARY ENDPOINT

The Primary Endpoint for OA-008 was the change (reduction) from baseline at day 56 in one or more synovial fluid biomarkers. These biomarkers and the outcome achieved are summarised below:

Table 1 - Synovial fluid biomarkers

Measure	Outcome
Nerve Growth Factor (NGF)	Reduced
Tumour Necrosis Factor Alpha (TNFα)	Reduced
Interleukin (IL-6)	Reduced
Cartiage oliomeric matrix protein (COMP)	Reduced
Aggrecan (ARGS) fragment	Reduced
Tissue inhibitor matrix metalloproteinase 1 (TIMP-1)	Increased

SOURCE: COMPANY DATA

The direction of movement (Increased/Reduced) were in line with expectation. In all cases, the changes in synovial fluid biomarkers at day 56 were favourable compared to placebo controls. The detailed data has been held back in anticipation of a future peer reviewed journal.

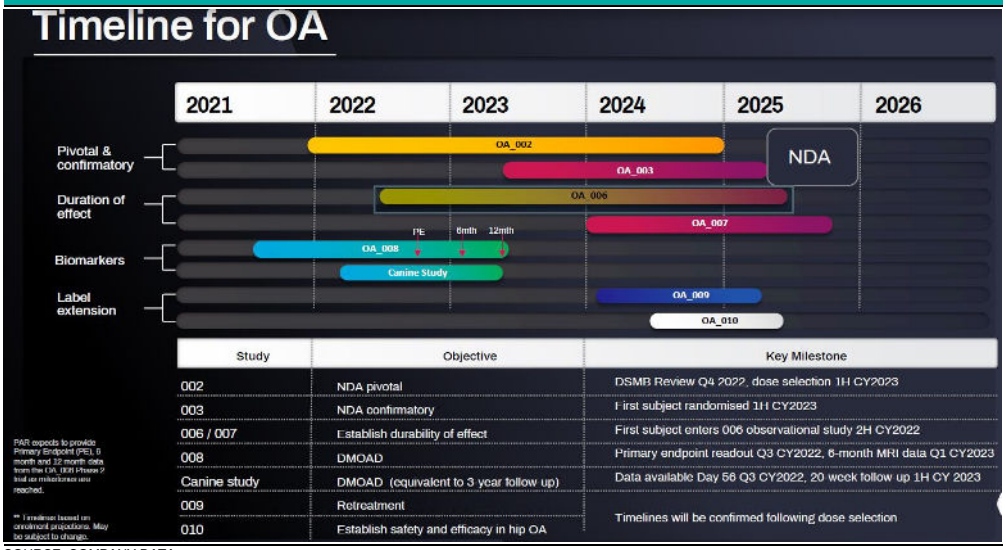
The headline data includes only brief detail in relation to the secondary endpoints associated with reductions in pain.

In respect of the cohort for twice weekly iPPS:

- mean percentage change from baseline WOMAC pain was 50% compared to 30% on placebo (p=0.05). The proportions achieving ≥30% and ≥ 50% improvements in pain were 73% and 60% respectively; and
- mean percentage change from baseline WOMAC function is 50% compared to 25% for placebo (p=0.017).

The reduction in pain reported here is consistent with previous studies, notably the earlier phase 2 in 112 patients in which 46% of subjects receiving iPPS showed a greater than 50% reduction in pain from baseline KOOS[3].

Figure 1 - Clinical Trial Summary



SOURCE: COMPANY DATA

[3] The earlier trial measure pain score using the alternative KOOS rating score – Knee injury and osteoarthritis outcome score. Investigators subsequently changed to the WOMAC rating system which is more universally accepted in the United States and Europe.

Paradigm Biopharmaceuticals

Paradigm Biopharmaceuticals is an Australia biotechnology company focused on repurposing Pentosan Polysulfate Sodium (PPS) for the treatment of Osteoarthritis (OA) in the knee. If approved the drug will have the brand name Zilosul.

