

In this edition...

We provide our quarterly wrap of the sector before the Easter break. Note there will be no edition of Bioshares next week.

There are signs that investors have returned to what has been a well oversold biotech sector. The progress of the well funded, leading biotechs continues to be positive and strong. There are now 23 profitable businesses in this emerging technology sector (almost 20%) offering a range of high growth investment options.

Funding remains devastatingly low for the fifth quarter in succession which may see the exit of 30 companies from the sector in the next 12 months. However, companies such as Mesoblast show that it is not impossible, just very difficult, to raise funds at the moment.

The Editors

Companies Covered: AAH, BTA, MSB, PXS

	Bioshares Portfolio
Year 1 (May '01 - May '02)	21.2%
Year 2 (May '02 - May '03)	-9.4%
Year 3 (May '03 - May '04)	70.0%
Year 4 (May '04 - May '05)	-16.3%
Year 5 (May '05 - May '06)	77.8%
Year 6 (May '06 - May '07)	17.3%
Year 7 (May '07 - May '08)	-36%
Year 8 (May '08 - current)	-21%
Cumulative Gain	64%
Av Annual Gain (7 yrs)	17.8%

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Bioshares

3 April 2009
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Delivering independent investment research to investors on Australian biotech, pharma and healthcare companies.

Quarterly Review

A Gain For The Quarter But Funding For Biotech Looks Bleak

After posting seven quarters of consecutive losses, the **Bioshares Index** recorded a 16% gain for the March quarter. In contrast, the **Nasdaq Biotech Index** fell 6.4% for the same period, the **Bioshares Large Cap Index** decreased by 3.8% and the ASX 300 Index fell by 3.6%. However, the Bioshares Index is 34% down from its March quarter 2008 measure and 62% under the figure recorded for the March quarter 2007. Clearly, the increase in the Bioshares Index has occurred off a low base.

The strong quarterly gain can be attributed to the announcement of two takeovers – that of **Heartware International** by **Thoratec** (announced on February 16) and that of **Arana Therapeutics** by **Cephalon** (announced on February 27). These takeover announcements saw Heartware's share price increase 56% and Arana Therapeutics' share price increase 65% respectively from the last trading day prior to the announcements.

Several other leading biotech stocks in the Bioshares Index also performed well in the quarter. **Pharmaxis** recorded a 40% increase in its share price for the quarter, with bargain hunting investors no doubt buying into the stock ahead of the release of Phase III cystic fibrosis clinical data, expected later in April (see commentary on page 5). Similarly for **Peplin**, the release of positive clinical Phase II trial results for PEP005 stimulated a 71% increase in Peplin's share price for the quarter.

Shares in **Alchemia** performed strongly, due to its announcement that its manufacturing and US marketing partner **Dr Reddy's Laboratories** submitted an Abbreviated New Drug Application (ANDA) to the FDA for fondaparinux sodium, the generic name for **GlaxoSmithKline's** anti-coagulant Arixtra.

Profits also played a part in injecting some health into the Bioshares Index, with **Sirtex Medical** shares increasing by 36% for the quarter. Sirtex's net profit for the half ending December 31, 2008 was \$10.9 million, an increase of 914%. **Cellectis** posted a half-year net

Cont'd on p. 4

Index performances by Quarter

	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009
Bioshares Index	-29.5%	-13.8%	-10.9%	-26.1%	16.0%
Nasdaq Biotech Index	-6.5%	1.6%	5.4%	-12.7%	-6.4%
Bioshares Large Cap Index	-7.3%	-7.9%	12.4%	-8.1%	-3.8%
ASX 300 Index	-15.7%	-2.6%	-12.0%	-19.3%	-3.6%

