

In this edition...

What a big week for Australian biotech! It started off with an acquisition bid for Chemgenex by Cephalon, which was no real surprise, then Bionomics released some excellent Phase I data for its anxiety treatment drug candidate which could become the next Valium or Prozac, setting the company up for a significant licensing deal. Then to finish off the week Biota stunned the market with a US\$231 million funding grant from BARDA to bring its flu drug to market in the US on its own. And if that wasn't enough, at the time of release of this edition, Qiagen has just made a \$341 million bid for Cellestis (to be covered in the next edition).

We also look at the AFL and the ARL taking up Cogstate's cognition test for players and provide an update on Alchemia.

The Editors

Companies Covered: ACL, BNO, BTA, CGS, CXS, Quarterly Review

	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 - May '09)	-7.3%
Year 9 (May '09 - May '10)	49.2%
Year 10 (May '10 - Current)	38.5%
Cumulative Gain	301%
Av Annual Gain (9 yrs)	18.5%

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Bioshares

1 April 2011
Edition 402

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

Quarterly Review

Biotech Posts Solid Gains for 2011 First Quarter

The Australian biotech sector performed solidly in the March quarter, with the **Bioshares Index** gaining 3.9% over the quarter. The **Nasdaq Biotech Index**, a global measure of biotech investment sentiment increased by 7.3% in the March quarter. The stocks that comprise the **Bioshares Large Cap Index** (CSL, Cochlear, Resmed and Sigma) were sold down in the March quarter, with that index posting a 3.1% loss.

Mesoblast headed to the top of the Bioshares Index table, recording 55% share price gain for the quarter, a 255% gain for the year and closing the quarter with a capitalisation of \$2 billion. The company is now amply funded with \$280 million in cash at hand.

Heartware International, with a market cap of \$1.2 billion, remained level for the quarter. However, the company's heart assist device was approved by the TGA and accepted for review by the FDA for the indication of bridge-to-transplant.

Pharmaxis also received a TGA approval, specifically for Bronchitol for cystic fibrosis. Pharmaxis, the third top company (ex-large caps) by market capitalisation (\$604 million), saw its stock price ease 10% for the quarter.

Perhaps the most outstanding news for the quarter was delivered by **Acrux** (Cap: \$502 million) which announced a \$100 million special dividend (to be paid around April 19) and the launch of Axiron in the US by partner **Eli Lilly**.

Nanosonics finally received marketing clearance for its Trophon ER infection management product in the USA. **Universal Biosensors** marketing partner for the One Touch Verio blood glucose monitor, **LifeScan**, launched the product in France and Italy in the March quarter. In addition, the product finally received clearance in US from the FDA.

Cephalon announced a takeover bid for **ChemGenex Pharmaceuticals**, and **Bionomics** released positive trials results on anxiety management compound BNC210, registering a 68% gain for the quarter. (Turn to page 2 for more discussion on these two stocks.)

Capital Raisings

Capital inflows of \$171 million were dominated by a \$105 million investment by Cephalon in Mesoblast, which saw it increase its 12.2% holding to 19.9%. One IPO was completed, that of Canadian company **Bioniche**, which raised \$12.5 million with a concurrent raise of C\$15 million on its home exchange in Toronto.

Bioshares

Index performances by Quarter

	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011
Bioshares Index	-3.7%	-11.9%	1.9%	19.3%	3.9%
Nasdaq Biotech Index	11.3%	-14.8%	11.9%	8.4%	7.3%
Bioshares Large Cap Index	9.7%	-6.4%	-0.9%	8.7%	-3.1%
ASX 300 Index	0.0%	-11.8%	6.8%	3.8%	1.9%

What a Week!

What a week for Australian biotech! It started off with **ChemGenex Pharmaceuticals** receiving a takeover offer from **Cephalon**, valuing the company at \$225 million. Then **Bionomics** delivered excellent clinical data for its anxiety/depression treatment drug candidate BNC210. To finish off the week **Biota Holdings** stunned the market with a US\$231 million grant from US Government agency BARDA to fund the complete commercial development of its flu drug Laninamivir in the USA.

Australian biotech has continued to deliver investment outcomes (see table below) over the last two years. An investment cycle that commenced a decade ago has seen projects mature in products. The sector is now much more credible as an investment class and it is attractive to a wider pool of investors. Arguably those institutional investors and superannuation funds that do not have exposure to this sector could rightly be asked “Why not?”.

Events to monitor in April is European approval of Pharmaxis' Bronchitol for the treatment of cystic fibrosis and FDA approval of Alchemia's fondaparinux.

Australian Biotech Sector - Recent Major Investment Outcomes

Date	Company	Outcome
February 2009	Arana Therapeutics	Acquired by Cephalon for \$329 million
September 2009	Peplin	Acquired by Leo Pharma for US\$287 million
March 2010	Acrux	US\$335 million licensing deal with Eli Lilly
December 2010	Mesoblast	US\$1.8 billion licensing deal with Cephalon
March 2011	Chemgenex	Takeover offer from Cephalon for \$225 million

ChemGenex To Be Acquired By Cephalon For \$225 Million

As expected, **Cephalon** this week announced a formal takeover offer for ChemGenex Pharmaceuticals (CXS: \$0.63), valuing ChemGenex at \$225 million. Cephalon has announced it will convert its convertible note into shares and exercise its call options over ChemGenex, giving it a 27.57% stake in Chemgenex.