The global market for a safe, effective treatment that provides superior patient outcomes compared to the standard of care is a multiple blockbuster. The recently completed phase II study produced some highly encouraging results that are worthy of further clinical trials.

In the US along the incidence of moderate to severe osteoarthritis is estimated at 30m persons. The pricing of the drug will ultimately be determined by the economic benefit associated with its use as well as the cost of other therapies. The conservative estimate is US$2,500 per year which places the addressable market in the tens of billions of US$.

PROGRESS IN THE CLINIC

December 2018 - PAR announced headline results from its phase 2b randomised, double blind, placebo controlled multicentre trial, investigating subjects with Osteoarthritis and concurrent Bone Marrow Edema (BME) lesions (n=112). The trial met the clinical endpoint of change in Knee Injury and Osteoarthritis Outcome Score (KOOS) pain achieving both clinically meaningful and statistically significant results between placebo and PPS.

The headline results were followed up with strong signals of efficacy in the secondary endpoints (including KOOS function). This phase II trial was conducted at 6 sites in Australia.

PATHWAY TO APPROVAL

The company is pursuing a 505(b)2 registration pathway in the US. PAR is now enrolling patients in the first arm of a clinical trial.

ADJACENT INDICATIONS

Paradigm recently executed an Exclusive In-License Agreement for the use of iPPS in the treatment of mucopolysaccharidoses (MPS), a group of inherited lysosomal storage disorders. A key unmet medical need in this class of inherited disease is the lack of treatment of joint pain and dysfunction akin to osteoarthritis, hence the applicability of iPPS in treating these rare joint diseases. MPS is classified as an Orphan Indication/Designation in the US/EU and provides Paradigm the opportunity to serve a US$1.4bn p.a. market that is in desperate need of new cost-effective treatments.

KEY RISK AREAS

Regulatory Pathway - PAR is seeking registration for iPPS under the 505(b)2 regulatory pathway. The pathway is designed specifically for repurposed drugs including changes in dose form, strength, route of administration, formulation, dosing regimen or indication. This proposed repurposing of PPS has some rare characteristics.

- While the drug has been approved for years as an oral format and there is ample safety data, the proposed format, the dose and the indication (being OA) are all new.
- There is also the issue of the opioid crisis. PPS is a non steroid, non opioid, non addictive substance that has been shown to have a significant impact of pain levels associated with OA. It may help to reduce the accidental deaths from opioid overdose.
- PAR intends to conduct two phase 3 studies, one pivotal study of 900 subjects and a confirmatory phase 3 study of ~700 subjects.
- PAR will present a comprehensive set of safety data from the recent Phase II trial together with data from subjects treated in the compassionate use program and two phase 3 trials, thus representing a safety set of nearly 1,700 subjects. The evidence of

treatment will be established from two adequate and well controlled studies and further supported by the phases 2 data set.

Intellectual Property

- The company has several patents over the formulation and dosing on iPPS for the treatment of OA. The validity of these patents is highly likely to be challenged at some point, especially if the drug is a commercial success.
- The company has an exclusive supply contract with Bene Pharmaceuticals (Bene). We understand the exclusivity applies to human use only (excludes veterinary use). Bene holds the only drug Masterfile with the FDA to manufacture PPS. This supply contract represents a crucial piece of the company's value as it effectively prevents or delays the creation of generics.
- We are not aware of the contractual conditions that may lead to a termination of this contract (if any).
- We understand there are some other manufacturers of PPS, however, these products are not registered for human use and may not be referenced in any application for registration for human use. We understand the primary use of these products is veterinary.

Clinical Risk

- The efficacy of iPPS has not been validated in a large, multicentre, randomised, controlled clinical trial. There is no guarantee that the results from earlier studies will be repeated in a larger phase III study.