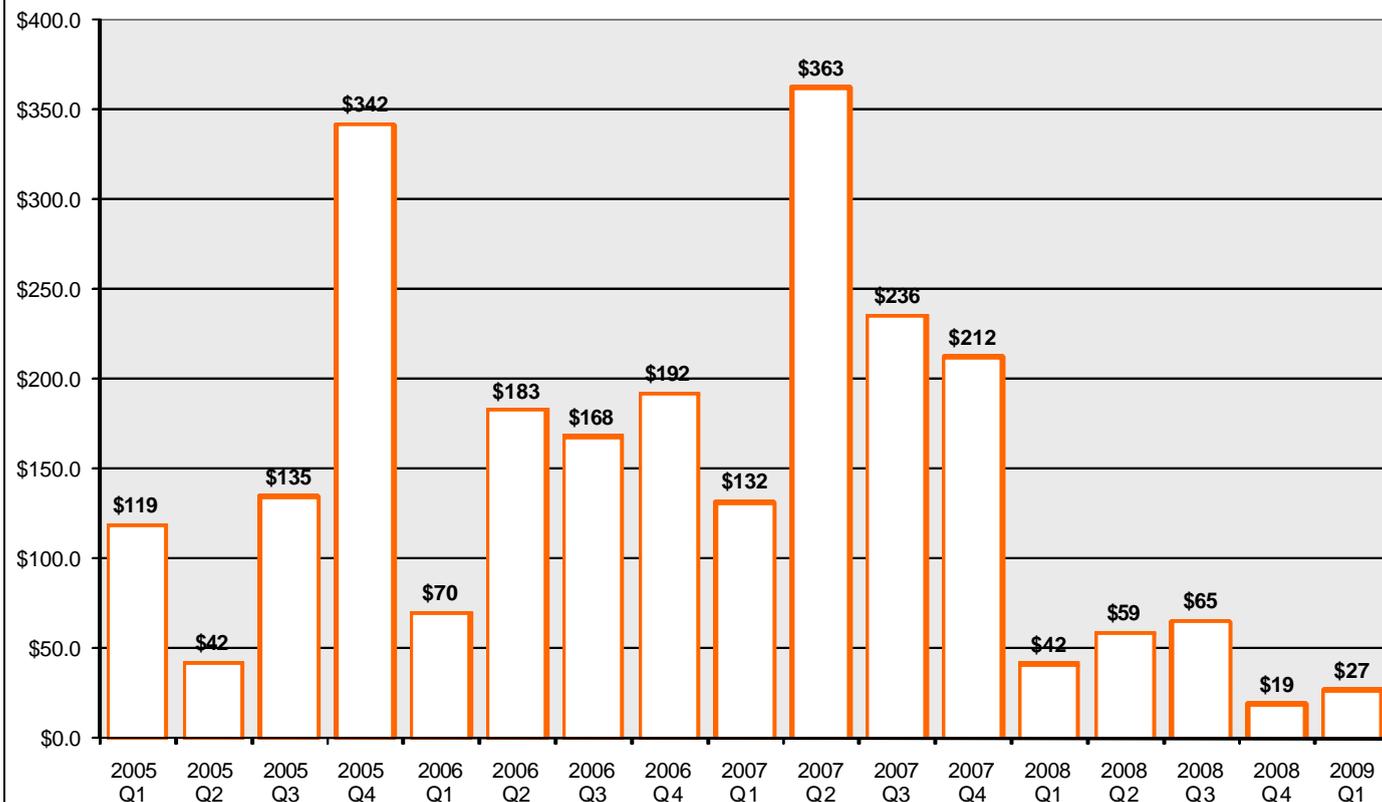
Easter Break

The team at Bioshares will take a short break over Easter. The next publication date will be Friday April 17, 2009

Capital Raisings by Australian-listed Biotech Companies Q1 2009

Company	Investment Manager or Investor	Type of raising	Funds raised (\$M)
Mesoblast		Placement	\$10.80
Bionomics	Phillip Asset Management	Options exercised	\$4.00
Impedimed	Orbis Investment Management	Placement	\$2.00
Tissue Therapies		Rights Issue	\$1.87
Ellex Medical Lasers		Rights Issue	\$1.67
Polartechinics		Convertible Note	\$1.34
Solagran		Call on contributing shares	\$1.27
KarmelSonix		Placement and Convertible Note	\$1.00
Avastra		Convertible and Loan Notes	\$0.74
Incitive		Rights Issue	\$0.55
OMI		Loan	\$0.45
BioMD		Rights Issue	\$0.43
Pharmaust		Placement	\$0.32
Virax Holdings		SPP	\$0.32
IM Medical		Placement	\$0.26
Healthlinx		SPP	\$0.15
Total			\$27.2

Quarterly Capital Raisings by ASX Listed Life Science Firms – Mar Q 2005 - Mar Q 2009 (\$M)



Latest Period Results - Profitable Life Science Companies

Company	Code	Period	Net profit (\$M)	Change PCP	Comment
1 CSL	CSL	HY	\$501.90	44%	Strong demand for IVIG products
2 Cochlear	COH	HY	\$69.94	22%	Bone anchored pdts drive growth
3 Resmed	RMD	HY	\$61.88	21%	Strongest growth in the US
4 Blackmores	BKL	HY	\$11.95	-2%	Treading water
5 Sirtex Medical	SRX	HY	\$10.96	914%	Strong demand for SirSpheres pdt
6 Biota Holdings	BTA	HY	\$7.21	31%	Received litigation settlement
7 Probiotec	PBP	HY	\$4.27	73%	Boosted by branded products
8 IDT Australia	IDT	HY	\$3.07	8%	Lower AUD aids business
9 Cellestis	CST	HY	\$2.85	769%	Announces dividend
10 Compumedics	CMP	HY	\$2.50	-15%	Benefited from FX gains
11 Ascent Pharma Health	APH	HY	\$2.20	63%	Hit by PBS changes
12 Clover Corp	CLV	HY	\$1.61	135%	Cost managment pays off
13 Cordlife	CBB	HY	\$1.59	997%	Supported by gov. incentives
15 SDI	SDI	HY	\$1.43	17%	Debt remains a damper
16 Cogstate	CGS	HY	\$1.30	NA	Posted maiden profit
14 Atos Wellness	ATW	HY	\$1.04	100%	Profit due to disposal of a business
17 Labtech Systems	LBT	HY	\$0.74	NA	Received milestone payments
18 Medical Developments	MVP	HY	\$0.45	6%	Lacklustre performance
19 Cryosite	CTE	HY	\$0.23	-47%	Relocating to new facilities
20 Atcor Medical	ACG	HY	\$0.18	NA	Maiden profit
21 Sigma Pharmaceuticals	SIP	CY (31 Jan)	\$80.10	4%	Results dampened PBS changes
22 Cyclopharm	CYC	CY	\$1.76	55%	Margins improved
23 Vita Life Sciences	VSC	CY	\$0.35	NA	Received pmts from Pan Ph. liquidator

RMD in US\$

Selected Clinical Trial Developments - Mar Quarter 2009

Company	Code	Product/Therapeutic	Event
Acrux	ACR	Axiron [Testosterone MD-Lotion]	Completed enrollment in Phase III trial; 150 male pts
Acrux	ACR	Nestorone MDTs [contraceptive skin spray]	Results from 40pt trial; various formulations over 14 days delivered effective therapeutic levels
Arana Therapeutics	AAH	ART621 [anti-inflammatory domain antibody]	Completion of Phase II trial in patients with stable plaque psoriasis; 57 pts; drug was well-tolerated
Avexa	AVX	Apricitibine	Reported 96 week Phase II data; 85% pts with HIV levels below detectable; 39 pts of 47 pts completed 96 weeks
Biodiem	BDM	LAIV [Live attenuated influenza virus] vaccine, partnered with Schering Plough	Commenced Phase I single dose study in 120 pts (healthy volunteers)
Clinuvel Pharmaceuticals	CUV		Interim results from Phase III trial in erythropoietic protoporphyria (EPP); 14 pts (total 100 pts),stat. sig.reduction in the severity of phototoxic reactions reported
Halcyon Pharmaceuticals	HGN	SUBA-Itraconazole	Completed recruitment and dosing for third US pharmacokinetic study under IND
Living Cell technologies	LCT	Diabecell implants for the treatment of Type 1 diabetes	Reported positive long term results from Phase I/IIa trial in six of seven pts
Mesoblast	MSB	Revascor [universal adult stem cell product]	Reported positive 30 day safety data from first patient cohort of 20 pts; total three cohorts of 20 pts each
Peplin	PLI	PEP005 Gel	Reported positive results from Phase IIb AK trial; eight arm, 265 pt trial; 0.015% concentration achieved 50% complete clearance and 72% partial clearance from 3 consecutive days of application.
Phosphagenics	POH	TPM/diclofenac	Completed Phase I study; compared TPM/diclofenac with Voltaren
Psvida	PSD	Iluvien [Intravitreal insert that releases fluocinolone acetonide]	Completed 12 month safety and pharmacokinetic study
Psvida	PSD	Brachysil	Completed enrollment in dose-ranging study
QRxPharma	QRX	MoxDuoIR [combination of oxycodone and morphine for pain]	Commenced second comparative, three arm dosing study, comparing MoxDuo IR to Percocet; 45 pts
Starpharma	SPL	Vivagel [microbicide]	Completed duration of activity trial in 12 pts