This is a good outcome for ChemGenex, given the challenges faced by the company in the last twelve or so months. The assets that underpin the company were initially acquired from a US company, ChemGenex Therapeutics, in 2005. Over the last seven years around US\$60 million has been invested in ChemGenex's oncology assets.

In the end, the delay in the FDA approval process reduced the return for shareholders in ChemGenex. The decisions by regulators always remain a risk for investors in biotech stocks, as their views and their drug approval protocols are always open to change.

Peplin, acquired by Leo Pharma, was another company for which additional trials required by the FDA – four Phase III studies

Bionomics – Sitting on a Goldmine?

Bionomics (BNO: \$0.50) released results from two Phase I trials of its anti-anxiety compound BNC210, which is orally administered and potentially suitable for once a day dosing.

The first trial enrolled healthy volunteers who were given a substance that induced a panic attack. Fifteen people in the study group of 59 experienced a panic attack. When administered BNC210, the number and intensity of symptoms decreased faster than placebo. This was statistically significant. Subjects who received BNC210 recovered to a 'normal' state more quickly – in 10 minutes compared to 60 minutes for those on placebo.

rather than the three anticipated for PEP005 – extended product approval timelines and costs. PEP005 has still not been approved by the FDA.

We expect the Chemgenex acquisition process to be relatively speedy, given that the deal is supported by the ChemGenex board and management. In our view it's unlikely the unsolicited bid for Cephalon by **Valeant Pharmaceuticals** will interrupt the Chemgenex takeover. Unsolicited bids are generally protracted events that can take 12-18 months to effect. And the acquisition of Chemgenex is not a major purchase by Cephalon.

Chemgenex expects to re-file its drug Omapro with the FDA in the second half of 2011. Most of ChemGenex's staff are located in the US (15), with only three based in Australia. If all goes well from here, Omapro will be on the market in the US from mid 2012, which patients will no doubt be pleased about.

Bioshares recommendation: **Accept Offer**

Bioshares

In the second trial, BNC210 was compared to Lorazepam, a drug similar to Valium. Twenty-one of 24 enrolled subjects were evaluated. The study showed that with BNC210 there was no addiction, memory impairment, sedation loss of coordination or reduction in attention, whereas the opposite occurred with Lorazepam.

The point about BNC210 is that it appears to be a 'clean' drug, appearing to have eliminated many of the side effects associated with current anti-anxiety drugs. Its 'clean' profile could be worth billions, given that it is addressing two key problems of addiction and sedation. The worst side effect encountered in the 100 or so

– *Cont'd over*

What a Week!...cont'd**Biota Holdings Stuns Market With US\$231 Million Grant For Laninamivir**

Biota Holdings (BTA: \$1.42) has stunned the market in the successful application for US Government funding (from BARDA) of its laninamivir program. Biota is eligible to receive US\$231 million over the next five years to bring its long acting flu drug to market! This is non-dilutive funding for Biota.

The grant came as a surprise to the market. In our last note on Biota - titled "Looming Agency Funding Decision Will Be Significant Share Price Driver If Successful" - we rated the chances of Biota being successful as 'reasonable' given its long dialogue with the agency. However, we were just as surprised with the outcome.

This is an outstanding achievement for Biota management following several setbacks for the company over the last two years. This decision may well herald a change in fortunes of the company. A more tangible aspect is that the company now has greater confidence in aiming higher to capture greater value from the commercialisation of its technologies.

Specifically, the company is now considering taking its other main programs – RSV and human rhinovirus – through to later stages of development. In response to a question as to whether the company would retain the recently appointed investment bank **Piper Jafferies** given that it had now secured the BARDA funding, the company indicated that it would, given the opportunities ahead for the company, and presumably the confidence the company now has to invest in and hold onto its assets longer.

That confidence relates to the endorsement the company should receive from shareholders that it has shown it has the skills to develop a product (Relenza) that it can bring to market through a partner (**GlaxoSmithKline**), and now it has the support from a US Government agency to complete the commercial development of a new drug independently. The latter elevates the company into a different league of biotech companies.

The US\$231 million of funding will become available based on the achievement of milestones. Biota expects to spend \$20 million of BARDA funding in the first year, peaking at \$80 million in the third year. The funding is for a five year period and is to enable the company to complete Phase II and Phase III trials,

– *Bionomics cont'd*

subjects administered the compound has been a slight headache, when administered as a dose of 2000mg, more than 15 times the clinical dose.