Commercial Validation

- Our valuation makes assumptions regarding selling price and volume in relation to future revenues from the sale of iPPS. In order for physicians to prescribe the drug and for payers to offer reimbursement, the clinical trials will need to demonstrate clinically significant improvement over the standard of care i.e. meaningful improvement in patient quality of life for pain reduction, side effect management and mobility amongst others. Early indicators based on the data from the phase II study are encouraging.

Paradigm Biopharmaceuticals

as at 9 December 2021

Recommendation	Buy, Speculative
Price	$1.31
Valuation	$2.20

Table 2 - Financial summary

Profit & Loss (A$m)	FY21	FY22	FY23e	FY24e	FY25e
Year Ending June					
Risk adjusted revenues	**-**	**-**	**-**	**64.5**	**62.2**
COGS (Bene Royalty expense)	-	-	-	(2.2)	(2.1)
Gross profit	0.0	-0.1	0.0	63.2	61.0
GP margin	na	0%	na	0%	98%
R&D incentive	8.9	8.7	12.0	10.0	-
Other expenses	-43.2	-48.0	-71.0	-61.0	-21.0
EBITDA	-34.3	-39.4	-59.0	12.2	40.0
Depreciation	-	-	-	-	-
Amortisation	-	-	-	-	-
EBIT	-34.3	-39.4	-59.0	12.2	40.0
Finance income	-	-	0.5	0.5	0.5
Pre tax profit	**-34.3**	**-39.4**	**-58.5**	**12.7**	**40.5**
Tax expense	-	-	-	-	-
NPAT- reported	-34.3	-39.4	-58.5	12.7	40.5

Cashflow (A$m)	FY21	FY22	FY23e	FY24e	FY25e
Gross cashflow	-35.1	-32.2	-62.4	12.2	40.0
Net interest	0.2	0.0	0.5	0.5	0.5
Tax paid	0.0	0.0	0.0	0.0	0.0
Operating cash flow	-34.9	-32.2	-61.9	12.7	40.5
Maintenance capex	0.0	0.0	0.0	0.0	0.0
Capitalised clinical trial spend	0.0	0.0	0.0	0.0	0.0
Free cash flow	-34.9	-32.2	-61.9	12.7	40.5
Business acquistions	0.0	0.0	0.0	0.0	0.0
Proceeds from issuance	1.0	0.1	63.4	0.0	0.0
Movement in debt	0.0	0.1	-0.2	-0.2	0.0
Dividends paid	0.0	0.0	0.0	0.0	0.0
Change in cash held	(33.9)	(32.0)	1.3	12.5	40.5
Cash at beginning of period	104.0	71.0	39.7	41.0	53.5
Cash at year end	71.0	39.7	41.0	53.5	94.0

Balance Sheet (A$m)	FY21	FY22	FY23e	FY24e	FY25e
Cash	71.0	39.7	41.0	53.5	94.0
Receivables	8.5	6.7	8.0	8.0	8.0
Other current assets	1.4	0.8	0.8	0.8	0.8
Intangibles	3.0	3.0	3.0	3.0	3.0
Other	1.0	0.5	0.5	0.5	0.5
Total assets	84.8	50.7	53.3	65.8	106.3
Trade payables	5.0	7.1	5.0	5.0	5.0
Debt (leases)	0.8	0.6	0.4	0.2	0.2
Other provisions	0.7	0.7	0.7	0.7	0.7
Total Liabilities	6.5	8.4	6.1	5.9	5.9
Net Assets	78.3	42.3	47.2	60.0	100.4
Share capital	147.0	147.1	210.5	210.5	210.5
Retained earnings	(75.2)	(114.1)	(172.6)	(159.9)	(119.4)
Reserves	6.5	9.3	9.3	9.3	9.3
Shareholders Equity	78.3	42.3	47.2	60.0	100.4

Last sale 09/12/2022	1.31
Recommendation	Buy (Spec)
Issued Capital	280.0
Market Cap	366.8