From page 1

profit of \$2.9 million, up 769% from the previous corresponding period. Cellestis' share price rose 21% for the quarter.

Our table on page 3 lists profitable Australian life science firms, with 23 companies posting profits for their respective latest reporting period. While members of this list come and go, it does illustrate the point that the Australian life science sector has been capable of growing profitable businesses.

The Funding Outlook

However, the funding outlook for cash depleting development phase biotechs (of which there are about 95) looks utterly bleak. A little over \$27 million was raised by listed biotechs in the March quarter 2008, an improvement on the previous quarter's figure of \$18.8 million. However, these figures are both well below the quarterly capital inflows for the first three quarters of 2008 (see chart on page 2). If this trend continues, then a little more than \$100 million is likely to flow into the sector this year.

Although it is not impossible to raise funds (witness Mesoblast's success at garnering \$10.8 million from both old and new supporters), many companies have in desperation tried to tap share purchase plans. SPP's have yielded very little in the way of capital, with five conducted in the last two quarters netting \$1.6 million.

In contrast, a similar number of convertible note and loan offerings raised about \$4 million over the same two quarters.

Expectations of the effective corporate demise of as many as 30 biotechs remains high, while capital markets remain closed and alternative sources of funding remain limited in Australia and elsewhere.

Investment Outlook

The latest Bioshares Index figure reveals the actions of a highly discerning, bargain hunting biotech investment community. Stocks that have gained attention have included cashed-up, or solidly supported companies, with advanced clinical milestones in reach. Other stocks that have done well are ones that have generated unambiguous and convincing sales and profits results.

A third set of stocks that investors should consider are potential takeover targets. With two companies currently in play as takeovers at the moment, the likelihood of further bids is high. The companies most likely to be attractive to international firms are the better structured and funded companies, with assets in development that are yielding attractive data and generating proof of concept. Some companies that fit this bill include Pharmaxis, Peplin, Universal Biosensors, Acrux, and Chemgenex Pharmaceuticals.

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Bioshares Model Portfolio (3 April 2009)

Company	Price (current)	Price added to portfolio	Date added
ASDM	\$0.41	\$0.30	December 2008
QRxPharma	\$0.28	\$0.25	December 2008
Hexima	\$0.40	\$0.60	October 2008
Atcor Medical	\$0.20	\$0.10	October 2008
CathRx	\$0.38	\$0.70	October 2008
Impedimed	\$0.72	\$0.70	August 2008
Mesoblast	\$0.76	\$1.25	August 2008
Cellestis	\$2.10	\$2.27	April 2008
IDT	\$1.58	\$1.90	March 2008
Circadian Technologies	\$0.72	\$1.03	February 2008
Patrys	\$0.07	\$0.50	December 2007
Bionomics	\$0.21	\$0.42	December 2007
Cogstate	\$0.24	\$0.13	November 2007
Sirtex Medical	\$2.28	\$3.90	October 2007
Clinuvel Pharmaceuticals	\$0.22	\$0.66	September 2007
Starpharma Holdings	\$0.30	\$0.37	August 2007
Pharmaxis	\$1.88	\$3.15	August 2007
Universal Biosensors	\$0.75	\$1.23	June 2007
Biota Holdings	\$0.66	\$1.55	March 2007
Probiotec	\$1.60	\$1.12	February 2007
Peplin Inc	\$0.58	\$0.83	January 2007
Arana Therapeutics	\$1.37	\$1.31	October 2006
Chemgenex Pharma.	\$0.52	\$0.38	June 2006
Cytopia	\$0.13	\$0.46	June 2005
Acrux	\$0.57	\$0.83	November 2004
Alchemia	\$0.29	\$0.67	May 2004

Portfolio Changes – 3 April 2009

IN:
No changes

OUT:
No changes

Stock Updates

Pharmaxis - Now Awaits Major Phase III CF Trial Result This Month

Pharmaxis has completed its first Phase III cystic fibrosis trial, with the last patient in the trial having now finished treatment. The two year trial involved 325 patients and results are expected to be out at the end of April. This will arguably be Pharmaxis' biggest milestone to date and helps explain the renewed interest in the stock by investors.

In a Phase II study reported in August last year, the company reported the following positive results summarized in the table below. In the highest treatment group, lung function improved by 8.6%. This is the dose, 400mg, that has been taken into the Phase III study. What was particularly comforting about this result is the dose dependency i.e. as the dose was increased, so did the benefit to the patient.

We have a strong expectation that this first Phase III trial will deliver a similarly positive result. If it is, the company will file the drug for approval in Europe most likely in the second half of this year. It will be a major value creation point.

It is expected that the drug candidate, Bronchitol, will sell for around the same price as the competing drug from **Genentech**, Pulmozyme, which sells for US\$13,000. Pharmaxis' manufacturing plant is expected to be operational by the end of 2009.

Bioshares recommendation: **Speculative Buy Class A**

Pharmaxis Phase II CF trial results (48 patients)

Treatment arm	Result in FEV1 (lung function)
400mg dose	+8.6%
240mg dose	+4.6%
120mg dose	+3.7%
40mg dose	-1.6%

Mesoblast – Difficult but not Impossible

Mesoblast has shown that it is not impossible to raise funds in the current climate, even if it is extremely difficult. The company raised \$10.8 million at 72 cents a share, only a 10% discount to its trading price. The capital raising included both existing and new institutional investors.