We now expect Bionomics to licence BNC210 to a large pharmaceutical firm, perhaps by mid-year. Its first challenge will be in developing sufficient competitive tension for the deal. However, in our view that should not be that difficult to achieve if BNC210 is such a promising molecule. Its second challenge will be in deciding the terms of such a licensing deal, whether to load more cash into the front-end of the deal and take a lower royalty rate, or vice versa. We expect it to structure a deal that will allow it to maintain an independent future, although that would almost cer-

completing development both of the drug and the inhaler device. It needs to be noted that this funding is for developing laninamivir for the treatment of influenza, and not for prophylaxis treatment.

The wording of the BARDA announcement

The wording of the BARDA announcement is worth noting because BARDA notes the fundamental aspects of Laninamivir. As per the BARDA announcement, these are that the compound is already for use in Japan, and also that "CS-8958 (laninamivir) requires only a single dose for full treatment, as opposed to twice daily dosing for Tamiflu and Relenza. CS-8958 may also be effective against influenza viruses known to be resistant to Tamiflu". Although Biota investors may be very familiar with these aspects, it is noteworthy that these attributes of laninamivir have been recognised by BARDA.

Another aspect to note is BARDA will also be the purchaser of laninamivir for stockpiling use for protection against any future pandemics, although that will come from the procurement arm of BARDA, not the contract arm that has awarded this grant. However, it is reasonable to suggest that if BARDA is funding commercial development of Laninamivir, it should also be a willing buyer of the drug once approved.

One point that the company is now making is that the influenza drug stockpiling market is accessed via a very narrow distribution chain, with only a finite number of government agencies that purchase these drugs for stockpiling. This is an accessible market for Biota, so it will not necessarily need to assign a marketing partner for sales of stockpiled laninamivir.

Biota's CEO Peter Cook said that this development will mark the start of an exciting, transformational period for Biota. That is a very accurate statement.

Biota is capitalised at \$259 million with \$77.5 million in cash at the end of last year.

Bioshares recommendation: **Speculative Buy Class A**

Bioshares

tainly rule out a prospective partner taking an equity stake in the company.

Bionomics has spent approximately \$4 million on developing BNC210 to date. With potential up-front payments under a license for BNC210 ranging from, in our estimate, \$25 to \$75 million, the investment return on that project cost could be one of the best licensing returns achieved for Australian biotech drug development program. The terms could be even more attractive given that BNC210 has potential as an anti-depressant medicine as well as an anxiolytic.

Cont'd on page 6

Cogstate – AFL and ARL Take-up Cogstate Test for Players

As the swell of media interest and legislative changes being implemented continues in the USA around the issue of concussion in sport, and specifically the management and prevention of concussion in sport, that topic has now hit Australia through the media as a popular issue that needs to be addressed.

In the last two weeks both the AFL and the ARL have taken up cognitive testing for its players using the Cogstate (CGS: 19 cents) Sport system. All but one AFL club has taken up the test for all of its players, where players will all take a Cogstate Sports baseline test, and after a concussion will take a follow-up test to assess that player's cognition before he returns to the field.

ARL Mandates Use

ARL has gone one step further and mandated the use of the Cogstate test and it will be funded by the NRL.

For Cogstate the revenue from these deals will not be significant. More important is the growing awareness and preparedness to act on this issue and the risk management of concussion in sport. And more significant for Cogstate is if the use of baseline cognitive testing is expanded to community-based football and rugby teams.

This is the current aim for Cogstate's joint venture Axon Sports in the USA. Axon Sports is seeking a wide implementation of annual baseline cognitive assessment in the 60 million people playing contact sports on the USA. It will require a major shift in sports management. However it is one where Axon Sports has first mover advantage.

In the USA now 15 States have passed legislation that requires concussion management plans in sport, directed mainly at protecting school children. A further 23 States are considering introducing similar legislation.

Axon Sports signs Eastbay as Marketing Partner

This week Axon Sports signed up an important marketing partner, **Eastbay**, to assist in getting the Axon Sports (Cogstate) test taken up by school kids playing contact sports. The US joint venture partner of Axon Sports have a long association with Eastbay, which is the world's largest supplier of athletic and sports equipment, through direct mail catalogues and internet sales. Eastbay is a subsidiary of Foot Locker.

Eastbay has agreed to promote the Axon Sports test to primarily raise awareness of the issue of concussion in sport. There are no commercial incentives for Eastbay other than to look after the interests of its customer base, with the CEO of Eastbay stating that "Every athlete should have access to affordable and convenient baseline testing". The current CEO of Axon Sports was previously the VP of Sales and Marketing for Eastbay, starting as the fifth employee of Eastbay, which helps explain the good relationship between the two companies.

Cogstate is currently capitalised at \$13 million. It generated sales in FY2010 of \$9.5 million, primarily from use of its test in the clinical trials setting. It had cash of \$2.4 million at the end of last year.

Bioshares recommendation: **Speculative Buy Class A**

Bioshares

Alchemia Update

Investors continue to wait for the approval by the FDA of Alchemia's (ACL: 69 cents) anti-coagulant generic drug fondaparinux. It's been a long two year wait for shareholders. The delay of 15 months from the originally anticipated approval date has been due to a massive backlog of generic drug applications at the FDA. We are confident that wait is coming very close to an end.