Valuation Ratios (A$m)	FY21	FY22	FY23e	FY24e	FY25e
Reported EPS (cps)	-14.9	-16.9	-20.0	4.4	13.9
Normalised EPS (cps)	-14.9	-16.9	-20.0	4.4	13.9
EPS growth (%)	na	na	na	na	218%
PE(x)	**nm**	**nm**	**nm**	**30.1**	**9.5**
EV/EBITDA (x)	nm	nm	nm	22.5	6.9
EV/EBIT (x)	nm	nm	nm	22.5	6.9
NTA (cps)	32.8	16.9	15.6	20.1	34.4
P/NTA (x)	0.0	0.1	0.1	0.1	0.0
Book Value (cps)	34.1	18.2	16.7	21.1	35.4
Price/Book (x)	0.0	0.1	0.1	0.1	0.0
DPS (cps)	-	-	-	-	-
Payout ratio %	0%	0%	0%	0%	0%
Dividend Yield %	0.0%	0.0%	0.0%	0.0%	0.0%
Franking %	0%	0%	0%	0%	0%
FCF yield %	nm	nm	nm	343%	1089%
Net debt/Equity	0%	0%	0%	0%	0%
Net debt/Assets	0%	0%	0%	0%	0%
Gearing	net cash	net cash	net cash	net cash	net cash
Net debt/EBITDA (x)	n/a	n/a	n/a	n/a	n/a
Interest cover (x)	n/a	n/a	n/a	n/a	n/a

Interim Results (A$m)	1H22	2H22	1H23e	2H23e
Revenues from product sales	-	-	-	-
R&D Rebate	-	8.7	-	12.0
Operating expenses	(27.0)	(21.0)	(30.5)	(40.5)
EBIT	(27.0)	(12.3)	-	-

SOURCE: BELL POTTER SECURITIES ESTIMATES

Recommendation structure

Buy: Expect >15% total return on a 12 month view. For stocks regarded as 'Speculative' a return of >30% is expected.

Hold: Expect total return between -5% and 15% on a 12 month view

Sell: Expect <-5% total return on a 12 month view

Speculative Investments are either start-up enterprises with nil or only prospective operations or recently commenced operations with only forecast cash flows, or companies that have commenced operations or have been in operation for some time but have only forecast cash flows and/or a stressed balance sheet.

Such investments may carry an exceptionally high level of capital risk and volatility of returns.

Research Team

Staff Member	Title/Sector	Phone	@bellpotter.com.au
Chris Savage	Head of Research/Industrials	612 8224 2835	csavage
Analysts			
John Hester	Healthcare	612 8224 2871	jhester
Anubhav Saxena	Healthcare	612 8224 2846	asaxena
Tara Speranza	Healthcare	612 8224 2815	tsperanza
Michael Ardrey	Industrials	613 9256 8782	mardrey
Marcus Barnard	Industrials	618 9326 7673	mbarnard
Sam Brandwood	Industrials	612 8224 2850	sbrandwood
Daniel Laing	Industrials	613 8224 2886	dlaing
Olivia Hagglund	Industrials	612 8224 2813	ohagglund
Chami Ratnapala	Industrials	612 8224 2845	cratnapala
Jonathan Snape	Industrials	613 9235 1601	jsnape
David Coates	Resources	612 8224 2887	dcoates
Regan Burrows	Resources	618 9326 7677	rburrows
Joseph House	Resources	613 9235 1624	jhouse
Stuart Howe	Resources	613 9235 1856	showe
Brad Watson	Resources	618 9326 7672	bwatson
Associates			
Thomas Sima	Associate Analyst	612 8224 2843	tsima
James Williamson	Associate Analyst	613 9235 1692	jwilliamson

Disclosures

Research Coverage & Policies

For Bell Potter Securities' Research Coverage Decision Making Process and Research Independence Policy please refer to our company website: https://bellpotter.com.au/research-independence-policy/.