The company now has an estimated \$18 million in cash and will expand its orthopedic clinical trial applications for its adult stem cell technology. The capital raising is also a major statement by the company highlighting the appeal of the technology, the proximity to market and its quality share register.

Bioshares recommendation: **Speculative Buy Class A**

Biota Holdings – Daiichi Exercises Rights for CS8958

The focus at Biota Holdings has long been on its influenza drug Relenza, marketed globally by **GlaxoSmithKline**. And why shouldn't it. The drug has generated a royalty income for Biota of \$103 million (including royalties due on sales orders recorded by GSK). The drug also has another four years patent protection in the US out to 2013. It should generate further royalty income for

Biota in excess of \$100 million, and the figure could be well in excess of that given the resistance issues with the competing drug Tamiflu that are emerging.

According to a letter to *Science* magazine last month from Scott Layne at the Department of Epidemiology and Center for Rapid Influenza Surveillance and Research (at the **University of Los Angeles School of Public Health**), 98% of the circulating influenza A/H1N1 strains in the USA have become resistant to Tamiflu. The concern here is not just that Tamiflu may not be effective in treating that Influenza A stream at the moment, but if that strain becomes incorporated in a future pandemic strain, then the global government stockpiles of Tamiflu may prove to be completely ineffective.

In 2008, **Gilead Sciences** generated royalty income from Tamiflu of US\$155 million, down from US\$414 million. The significant decrease was due to the largely completed stockpiling orders by Roche. The resistant issues however with Tamiflu can be expected to drive stockpiling orders for Relenza, which to date there has been no reported clinical resistance to Relenza. Given the most global government stockpiles are heavily skewed to Tamiflu, increased stockpiling demand for Relenza, either to replenish existing stockpiles (which have around an estimated five year shelf life), balance the stockpiling ratio, or to increase coverage of the drugs for populations.

One aspect that should start to get more attention for Biota is the progress its second generation flu drug is making with its partner, **Daiichi Sankyo**, in Japan. The program is a long acting version of the Relenza (a prodrug) that needs to be taken only once every five days, rather than twice daily. Phase II trial results were positive, and Daiichi Sankyo has just reported that it is taking up its commercialisation option with Biota.

Patient enrolment in the Phase III trial in Japan has just been completed and results are due in mid 2009. Daiichi Sankyo will manufacture the drug in-house, including the active pharmaceutical ingredient, with the inhaler to be made under contract by a third party. If the results are positive, Daiichi Sankyo could file the drug for approval this year and be on the market for the flu season starting at the end of 2010 in Japan.

Currently Tamiflu has cornered the flu market in Japan. However, resistance issues and reported possible links to the teenage suicides in people taking Tamiflu will help Daiichi Sankyo gain quick penetration into that market, not ignoring the much more appealing dosing regime. The seasonal and stockpiling market in Japan could be worth several hundred million dollars a year. We estimate Biota will receive a royalty income stream in Japan of between 3.5% - 5%. Tamiflu comes off patent in Europe and the USA in 2016.

There is also potentially significant upside in seasonal and stockpiling use outside of Japan, where Daiichi Sankyo and Biota Holdings share the rights to this drug candidate equally.

Bioshares recommendation: **Speculative Buy Class A**

Cephalon May Need To Up Arana Therapeutics Bid

Cephalon's cheeky bid for **Arana Therapeutics** may need to sweetened if the level of shareholder acceptance is any indication. One month after launching the takeover bid, Cephalon has increased its stake in Arana by only 5%, to 24.8%. This week Cephalon tried to "increase the attractiveness" of the offer through non-monetary means, by adding broker handling fees, accelerated payment terms (5 days) and providing an institutional acceptance facility. The offer is due to close in less than one month on 1 May, by which time Cephalon needs to have gained a 50.1% interest in Arana.

Curiously, the directors of Arana continue to fully support the bid. Their explanation as to why the bid is supported is that the bid offers a 69%-75% premium of the pre-offer share price in Arana. The other explanations are that asset valuations have decreased in recent times, the Cephalon offer provides certainty to shareholders, and providing valuations of drug discovery assets is a very uncertain process. We assume the directors are not eligible to receiving a success fee as this has not been announced to the market.

Perhaps the directors of Arana are unclear of the massive potential value of drug assets in the TNF-alpha inhibitor drug class. The drugs currently on the market are generating sales in excess of US\$16 billion a year. According to a presentation at the JP Morgan Health Care Conference earlier this year by Thomas Freyman, the CFO of **Abbott Laboratories**, the market for rheumatology medicines has been penetrated by biologic drugs (such as the anti-TNF drugs Humira and Remicade) by approximately 25% in the US and 10% in Europe. And the penetration rates for the disease areas of gastroenterology and dermatology are even lower.

Arana's lead compound ART621 is currently in Phase II trials in rheumatoid arthritis, with results due out towards the end of this year. Phase II results released last month showed some signs of efficacy.

Cephalon has no previous particular interest in the auto-inflammatory disease space. Its stated aim is that ART621 will form part of that company's strategy to develop a pipeline of products to target inflammatory diseases.

One of the out clauses for Cephalon is an adverse development in the ART621 drug candidate. Given that the Phase II psoriasis results were released after the original bid was made, we can assume that Cephalon was also encouraged by the psoriasis trial result.

Interesting deal for Cephalon

At the start of this year Cephalon signed a particularly interesting deal with another US biotech, **Ception**. The deal gives Cephalon an option to access that company's lead monoclonal antibody drug for the treatment of pediatric eosinophilic oesophagitis. The drug candidate is in Phase II/III trials and Cephalon paid US\$100 million for the option rights to this program.

Investors should note that Cephalon has no real expertise in the antibody area. Given the Ception lead drug candidate is a

monoclonal antibody, there is added significance in accessing the extensive antibody engineering expertise and technology access rights at Arana Therapeutics.