Currently there are 192 generic products requiring overseas manufacturing site inspections, with the FDA able to inspect about 60 a year. That places the current backlog for inspection at around three years. FDA Commissioner Margaret Hamburg said last month that 365 first-to-file generic drug applications have been delayed, highlighting this backlog.

Although the delay has been disappointing and frustrating for shareholders, it also represents a big hurdle for any other potential generics to this drug. Given also that the drug takes 18 months to manufacture, it's unlikely any other generic is likely to surface for at least three years and in all likelihood at least five years, because of the complexity in synthesizing this drug.

The only other consideration is what's termed an authorised generic, where the branded pharmaceutical company (**GlaxoSmithKline**) authorises a generic company to sell a generic version of its drug, which would then compete against the first

and subsequent other generics. However, there is no sign yet of an authorized generic either.

Once Alchemia's fondaparinux is approved, there should also be value created through the commencement of a Phase III trial with the company's HA-irinotecan program. This will become a major management focus for the company, which appears very confident of the potential of this program and platform. HA (Hyaluronic Acid) is preferentially taken up by cancer cells. By attaching it to a cancer drug, such as Irinotecan, it should improve the drug profile. Phase II trials have delivered some encouraging results.

There will be a further compounding effect in that if that Phase III trial is successful then the platform can be applied to many cancer drugs. However, that will not occur until the concept is proven in a Phase III setting with HA-Irinotecan first.

In the meantime, the company will need to raise some funds to tie it over until when fondaparinux profit share income commences. It is likely the company will hold off on that step until fondaparinux is approved. That will allow funds entry into Alchemia stock once it has a product on the market.

Bioshares recommendation: **Speculative Buy Class A**

Bioshares

Capital Raisings by Australian-listed Biotech Companies Q1 2011

Company	Investment Manager or Investor	Type of raising	Funds raised (\$M)
Mesoblast	Cephalon	Placement	\$105.0
pSvida	Rodman & Renshaw	Placement	\$11.17
Phosphagenics	Lodge & Partners		\$7.10
Prana	Rodman & Renshaw	Placement	\$6.2
Phylogica	RBS Morgans/Ascent Biomedical Holdings	Placement	\$5.20
Impedimed	WHTMRBS Morgans	SPP	\$4.3
Stirling Products	Novus Capital	Placement	\$3.00
Genera Biosystems		Rights Issue	\$2.45
Living Cell Technologies	Jiangsu Aosaikang Pharmaceutical	Placement	\$1.70
Living Cell Technologies	Springtree Spec. Opp. Fund	CN	\$0.65
Karmelsonix		Placement	\$1.60
USCOM		Placement	\$1.05
USCOM		SPP	\$0.26
Patrys	Advance Opportunities Fund	2% Equity Linked Redeemable Structured CN	\$0.87
Eastland Medical Systems		Placement	\$0.84
Biotron		SPP	\$0.77
Actinogen		Rights Issue	\$0.77
Avita Medical		Placement	\$0.72
Avita Medical	La Jolla Cove Investors	CN	\$0.05
Benitec	La Jolla Cove Investors	CN - part conversion	\$0.55
Stirling Products		Placement	\$0.38
Healthlinx	Springtree Spec. Opp. Fund	Conv. Loan Funding (T15,T16)	\$0.25
Neuren Pharm.	Springtree Spec. Opp. Fund	Conv. Loan Funding (T10, T11,T12)	\$0.24
Austofix		Placement	\$0.07
Total			\$155.2
IPOs			\$12.5
Total raised in Q1 2011			\$170.7

Selected Clinical Trial Developments - Mar Quarter 2011

Company	Code	Product/Therapeutic	Event
Biotron	BIT	BIT225 (HCV)	Completed Stage 1 Phase IIa trial; 24 pts. In combination with ribavarin. First 12 pts dosed
Bionomics	BNO	BNC210 (anti-anxiety, anti-depressant)	Phase I anxiety challenge study ; Effect of BNC210 in healthy volunteers; 59 pts, 15 experienced anxiety; Symptoms decreased significantly 10 mins after attack
Bionomics	BNO	BNC210 (anti-anxiety, anti-depressant)	Comparative Phase I trial with Lorazepam; 21 pts; confirmed lack of debilitating side effects, such as loss of attention, co-ordination and memory and
Clinuvel Pharmaceuticals	CUV	Scenesses (photoprotective)	Completed all patient visits in US Phase II erythropoietic protoporphyria (EPP).study; 70 of 77 pts completed study
QRxPharma	QRX	MoxDuo IR (moderate to severe pain)	Completed Phase III study (Study 009); 141 pts undergoing knee replacement surgery. Achieved statistically significant pain relief in flexible dose treatment group
QRxPharma	QRX	MoxDuo IR (moderate to severe pain)	Commenced Phase III comparative III study (Study 022); to compare incidence of adverse events following bunionectomy surgery, in comparison with equivalent doses of morphine and oxycodone; 375 pts
Patrys	PAB	PAT-SM6 (natural human antibody targeting GRP78; melanoma)	Commenced treatment of next group of 3 melanoma pts in Phase I trial; 10 pts

