

In this edition...

After 12 months of positive gains, the biotech bull run has come to an end, with Bioshares Index falling away slightly in the last quarter, by 3.7%. The biotech sector continues to play out, with only one new listing and existing companies such as Acrux having crossed the line and other companies such as CathRx and Chemgenex stumbling in the final stages of commercialization with further work to be done there.

We update readers on developments at Acrux and Bionomics, and at Mesoblast, for which changes to the US health care bill has delivered an unexpected benefit.

The Editors

Companies Covered: ACR, BNO, MSB

	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 - Current)	61.7%
Cumulative Gain	214%
Av Annual Gain (9 yrs)	19.9%

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Bioshares

9 April 2010
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Delivering independent investment research to investors on Australian biotech, pharma and healthcare companies.

Quarterly Review

12 Month Biotech Rally Ends

Investment interest in small to mid-sized Australian listed life companies eased in the March quarter 2010, with the **Bioshares Index** falling 3.7% from the previous quarter. In contrast, the **Bioshares Large Cap Index** increased by 9.3%, with the weighted effect of share price gains in **Cochlear** (5%), **CSL** (12%) and **Resmed** (18%) easily offsetting a drastic 53% fall in **Sigma Pharmaceuticals** share price.

The Nasdaq Biotech Index, the leading international biotech reference index, posted an 11.3% gain for the quarter. The gains in this index reflect the slower return to health of technology markets in the USA, with year on year gains showing approximately a 40% improvement, whereas the Bioshares Index is up almost 70% from the same quarter a year ago.

Investors are continuing to remain bearish towards biotech IPOs. After no listings in 2009, only one biotech, **CBio**, listed in the March quarter. In contrast, three IPOs were successful in the US in the March quarter. CBio stock, as of March 31, 2010, had fallen 68% from an offer price of \$1.00. CBio struggled to raise funds, seeing its minimum raise adjusted down from \$13 million to \$7 million. Overall, \$88 million was raised in the March quarter, although this was dominated by **Heartware** which raised US\$60 million (~\$69 million). More capital raisings are on the way in this current quarter with rights issues announced by **Impedimed**, **CathRx** and **Biodiem**.

The number of companies included in the Bioshares' life science tables continues to fall. For the March quarter 2010, the total number included was 111, compared with 126 companies a year ago.

The standout event for the March quarter was the licensing by **Acrux** to **Ely Lilly** for its male testosterone product, Axiron. The US\$335 million deal included a US\$50 million up front fee and royalties that we estimate are in the high teens/low twenties. Acrux shares increased by 7% over the quarter and by 333% from the same quarter a year ago. (See page 5 for comment on Acrux's regaining of its female testosterone product.)

On the downside, **ChemGenex Pharmaceutical's** new drug application for Omapro received a setback from the FDA's cancer drug advisory committee, which recommended that a validated test be developed prior to considering the drug for approval. ChemGenex shares fell 56% over the quarter.

Index performances by Quarter

	Q1 2009	Q2 2009	Q3 2009	Q4 2010	Q1 2010
Bioshares Index	16.0%	20.3%	35.1%	7.2%	-3.7%
Nasdaq Biotech Index	-6.4%	9.8%	12.0%	0.5%	11.3%
Bioshares Large Cap Index	-3.8%	1.1%	4.2%	0.2%	9.7%
ASX 300 Index	-3.6%	10.6%	20.1%	2.7%	0.0%

Bionomics – Competitor Drug Stumbles in Phase III Study

Bionomics' (BNO: \$0.32) competitor **Antisoma/Novartis** has stumbled in a Phase III trial in non-small cell cancer with their vascular disrupting agent ASA404. This was the leading VDA in development, with Antisoma signing a major drug development deal with Novartis for the program in 2007 that has netted Antisoma at least US\$100 million to date.