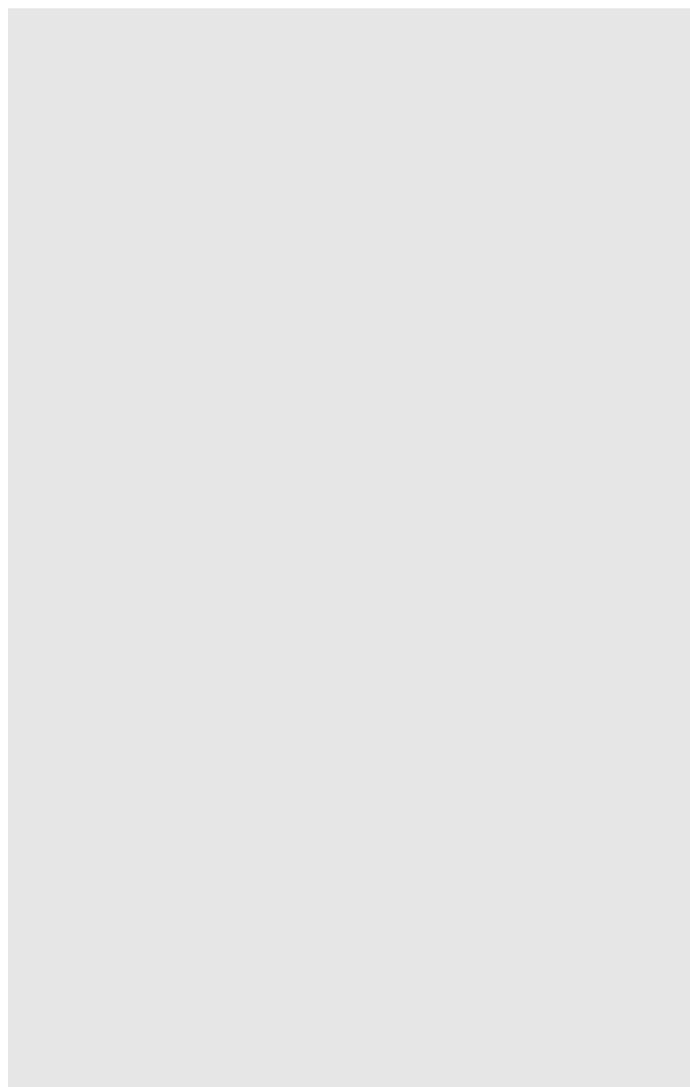
But of even more interest is that Ception is developing a unique class of orally available anti-TNF drug candidates, the same target that Arana's ART621 has been designed to hit. Cephalon can acquire all the assets of Ception for US\$250 million.

Summary

Cephalon's bid for Arana Therapeutics valued that company's technology and IP at only US\$44 million (assuming a AUD/USD exchange rate of 65 cents). It is acquiring a Phase II drug candidate that potentially offers improved performance characteristics to the existing mega-blockbuster drugs on the market. It is indeed a cheeky bid from Cephalon and one that should and may well be increased, if the Arana directors are not opposed to an increased offer price.

Bioshares recommendation: Reject Offer

Bioshares



The Australian Listed Life Sciences Sector

March 31, 2009: Capitalisation \$31.5 billion, 126 Companies

Bioshares Large Cap. Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/09
CSL	CSL	19,607	Manufactures pharmaceutical products including vaccines and human plasma fractions	-4%	-12%	\$32.49
Resmed Inc.	RMD	4,022	Manufactures diagnostic and treatment equipment for sleeping disordered breathing	-1%	17%	\$5.30
Cochlear	COH	2,808	Manufactures cochlear hearing implants	-10%	-8%	\$50.10
Sigma Pharmaceuticals	SIP	922	Pharmaceutical manufacturing and wholesaling	-2%	-15%	\$1.06

Capitalisation Total 27,359

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/09
Pharmaxis	PXS	330	Marketing a lung function test, Aridol, and developing the Bronchitol product to treat cystic fibrosis, bronchiectasis and COPD.	40%	-19%	\$1.70
Arana Therapeutics	AAH	318	Developing biologic therapeutic products for the treatment cancer and inflammatory diseases. US company Cephalon has placed a bid for the company.	69%	53%	\$1.40
Heartware International	HIN	305	Developing a mechanical heart pump (LVAD). US company Thoratec is acquiring Heartware.	62%	143%	\$0.97
Cellestis	CST	203	Marketing a diagnostic for latent tuberculosis	21%	-7%	\$2.11
Blackmores	BKL	202	Manufactures vitamin, mineral and herbal supplements and skin & hair products in Australia and N.Z.	-7%	-33%	\$12.30
Peplin	PLI	184	Developing a plant derived compound, PEP005, to treat non-melanocytic skin cancers.	71%	9%	\$0.60
Sirtex Medical	SRX	128	The company's core technology uses radioactive particles to irradiate tumours in the liver. Approved for use in most major regions.	36%	-31%	\$2.29
ChemGenex Pharmaceuticals	CXS	125	Developer of the drug Omacetaxine, which has potential to treat CML patients that develop the T315i mutation.	12%	-35%	\$0.52
Biota	BTA	105	Commercialised Relenza anti-flu drug and flu diagnostic kits. Now developing an improved version.	79%	-50%	\$0.60
Mesoblast	MSB	103	Developing therapies based adult stem cells called mesenchymal stem cells, with applications in cartilage regrowth and bone repair.	-15%	49%	\$0.85
API	API	100	Pharmaceutical wholesaler	-7%	-74%	\$0.39
Phosphagenics	POH	93	Commercialising a drug delivery technology improving the delivery of vitamin E and existing pharmaceutical products through phosphorylation.	82%	-28%	\$0.14
Universal Biosensors	UBI	93	Development, manufacture and commercialisation of a range of in vitro diagnostic tests for point-of-care use.	0%	-34%	\$0.59
Acrux	ACR	86	A Pooled Dev. Fund commercialising a drug delivery technology that uses sunscreen penetration enhancers to aid transdermal drug delivery.	14%	-44%	\$0.54
Probiotec	PBP	73	Manufacturer, marketer and distributor of a range of over the counter (OTC) pharmaceuticals, complementary medicines and speciality ingredients	4%	33%	\$1.55
Institute of Drug Technology	IDT	67	Manufacturer of pharmaceutical ingredients to international standards for major pharmaceutical groups.	-8%	-20%	\$1.56