Bioshares Model Portfolio (1 April 2011)

Company	Price (current)	Price added to portfolio	Date added
Bioniche	\$1.37	\$1.35	March 2011
Somnomed	\$1.16	\$0.94	January 2011
Phylogica	\$0.065	\$0.053	September 2010
Sunshine Heart	\$0.039	\$0.036	June 2010
Biota Holdings	\$1.43	\$1.09	May 2010
Tissue Therapies	\$0.71	\$0.21	January 2010
QRxPharma	\$1.58	\$0.25	December 2008
Hexima	\$0.37	\$0.60	October 2008
Atcor Medical	\$0.10	\$0.10	October 2008
Impedimed	\$0.78	\$0.70	August 2008
Patrys	\$0.12	\$0.50	December 2007
Bionomics	\$0.50	\$0.42	December 2007
Cogstate	\$0.19	\$0.13	November 2007
Sirtex Medical	\$5.27	\$3.90	October 2007
Clinuvel Pharmaceuticals	\$1.82	\$6.60	September 2007
Starpharma Holdings	\$1.36	\$0.37	August 2007
Pharmaxis	\$2.78	\$3.15	August 2007
Universal Biosensors	\$1.25	\$1.23	June 2007
Acrux	\$3.12	\$0.83	November 2004
Alchemia	\$0.69	\$0.67	May 2004

Portfolio Changes – 2 April 2011

IN:
No changes

OUT:
No changes

Note:
The 60 cent Acrux special dividend (April 2011) has been incorporated into the Acrux price change calculation at left.

Correction – Mayne Pharma

There are a number of corrections to last week's article on Mayne Pharma. The expected EBITDA target of \$18.2 million for the company was for the full year, not half year. The company achieved an EBITDA of \$5.1 million, less than the expected \$9.1 million for the half.

The following paragraph should have read as follows:

“Further blue sky for Mayne is if it can widen the usage of itraconazole and take market share away from other antifungals. Itraconazole has a wider effectiveness against fungal infection, however, it has a poorer toxicity profile because its poor absorption has hindered its use. If Mayne is successful in improving that toxicity profile through better absorption, then it may well increase the market”.

– Bionomics cont'd from page 3

Start-up Australia Tender Offer

Start-up Australia, which holds a 27.76% stake in Bionomics, has elected to not extend a tender process to sell its holding. Start-up Australia declared this in a letter to Bionomics on the same day (Wednesday March 30) that Bionomics released its BNC210 trial results. The deadline for the tender was March 31, 2011. A consequence of the tender process would have been that a successful tenderer would have been required to make a take-over bid for Bionomics. The implication of the Start-up Australia decision to not extend the tender period is that Bionomics has been successful in maintaining its goal sustaining an “independent future”.

Although it appears that the Start-up Australia stake will not be sold by tender, Start-up Australia may seek to sell some or all of its stake through broker channels, however such selling would likely be to more than one investment group.

Summary

Bionomics has created in the form of BNC210 one of Australia’s most promising therapeutic products, appearing to have solved chemistry problems unsolved in the wider pharmaceutical community. Bionomics is capitalised at \$159 million.

Bioshares recommendation: **Speculative Buy Class A**

Bioshares

The Australian Listed Life Sciences Sector

March 31, 2011: Capitalisation \$39 billion, 107 companies

Bioshares Large Cap. Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/3/11
CSL	CSL	19,132	Manufactures pharmaceutical products including vaccines and human plasma fractions	-2%	-2%	\$35.73
Cochlear	COH	4,709	Manufactures cochlear hearing implants	3%	14%	\$82.99
Resmed Inc.	RMD	4,424	Manufactures diagnostic and treatment equipment for sleeping disordered breathing	-17%	-17%	\$2.91
Sigma Pharmaceuticals	SIP	578	Pharmaceutical manufacturing and wholesaling	23%	5%	\$0.49
Capitalisation Total		28,842				

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/3/11
Mesoblast	MSB	2,023	Developing therapies based on mesenchymal pre-cursor stem cells, with applications in cartilage regrowth and heart and bone repair.	55%	255%	\$7.25
Heartware International	HIN	1,179	Developing a mechanical heart pump (LVAD)	0%	74%	\$2.42
Pharmaxis	PXS	604	Marketing a lung function test, Aridol, and developing the Bronchitol product to treat cystic fibrosis, bronchiectasis and COPD.	-10%	-6%	\$2.67
Acrux	ACR	502	Developer of the transdermal drug products Axiron and Evamist	-15%	29%	\$3.02
Blackmores	BKL	499	Manufactures vitamin, mineral and herbal supplements and skin & hair products in Australia and N.Z.	7%	36%	\$29.92
Reva Medical	RVA	442	Developing a bioresorbable coronary stent	23%	0%	\$1.35
Unilife Corporation	UNS	317	Developer of retractable syringes	-2%	-18%	\$0.86
Starpharma Holdings	SPL	305	Developer of pharmaceutical applications of chemical scaffolds known as 'dendrimers'.	49%	80%	\$1.24
Sirtex Medical	SRX	296	The company's core technology uses radioactive particles to irradiate tumours in the liver. Approved for use in most major regions.	-12%	-11%	\$5.30
Cellestis	CST	287	Marketing a diagnostic for latent tuberculosis	19%	1%	\$2.98
Prima Biomed	PRR	218	Developing the CVac immunotherapy.	62%	96%	\$0.28
Nanosonics	NAN	213	Developing a novel disinfection technology, the first product is a point of care ultrasound probe disinfection unit	7%	55%	\$0.94