Authoring Research Analyst's Certification

The Authoring Research Analyst is responsible for the content of this Research Report, and, certifies that with respect to each security that the Analyst covered in this Report (1) all the views expressed accurately reflect the Analyst's personal views about those securities and were prepared in an independent manner and (2) no part of the Analyst's compensation was, is or will be, directly or indirectly, related to specific recommendations or views expressed by that Research Analyst in the Research Report.

Research Analyst's Compensation

Research Analyst's compensation is determined by Bell Potter Securities Research Management and Bell Potter Securities' Senior Management and is based upon activities and services intended to benefit the investor clients of Bell Potter Securities Ltd. Compensation is not linked to specific transactions or recommendations. Like all Company employees Research Analysts receive compensation that is impacted by overall Company profitability.

Prices

The Price appearing in the Recommendation panel on page 1 of the Research Report is the Closing Price on the Date of the Research Report (appearing in the top right hand corner of page 1 of the Research Report), unless a before midday (am) time appears below the Date of the Research Report in which case the Price appearing in the Recommendation panel will be the Closing Price on the business day prior to the Date of the Research Report.

Availability

The completion and first dissemination of a Recommendation made within a Research Report are shortly after the close of the Market on the Date of the Research Report, unless a before midday (am) time appears below the Date of the Research Report in which case the Research Report will be completed and first disseminated shortly after that am time.

Disclosure of Interest

Disclosure: Bell Potter Securities acted as lead manager of the company's August 2022 capital raise for $66m and received fees for that service.

Dissemination

Bell Potter generally disseminates its Research to the Company's Institutional and Private Clients via both proprietary and non-proprietary electronic distribution platforms. Certain Research may be disseminated only via the Company's proprietary distribution platforms; however such Research will not contain changes to earnings forecasts, target price, investment or risk rating or investment thesis or be otherwise inconsistent with the Author's previously published Research. Certain Research is made available only to institutional investors to satisfy regulatory requirements. Individual Bell Potter Research Analysts may also opt to circulate published Research to one or more Clients by email; such email distribution is discretionary and is done only after the Research has been disseminated.

The level and types of service provided by Bell Potter Research Analysts to Clients may vary depending on various factors such as the Client's individual preferences as to frequency and manner of receiving communications from Analysts, the Client's risk profile and investment focus and perspective (e.g. market-wide, sector specific long term and short term etc.) the size and scope of the overall Client relationship with the Company and legal and regulatory constraints.

Disclaimers

This Research Report is a private communication to Clients and is not intended for public circulation or for the use of any third party, without the prior written approval of Bell Potter Securities Limited.

The Research Report is for informational purposes only and is not intended as an offer or solicitation for the purpose of sale of a security. Any decision to purchase securities mentioned in the Report must take into account existing public information on such security or any registered prospectus.

This is general investment advice only and does not constitute personal advice to any person. Because this Research Report has been prepared without consideration of any specific client's financial situation, particular needs and investment objectives ('relevant personal circumstances'), a Bell Potter Securities Limited Broker (or the financial services licensee, or the representative of such licensee, who has provided you with this report by arrangement with Bell Potter Securities Limited) should be made aware of your relevant personal circumstances and consulted before any investment decision is made on the basis of this Research Report.

While this Research Report is based on information from sources which are considered reliable, Bell Potter Securities Limited has not verified independently the information contained in this document and Bell Potter Securities Limited and its directors, employees and consultants do not represent, warrant or guarantee expressly or impliedly, that the information contained in this Research Report is complete or accurate.

Nor does Bell Potter Securities Limited accept any responsibility for updating any advice, views, opinions or recommendations contained in this Research Report or for correcting any error or omission which may have become apparent after the Research Report has been issued.

Bell Potter Securities Research Department has received assistance from the Company referred to in this Research Report including but not limited to discussions with management of the Company. Bell Potter Securities Policy prohibits Research Analysts sending draft Recommendations, Valuations and Price Targets to subject companies. However, it should be presumed that the Author of the Research Report has had discussions with the subject Company to ensure factual accuracy prior to publication.