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/09
Impedimed	IPD	63	Develops devices that aid the diagnosis of secondary lymphoedema, muscle wasting and other disorders	-7%	-3%	\$0.70
Clinuvel Pharmaceuticals	CUV	62	Developing an analogue of the alpha-MSH protein as a photo-protective agent	-15%	-45%	\$0.21
Nanosonics	NAN	61	Developing a novel disinfection technology. The first product is a point of care ultrasound probe disinfection unit.	60%	-9%	\$0.32
Unilife Medical Solutions	UNI	57	Developer of retractable syringes.	10%	8%	\$0.27
Bionomics	BNO	56	Developing drugs to treat cancer and CNS diseases, and has also developed a gene diagnostic for epilepsy.	-2%	-37%	\$0.22
Starpharma Holdings	SPL	51	Developer of pharmaceutical applications of chemical scaffolds known as 'dendrimers'.	46%	-11%	\$0.29
Novogen	NRT	51	Developing analogues of naturally occurring phenolic hormones to treat cancers and other conditions.	-28%	-50%	\$0.50
Alchemia	ACL	47	Commercialising new solid phase carbohydrate synthesis technology. First product, a synthetic heparin, to be launched by partners in 2008.	84%	-31%	\$0.30
Progen Pharmaceuticals	PGL	46	Focussed on developing PI-88 for the Taiwanese market.	-1%	-50%	\$0.77
Rockeby Biomed	RBV	40	Research, development and marketing of rapid testing technologies for infectious diseases in animals and humans.	1700%	20%	\$0.02
Avexa	AVX	40	Developing antiviral therapies for HIV and Hepatitis B and a novel antibiotic.	27%	-73%	\$0.09
Prana Biotechnology	PBT	38	Developing drugs to treat CNS diseases such as Alzheimer's and Parkinson's	-40%	-59%	\$0.19
Ascent PharmaHealth	APH	37	Formerly GenePharm. A generic pharmaceutical manufacturer and distributor.	-12%	-59%	\$0.15
Hexima	HXL	32	Research and development of genetic technologies that can enhance the resistance of crops to insects and fungal pathogens.	-20%	-43%	\$0.34
Circadian Technologies	CIR	31	Developing drugs, including antibodies, around the VEGF C and VEGF D targets.	19%	-32%	\$0.69
Clovercorp	CLV	30	Development and production of omega-3 food additives from tuna oil.	0%	24%	\$0.18
Southern Dental Industries	SDI	30	Manufacture & distribution of amalgam (fillings) & other dental materials and product R&D.	0%	-7%	\$0.25
Cordlife	CBB	29	Rolling out tissue banking services in Australia and Asia	25%	-36%	\$0.32
Polartech	PLT	29	Develops and commercialises medical instruments to diagnose pre-cancer and cancer, in particular cervical cancer and melanomas.	-40%	5%	\$0.11
USCOM	UCM	28	Marketing a non-invasive heart output function monitor.	59%	176%	\$0.69
Living Cell Technologies	LCT	26	Developing cell therapies for diabetes, haemophilia and Huntington's disease.	10%	-65%	\$0.11
Fermiscan Holdings	FER	25	Commercialising the use of x-ray diffraction to aid in the screening of breast cancer.	-13%	-78%	\$0.18

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/09
Ventracor	VCR	25	Developer of the VentrAssist device, an artificial heart assist device (LVAD). Under administration.	24%	-76%	\$0.08
Bone Medical	BNE	24	Developing treatments for bone and joint degenerative diseases such as arthritis and osteoporosis.	25%	4%	\$0.25
Scigen	SIE	23	Developer and manufacturer of biopharmaceuticals. Company is based in Singapore and was spun out of Sonic Healthcare in 2002.	20%	-53%	\$0.04
pSiVida	PVA	21	Developing drug delivery technologies, with a special focus on ophthalmic applications. From late June pSiVida redomiciled to USA. Shares trade as 1:1 CDIs after 40: 1 reconstruction	-12%	-61%	\$1.16
QRxPharma	QRX	21	Developing a 'dual opioid' drug to treat moderate to severe pain.	40%	-74%	\$0.28
Sunshine Heart	SHC	20	Developing the C-Pulse heart assist device. The C-Pulse wraps around and compresses the aorta, increasing blood flow through the body.	63%	-30%	\$0.07
Genera Biosystems	GBI	20	Develops, manufactures and distributes advanced molecular diagnostic tests, with a particular focus on women's health.	63%	0%	\$0.39
Compumedics	CMP	20	Develops, manufactures and markets sleep diagnostic and monitoring equipment.	12%	-7%	\$0.14
Fluorotechnics	FLS	19	Development and sale of scientific equipment and consumables, including fluoroescient stains.	-20%	0%	\$0.80
Atcor Medical	ACG	19	Markets the SphygmoCor device, a noninvasive technology that provides information regarding the functioning of the cardiovascular system	27%	192%	\$0.19
Solagran	SLA	19	Developing complementary medical compounds called Bioeffectives.	-50%	-90%	\$0.08
Antisense Therapeutics	ANP	19	Developing antisense compounds to treat multiple sclerosis and acromegaly	-6%	-42%	\$0.03
Brain Resource Corp	BRC	18	Development and commercialisation of functional brain analysis techniques.	0%	-43%	\$0.20
Genetic Technologies	GTG	18	Provides DNA paternity testing services and holds broad patents relating to the use of non-coding DNA.	0%	-52%	\$0.05
Acuvax	ACU	18	A developer of various cancer therapeutics. Formerly Avantogen.	20%	20%	\$0.03
Tissue Therapies	TIS	17	Commercialising growth factors for spray-on skin product, other wound healing and in research and industrial cell growth applications.	126%	54%	\$0.22
Cogstate	CGS	15	Marketing cognitive performance diagnostic products.	47%	135%	\$0.24
Halcygen	HGN	15	Developing an improved dosing anti-fungal drug, Subazole, based on drug delivery technology developed by Mayne Pharma.	5%	-23%	\$0.20
Ellex Medical Lasers	ELX	14	Develops, manufactures and markets solid state ophthalmic lasers used to treat secondary cataracts and retinal disorders.	70%	-71%	\$0.17
Somnomed	SOM	14	Commercialising an oral device for the treatment of sleep apnea and snoring.	-10%	0%	\$0.02
Labtech Systems	LBT	13	Developing the MicroStreak technology for the automation of microbiology laboratory processing	8%	-29%	\$0.14
Analytica	ALT	13	A medical devices company that has developed a retractable syringe	-43%	160%	\$0.04