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/3/11
Universal Biosensors	UBI	199	Development, manufacture and commercialisation of a range of in vitro diagnostic tests for point-of-care use	-18%	-27%	\$1.25
QRxPharma	QRX	195	Developing a 'dual opioid' drug to treat moderate to severe pain.	11%	68%	\$1.55
Biota	BTA	190	Developer of anti-infective drugs, including the flu drug Relenza. Inavir, developed with Daiichi Sankyo, a long acting flu drug now approved in Japan.	6%	-54%	\$1.05
ChemGenex Pharmaceuticals	CXS	183	Developer of the drug Omapro. Under take-over bid by Cephalon.	42%	48%	\$0.65
Bionomics	BNO	166	Developing drugs to treat cancer and CNS diseases, and has also developed a gene diagnostic for epilepsy.	68%	55%	\$0.52
Vita Life Sciences	VSC	159	Development, manufacture and distribution of prescription and OTC medicines as well as complementary and alternative medicines, dietary supplements and health foods	12%	17%	\$0.28
API	API	156	Pharmaceutical wholesaler	-27%	-47%	\$0.32
Bioniche	BNC	139	Developing bladder cancer treatment and food safety vaccine; sale of veterinary products	-6%	0%	\$1.37
Alchemia	ACL	132	Commercialising new solid phase carbohydrate synthesis technology	10%	12%	\$0.69
Impedimed	IPD	117	Develops devices that aid the diagnosis of secondary lymphoedema, muscle wasting and other disorders	-7%	0%	\$0.75
Mayne Pharma Group	MYX	99	Developing an improved dosing anti-fungal drug, Subazole and operating manufacturing services	-7%	-8%	\$0.66
Tissue Therapies	TIS	98	Developing the VitroGro product for ulcer and wound healing	-2%	220%	\$0.71
Ascent PharmaHealth	APH	96	A generic pharmaceutical manufacturer and distributor. Strides ArcoLabs intends to buy out minority shareholders.	4%	17%	\$0.39
Cbio	CBZ	95	Drug development company, focus is on Xtoll product for rheumatoid arthritis	214%	0%	\$0.68
pSiVida	PVA	83	Developing drug delivery technologies, with a special focus on ophthalmic applications	-15%	-5%	\$4.00
Phosphagenics	POH	82	Commercialising a drug delivery technology improving the delivery of vitamin E and existing pharmaceutical products through phosphorylation.	-8%	-4%	\$0.10
Scigen	SIE	61	Developer and manufacturer of biopharmaceuticals. Company is based in Singapore and was spun out of Sonic Healthcare in 2002.	-15%	-61%	\$0.11
Prana Biotechnology	PBT	60	Developing drugs to treat CNS diseases such as Alzheimer's and Parkinson's	100%	79%	\$0.25

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/3/11
Clinuvel Pharmaceuticals	CUV	55	Developing an analogue of the alpha-MSH protein, named Scenesse, as a photo-protective agent	-91%	-31%	\$1.83
Anteo Diagnostics	ADO	52	Developer of a biological coatings technology that can be applied to immunoassays, bio-separations, drug delivery and other medical devices	-18%	32%	\$0.07
Clovercorp	CLV	50	Development and production of omega-3 food additives from tuna oil.	-23%	18%	\$0.30
Cordlife	CBB	47	Rolling out tissue banking services in Australia and Asia	3%	-27%	\$0.32
Somnomed	SOM	44	Commercialising an oral device for the treatment of sleep apnea and snoring.	12%	17%	\$1.10
Sunshine Heart	SHC	43	Developing the C-Pulse heart assist device. The C-Pulse wraps around and compresses the aorta, increasing blood flow through the body.	17%	24%	\$0.04
Avexa	AVX	42	Programs suspended. Direction of company being debated by shareholders.	28%	-67%	\$0.05
Genetic Technologies	GTG	36	Provides DNA paternity testing services and holds broad patents relating to the use of non-coding DNA.	167%	151%	\$0.09
Brain Resource Corp	BRC	33	Development and commercialisation of functional brain analysis techniques	78%	37%	\$0.36
Circadian Technologies	CIR	32	Developing drugs, including antibodies, around the VEGF C and VEGF D targets	23%	-3%	\$0.70
Solagran	SLA	31	Developing complementary medical compounds called Bioeffectives.	-22%	-42%	\$0.11
Probiotec	PBP	30	Manufacturer, marketer and distributor of a range of over the counter (OTC) pharmaceuticals, complementary medicines and speciality ingredients	-15%	-65%	\$0.57
Hexima	HXL	30	Research and development of genetic technologies that can enhance the resistance of crops to insects and fungal pathogens.	6%	-14%	\$0.37
CathRx	CXD	29	Developing novel modular cardiac catheters for the diagnosis and treatment of abnormal heart rhythms	-29%	33%	\$0.20
Patrys	PAB	28	Developing human antibody therapies for the treatment of lung, pancreatic, gastric and colon cancers	19%	-21%	\$0.12
Novogen	NRT	28	Developing analogues of naturally occurring phenolic hormones to treat cancers and other conditions.	125%	-39%	\$0.27
Asian Ctr for Liver Diseases and Transpl.	AJJ	26	Manages liver treatment centres in Asia. Not previously included in these tables. Made a backdoor listing through Costarella Design in 2009.	27%	40%	\$0.14
Viralytics	VLA	24	Developing a cancer treatment based on the application of viruses (oncolytic virus technology)	33%	-19%	\$0.04