All opinions, projections and estimates constitute the judgement of the Author as of the Date of the Research Report and these, plus any other information contained in the Research Report, are subject to change without notice. Prices and availability of financial instruments also are subject to change without notice.

Notwithstanding other departments within Bell Potter Securities Limited advising the subject Company, information obtained in such role is not used in the preparation of the Research Report.

Although Bell Potter Research does not set a predetermined frequency for publication, if the Research Report is a fundamental equity research report it is the intention of Bell Potter Research to provide research coverage of the covered issuers, including in response to news affecting the issuer. For non-fundamental Research Reports, Bell Potter Research may not provide regular updates to the views, recommendations and facts included in the reports.

Notwithstanding that Bell Potter maintains coverage on, makes recommendations concerning or discusses issuers, Bell Potter Research may be periodically restricted from referencing certain Issuers due to legal or policy reasons. Where the component of a published trade idea is subject to a restriction, the trade idea will be removed from any list of open trade ideas included in the Research Report. Upon lifting of the restriction, the trade idea will either be re-instated in the open trade ideas list if the Analyst continues to support it or it will be officially closed.

Bell Potter Research may provide different research products and services to different classes of clients (for example based upon long-term or short term investment horizons) that may lead to differing conclusions or recommendations that could impact the price of a security contrary to the recommendations in the alternative Research Report, provided each is consistent with the rating system for each respective Research Report.

Except in so far as liability under any statute cannot be excluded, Bell Potter Securities Limited and its directors, employees and consultants do not accept any liability (whether arising in contract, in tort or negligence or otherwise) for any error or omission in the document or for any resulting loss or damage (whether direct, indirect, consequential or otherwise) suffered by the recipient of the document or any other person.

In the USA and the UK this Research Report is only for institutional investors. It is not for release, publication or distribution in whole or in part in the two specified countries. In Hong Kong this Research Report is being distributed by Bell Potter Securities (HK) Limited which is licensed and regulated by the Securities and Futures Commission, Hong Kong. In the United States this Research Report is being distributed by Bell Potter Securities (US) LLC which is a registered broker-dealer and member of FINRA. Any person receiving this Research Report from Bell Potter Securities (US) LLC and wishing to transact in any security described herein should do so with Bell Potter Securities (US) LLC.

Biotechnology Risk Warning

The fact that the intellectual property base of a typical biotechnology company lies in science not generally regarded as accessible to the layman adds further to the riskiness with which biotechnology investments ought to be regarded. Clinical and regulatory risks are inherent in biotechnology stocks. Biotechnology developers usually seek U.S. FDA approval for their technology which is a long and arduous three phase process to prove the safety, effectiveness and appropriate application or use of the developed drug and even after approval a drug can be the subject of an FDA investigation of subsequently discovered possible links between the drug and other diseases not previously diagnosed. Furthermore, the Australian exchange listed biotechnology sector is subject to influence by the global biotechnology sector, particularly that in the USA. Consequently, Australian exchange listed biotechnology stocks can experience sharp movements, both upwards and downwards, in both valuations and share prices, as a result of a re-rating of the sector both globally and in the USA, in particular. Investors are advised to be cognisant of these risks before buying such a stock.

Bell Potter Securities Limited
ABN 25 006 390 772
Level 29, 101 Collins Street
Melbourne, Victoria, 3000
Telephone +61 3 9256 8700
www.bellpotter.com.au

Bell Potter Securities (HK) Limited
Room 1701, 17/F
Prosperity Tower, 39 Queens Road Central, Hong Kong, 0000
Telephone +852 3750 8400

Bell Potter Securities (US) LLC
Floor 39
444 Madison Avenue, New York NY 10022, U.S.A
Telephone +1 917 819 1410

Bell Potter Securities (UK) Limited
16 Berkeley Street London, England W1J 8DZ, United Kingdom
Telephone +44 7734 2929