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/09
CathRx	CXD	13	Developing novel modular cardiac catheters for the diagnosis and treatment of abnormal heart rhythms	-38%	-83%	\$0.31
Advanced Surgical Design & Manufacture	AMT	12	A developer and manufacturer of prosthetic implants and medical devices	0%	-42%	\$0.35
Cyclopharm	CYC	12	A nuclear medicine company that markets the Technegas lung imaging system	-30%	-58%	\$0.07
Medical Developments	MVP	12	Commercialising the Penthrax inhaler for temporary pain relief. Used widely in ambulances across Australia.	-2%	-18%	\$0.21
Viralytics	VLA	11	Developing a cancer treatment based on the application of viruses (oncolytic virus technology).	-8%	-29%	\$0.04
Cytopia	CYT	11	Small molecule drug development company with a focus on kinase targets. Lead program, CYT997 is at the Phase II level of development.	-28%	-57%	\$0.13
Imugene	IMU	10	Developing animal products such as antibiotic alternatives used in the stock feed industry using a vaccine and gene therapy approach	-15%	-24%	\$0.07
ITL	ITD	10	Develops and distributes medical devices such as safety equipment to prevent needle stick injuries and sterile preparation kits.	-32%	-38%	\$0.08
Eastland Medical Systems	EMS	10	Developing retractable syringes, ClipOn and VetLock, and anti-malarial product ArTiMist.	-40%	-65%	\$0.05
Austofix	AYX	10	Manufacturer and developer of orthopaedic fixation devices	-1%	-40%	\$0.84
KarmelSonix	KSX	9	Respiratory and pulmonary devices company. Acquired technologies from PulmoSonix and Karmel Medical Acoustics Technologies.	79%	-80%	\$0.03
Biodiem	BDM	9	Focused on the development of LAIV influenza vaccines	64%	0%	\$0.12
Biotron	BIT	8	Developing a compound to treat HCV	-33%	-43%	\$0.08
Phylogica	PYC	8	Developing phylomer (protein fragment shapes) compound libraries for use in human therapeutics.	28%	-49%	\$0.05
Patrys	PAB	8	Developing human antibody therapies for the treatment of lung, pancreatic, gastric and colon cancers	-50%	-86%	\$0.05
Atos Wellness	ATW	7	Manages wellness centres in Singapore, Malaysia, India, Australia, Austria and Germany	0%	29%	\$0.04
BioProspect	BPO	7	Developing insecticides from naturally occurring molecules	0%	-50%	\$0.02
Agenix	AGX	7	Currently suspended from trading. Acquiring drug development business in China. Also developing Thromboview, a blood clot diagnostic imaging agent.	0%	-85%	\$0.02
Imuron	IMC	7	Formerly Anadis. Specialises in R&D of hyper-immune bovine colostrum products for therapeutic use in animals and humans.	67%	-17%	\$0.05
Avita Medical	AVH	7	Avita Medical is the new name for the merged entity that combines Clinical Cell Culture and Visiomed. A 10:1 capital reconstruction occurred on June 10, 2008.	108%	436%	\$0.08
Metabolic Pharmaceuticals	MBP	7	Holds a 60% stake in PolyNovo	-12%	-23%	\$0.02
Benitec	BLT	7	R&D company focusing on gene silencing, specifically DNA delivered RNAi, technology.	-41%	-77%	\$0.02

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/09
Tyrian Diagnostics	TDX	6	Formerly Proteome Systems. Developer of diagnostic products.	-17%	-82%	\$0.03
Prima Biomed	PRR	6	Developing the CVac immunotherapy.	280%	27%	\$0.02
Healthlinx	HTX	6	Detecting novel functions of known and new protein and peptides for therapeutic purposes.	-8%	-35%	\$0.06
Occupational & Medical Innovations	OMI	5	Developing safety devices used in the healthcare industry, including safety syringes.	-48%	-70%	\$0.13
Medigard	MGZ	5	Developed retractable syringe technology and other safety medical products.	78%	7%	\$0.08
Giaconda	GIA	5	Developed novel (patented) combinations of registered drugs for the treatment of gastrointestinal disorders.	27%	-77%	\$0.07
Optiscan Imaging	OIL	5	Manufacture of confocal microscopes for clinical diagnosis	-25%	-83%	\$0.04
Stem Cell Sciences	STC	5	Contract research and development and sale of re-agents for use in stem cell therapy research	0%	-53%	\$0.15
Cryosite	CTE	5	Provides specialised storage services, especially for umbilical cord blood	25%	-9%	\$0.11
PharmAust	PAA	5	Operates Epichem and PharmAust Manufacturing, which provide products and services to biotech and pharma companies	-14%	0%	\$0.02
Medic Vision	MVH	5	Currently suspended from trading. Marketing training software and hardware for surgeons.	-25%	-47%	\$0.05
BioMD	BOD	5	Developing a tissue engineering technology, termed ADAPT	-12%	-48%	\$0.04
Resonance Health	RHT	5	Marketing the FerriScan technology, a non-invasive tool for measuring liver iron levels	30%	8%	\$0.01
Vita Life Sciences	VSC	4	Development, manufacture and distribution of prescription and OTC medicines as well as complementary and alternative medicines, dietary supplements and health foods.	60%	-54%	\$0.08
Virax Holdings	VHL	4	Developing a therapeutic and prophylactic vaccine for HIV.	-10%	-48%	\$0.03
OBJ	OBJ	3	Developing transdermal drug delivery technologies	0%	-85%	\$0.01
IM Medical	IMI	3	Markets the Intelliheart Cardiovascular Diagnostic System. Now acquiring a radiology and imaging business.	0%	-89%	\$0.002
Anteo Diagnostics	ADO	3	Formerly Biolayer. Developer of a biological coatings technology that can be applied to immunoassays, bio-separations, drug delivery and other medical devices.	-12%	-55%	\$0.02
Narhex Life Sciences	NLS	3	Currently suspended from trading. Developed a low cost protease inhibitor for treatment of HIV in Chinese market.	0%	0%	\$0.02
Colltech	CAU	2	Has developed a novel technology for the extraction of collagen from sheepskins.	-10%	-61%	\$0.01
NuSep	NSP	2	Currently suspended from trading. Manufacture and sale of protein separations technologies. Planning to merge with Nxgen Pharmaceuticals	9%	-58%	\$0.05
NeuroDiscovery	NDL	2	Provides electrophysiology services to biotech and pharma, and is developing range of compounds for treating neuropathic pain.	-20%	-67%	\$0.04