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/3/11
Immuron	IMC	24	Specialises in R&D of hyper-immune bovine colostrum products for therapeutic use in animals and humans.	14%	-6%	\$0.08
OBJ	OBJ	23	Developing transdermal drug delivery technologies	-13%	-50%	\$0.02
Living Cell Technologies	LCT	23	Developing cell therapies for diabetes, haemophilia and Huntington's disease	-41%	-68%	\$0.08
Institute of Drug Technology	IDT	22	Manufacturer of pharmaceutical ingredients to international standards for major pharmaceutical groups.	-17%	-40%	\$0.50
Medical Developments	MVP	22	Commercialising the Penthrax inhaler for temporary pain relief. Used widely in ambulances across Australia.	5%	127%	\$0.42
Phylogica	PYC	21	Developing peptide compound libraries for use in human therapeutics.	5%	-26%	\$0.07
Progen Pharmaceuticals	PGL	21	A developer of cancer therapeutics	21%	-38%	\$0.34
Southern Dental Industries	SDI	20	Manufacture & distribution of amalgam (fillings) & other dental materials and product R&D.	-15%	-24%	\$0.17
Biodiem	BDM	18	Focused on the development of LAIV influenza vaccines	24%	-3%	\$0.18
Compumedics	CMP	18	Develops, manufactures and markets sleep diagnostic and monitoring equipment.	-42%	-45%	\$0.11
Genera Biosystems	GBI	18	Develops, manufactures and distributes advanced molecular diagnostic tests, with a particular focus on women's health.	-43%	-66%	\$0.26
Calzada	CZD	18	Holds a 100 % stake in PolyNovo, a polymer chemistry company.	96%	55%	\$0.05
Helicon Group	HCG	17	Has acquired Leading Edge Instruments , which is developing a novel vibrating needle technology and a nasal dilation product.	17%	30%	\$0.04
Ellex Medical Lasers	ELX	17	Develops, manufactures and markets solid state ophthalmic lasers used to treat secondary cataracts and retinal disorders.	-34%	18%	\$0.20
Eastland Medical Systems	EMS	17	Developing the anti-malarial product ArTiMist.	-31%	-56%	\$0.04
USCOM	UCM	16	Marketing a non-invasive heart output function monitor	2%	-52%	\$0.30
Agenix	AGX	15	Developing a compound to treat Hepatitis B, AGX1009. Also seeking a partner in China to develop Thrombview, an imaging agent.	-17%	0%	\$0.02
NuSep Holdings	NSP	15	Manufacture and sale of protein separations technologies	-13%	0%	\$0.20

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/3/11
Biotron	BIT	14	Developing a compound to treat HCV	-4%	20%	\$0.12
KarmelSonix	KSX	14	Respiratory and pulmonary devices company	-19%	-43%	\$0.02
Benitec	BLT	14	R&D company focusing on gene silencing, specifically DNA delivered RNAi, technology	12%	-35%	\$0.03
Medical Australia	MLA	14	Manufacture and supply of medical devices and equipment. Not previously included in these tables. Previously known as BMDI Tuta and IMD Group	169%	75%	\$0.04
Avita Medical	AVH	13	Markets ReCell, a skin repair product	0%	-24%	\$0.11
Atcor Medical	ACG	13	Markets the SphygmoCor device, a noninvasive technology that provides information regarding the functioning of the cardiovascular system	3%	-37%	\$0.10
Cogstate	CGS	12	Marketing cognitive performance diagnostic products	-23%	-37%	\$0.18
Antisense Therapeutics	ANP	12	Developing antisense compounds to treat multiple sclerosis and acromegaly	86%	-41%	\$0.01
Analytica	ALT	12	A medical devices company that has developed a retractable syringe	8%	-52%	\$0.03
Stirling Products	STI	10	Development of a drug inhalation platform and involved in telemedicine	-29%	-58%	\$0.01
Healthlinx	HTX	10	Detecting novel functions of known and new protein and peptides for therapeutic purposes.	-23%	-61%	\$0.06
ITL	ITD	9	Develops and distributes medical devices such as safety equipment to prevent needle stick injuries and sterile preparation kits.	-13%	8%	\$0.07
Advanced Surgical Design & Manufacture	AMT	9	A developer and manufacturer of prosthetic implants and medical devices	-26%	-49%	\$0.26
Cellmid	CDY	9	Developing therapies that target the midkine protein. Recently launched a range of hair loss products.	-17%	-11%	\$0.03
Resonance Health	RHT	9	Marketing the FerriScan technology, a non-invasive tool for measuring liver iron levels	14%	-4%	\$0.02
Cyclopharm	CYC	9	A nuclear medicine company that markets the Technegas lung imaging system	-38%	-57%	\$0.05
Austofix	AYX	8	Manufacturer and developer of orthopaedic fixation devices	-3%	-42%	\$0.58
BioMD	BOD	7	Developing a tissue engineering technology, termed ADAPT. Merging with Allied Medical.	83%	10%	\$0.06