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/09
NeuroDiscovery	NDL	2	Provides electrophysiology services to biotech and pharma, and is developing range of compounds for treating neuropathic pain.	-20%	-67%	\$0.04
Biopharmica	BPH	2	Managing cancer treatment and detection and bacterial DNA diagnostic projects. Portfolio investment approach.	7%	-52%	\$0.03
Norwood Abbey	NAL	2	Developing needle-free and micro needle drug delivery technologies	0%	-71%	\$0.01
Stirling Products	STI	2	Commercialising a production animal growth promotant and meat finisher.	200%	-78%	\$0.01
Dia-B Tech	DIA	2	Acquiring Pallane Medical Pty Ltd, which is developing the RETCIFTM virology diagnostic test.	9%	-69%	\$0.01
Actinogen	ACW	2	Early stage developer of antibiotics that show activity against MRSA and VRE bacteria	5%	-67%	\$0.05
Genesis Research & Development Corp.	GEN	2	Developing RNAi based therapeutics. Interests in agricultural biotechnologies.	-14%	-35%	\$0.06
Avastra Sleep Centres	AVS	2	Consolidating sleep disorder testing centres in the USA	-13%	-81%	\$0.01
Freedom Eye	FYI	1.4	Looking to acquire eyecare businesses.	-50%	-84%	\$0.01
Medical Therapies	MTY	1.4	Developing therapies to treat inflammatory diseases, using copper- and zinc- indomethacin.	-72%	-87%	\$0.01
Helicon Group	HCG	1.3	Exploiting niche market opportunities for medical products in China and other Asian markets.	220%	-75%	\$0.02
Telesso Technologies	TEO	1.3	Funding a trial of US company Vascular Pathways' guidewire assisted peripheral catheter, with view to acquisition.	-45%	-98%	\$0.02
Neuren Pharmaceuticals	NEU	1.3	Developing neuroprotective therapeutics	-50%	-95%	\$0.01
Probiomics	PCC	1.2	Evaluating business options. Owns a unique probiotic.	0%	-75%	\$0.01
Select Vaccines	SLT	1.0	Development and commercialisation of infectious diseases diagnostics, vaccines and therapeutics for hepatitis-related diseases	-33%	-78%	\$0.00
Biosignal	BOS	0.8	Developing compounds that interrupt the colonisation of bacteria. Applications in the oil and gas industry and with contact lenses are being studied.	-36%	-94%	\$0.01
Incitive	ICV	0.8	Development of compounds to treat cancers and auto-immune diseases.	-83%	-92%	\$0.01

Capitalisation Total 4,152

Listed Biotech Investment Funds

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/09
Biotech Capital	BTC	13	A Pooled Development Fund investing in unlisted Australian biotech companies and in public biotechs, including Alchemia, Starpharma, Neurodiscovery, Phylogica and Stem Cell Sciences.	30%	-29%	\$0.15
Xceed Capital	XCD	3	Has invested in Polynovo, a developer of biodegradable polyurethane-based polymers. Also operates Boron Molecular, a chemistry services company.	-49%	-69%	\$0.03
Genesis Biomedical	GBL	1.4	Venture capital company funding a sepsis project at UWA; increasing its exposure to mining activities	-14%	-65%	\$0.01

Capitalisation Total 15

Capitalisation Total - All Indexes 31,526

Note: Companies removed from the tables include AOS which is being taken over by taken over by International Formwork & Scaffolding Limited and Life Therapeutics which is expected to be renamed as Arturus Capital, a company with interest in gas resources

How Bioshares Rates Stocks

For the purpose of valuation, *Bioshares* divides biotech stocks into two categories. The first group are stocks with existing positive cash flows or close to producing positive cash flows. The second group are stocks without near term positive cash flows, history of losses, or at early stages of commercialisation. In this second group, which are essentially speculative propositions, *Bioshares* grades them according to relative risk within that group, to better reflect the very large spread of risk within those stocks.

Group A

Stocks with existing positive cash flows or close to producing positive cash flows.

Buy CMP is 20% < Fair Value
Accumulate CMP is 10% < Fair Value
Hold Value = CMP
Lighten CMP is 10% > Fair Value
Sell CMP is 20% > Fair Value
 (CMP–Current Market Price)

Group B

Stocks without near term positive cash flows, history of losses, or at early stages commercialisation.

Speculative Buy – Class A

These stocks will have more than one technology, product or investment in development, with perhaps those same technologies offering multiple opportunities. These features, coupled to the presence of alliances, partnerships and scientific advisory boards, indicate the stock is relative less risky than other biotech stocks.

Speculative Buy – Class B

These stocks may have more than one product or opportunity, and may even be close to market. However, they are likely to be lacking in several key areas. For example, their cash position is weak, or management or board may need strengthening.

Speculative Buy – Class C

These stocks generally have one product in development and lack many external validation features.

Speculative Hold – Class A or B or C

Sell

Corporate Subscribers: Pharmaxis, Cytopia, Arana Therapeutics, Starpharma Holdings, Cogstate, Optiscan Imaging, Bionomics, ChemGenex Pharmaceuticals, Circadian Technologies, Biota Holdings, Stem Cell Sciences, Halcygen Pharmaceuticals, Peplin, BioMD, Impedimed, QRxPharma, Patrys, Labtech Systems, Hexima, Tyrian Diagnostics, Mesoblast, Atcor Medical

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