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/3/11
Neuren Pharmaceuticals	NEU	7	Developing neuroprotective therapeutics	0%	-52%	\$0.02
Optiscan Imaging	OIL	6	Manufacture of confocal microscopes for clinical diagnosis	-35%	-27%	\$0.05
Tyrian Diagnostics	TDX	6	Developer of diagnostic products, including the ReadRite-Alpha Amylase test (a wheat quality test)	-14%	-60%	\$0.01
LBT Innovations	LBT	6	Developed the MicroStreak technology for the automation of microbiology laboratory processing	-6%	-36%	\$0.06
IM Medical	IMI	6	Manages imaging facilities	0%	-50%	\$0.00
Imugene	IMU	5	Developing animal products such as antibiotic alternatives used in the stock feed industry using a vaccine and gene therapy approach	-33%	-20%	\$0.04
Virax Holdings	VHL	5	Developing a therapeutic and prophylactic vaccine for HIV	0%	-66%	\$0.03
Holista Colltech	HCT	5	Has developed a novel technology for the extraction of collagen from sheepskins	-18%	-31%	\$0.09
Cryosite	CTE	5	Provides specialised storage services, especially for umbilical cord blood	-9%	-17%	\$0.10
NeuroDiscovery	NDL	4	Focusing on pain drug development following pending management buyout of electrophysiology business	2%	5%	\$0.04
Leaf Energy	LER	4	Merged with Farmacule BioIndustries (11-8-2010), a plant genetic technologies business; divested algae farm assets. 1:20- reconstruction 9-6-2010.	4%		\$0.13
OMI Holdings	OMI	4	Reinstated 5-11-2010. Commercialising a safety syringe.	0%	-94%	\$0.01
Bone Medical	BNE	4	Developing treatments for bone and joint degenerative diseases such as arthritis and osteoporosis.	-17%	-75%	\$0.04
Medigard	MGZ	4	Developed retractable syringe technology and other safety medical products.	-27%	-67%	\$0.04
Probiomics	PCC	3	Proprietary ownership of a unique probiotic strain	0%	-47%	\$0.01
Actinogen	ACW	2	Early stage developer of antibiotics that show activity against MRSA and VRE bacteria	-20%	7%	\$0.05
Atos Wellness	ATW	2	Business under review.	0%	-33%	\$0.01
Acuvax	ACU	2	Holds interests in various therapeutics and vaccines	-67%	-91%	\$0.001

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/3/11
Genesis Research & Development Corp.	GEN	1	Operations suspended	0%	-52%	\$0.02

Capitalisation Total 10,470

Listed Biotech Investment Funds or Companies

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/3/11
Biotech Capital	BTC	12	The entity is now engaged in the orderly sale of assets.	14%	-24%	\$0.16

Capitalisation Total 12

Capitalisation Total - All Indices 39,325

The following categories of companies are now excluded from the Bioshares indices. However, individual company circumstances may change, permitting re-admission to the indices.

Companies with split interests, some of which include biotech or pharma activities

BioProspect	BPO	17	Developing insecticides from naturally occurring molecules	50%	-44%	\$0.02
PharmAust	PAA	8	Operates Epichem and PharmAust, which provide products and services to biotech and pharma companies. Holds oil and gas investments.	45%	-42%	\$0.03

Companies in administration or investigating new business proposals

Select Vaccines	SLT	10	Vaccine assets sold and is seeking new business	50%	13%	\$0.009
Teleso Technologies	TEO	2	Investigating new business activities	45%	-40%	\$0.03
Fluorotechnics	FLS	2	Suspended from quotation. Reviewing investment opportunities in the bioscience industry.	11%	-87%	\$0.04
Giaconda	GIA	3	Under administration.	-26%	-15%	\$0.03

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. For both groups, the rating “Take Profits” means that investors may re-weight their holding by selling between 25%-75% of a stock.

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

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