UK-based Antisoma stated that continuation of the trial would be futile as there was almost no chance of showing a survival benefit as a first line treatment for NSCLC. There were no unexpected serious adverse events. The compound was originally developed by Professor Bruce Baguley and Bill Denny at the **University of Auckland**. It was a surprising result, given the strong Phase II data with a median survival of 14 months with ASA404 and chemotherapy versus 8.8 months with chemotherapy alone as a first line therapy. A Phase II trial in prostate cancer has been completed and a Phase I/II trial in women with breast cancer was expected to start this year. Novartis had anticipated filing the drug for approval in 2011.

The news caused a plunge in the Antisoma share price, which is now down 80% from its 12 month high. The company is capitalised at only GBP48 million, just above its cash reserves at the end of last year of GBP45 million.

Another VDA competitor, **Oxigene** also from the UK, went on the back foot in February this year with the company under financial pressures. The company will reduce its work force by 49% and the company has stopped its Phase II/III (anaplastic) thyroid cancer trial with its VDA Zybrestat, to focus on its Phase II trial in NSCLC. Results from this trial are expected to be presented at ASCO in June this year. Oxigene is capitalised at US\$75 million.

YM Biosciences completed its acquisition earlier this year of

Melbourne-based **Cytopia** for \$14 million and its VDA is currently in Phase II trials for the treatment of glioblastoma.

By the measure of market capitalization, this makes Bionomics the leading global VDA development company. Bionomics is capitalised at \$102 million. Bionomics has two Phase II studies underway with its VDA, called BNC105. One is in renal cell carcinoma and the second in patients with mesothelioma.

The benefit for Bionomics from the setback with ASA404 is that it joins the leaders in the VDA space, and also potentially opens up some of the major cancer markets such as breast, prostate and lung cancer.

Bionomics' VDA – Points of Difference

Bionomic's drug candidate has been developed as a significantly improved version of Zybrestat. Bionomics' CEO, Dr Deborah Rathjen, says there are a number of distinct features of its drug candidate that provides advantages over ASA404. BNC105 is both a VDA and is directly cytotoxic, where ASA404 is not directly cytotoxic. The method of action for BNC105 is well understood (being a tubulin polymerization inhibitor, with successful existing cancer drugs such as taxanes, vinca alkaloids and epothiliones also inhibiting tubulin). BNC105 has a much better tumour lock-in profile (around 24 hours) where published data on ASA404 shows that vascular shut down with ASA404 is leaky and incomplete. BNC105 has also shown single agent efficacy in animal models where ASA404 has not.

In comparison to Zybrestat, Bionomics has found that its drug candidate BNC105 shows a 100-fold selectivity for cancer cells (rather than for healthy tissues) and has a 10-fold greater therapeutic window over Zybrestat. The therapeutic window is the safe level of drug that can be dosed before serious side effects occur.

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Capital Raisings by Australian-listed Biotech Companies Q1 2010

Company	Investment Manager or Investor	Type of raising	Funds raised (\$M)
Heartware	JP Morgan	Placement (US\$62M)	\$69.0
Biotron		Options Rights Issue	\$2.10
Stirling Products		Placement	\$2.00
Fluorotechnics	Hunter Hall	Rights Issue	\$1.80
Viralytics		Placement	\$1.50
Stirling Products		Placement	\$1.40
Viralytics	La Jolla Cove Investors	Convertible Note DD	\$0.83
Bioprospect		Placement	\$0.75
BioMD		Options Rights Issue	\$0.58
HealthLinx	Stonebridge Securities	Placement (T2)	\$0.55
Genesis R&D		SPP	\$0.15
HealthLinx	Springtree Spec. Opp. Fund	Conv. Loan Funding (T4,T5)	\$0.14
Avita Medical		Draw down	\$0.08
IPOs			\$7.0
Total raised in Q1 2009			\$87.9

BNC105 – Renal cell cancer

VDAs work by destroying cancer blood vessels. NSCLC has been a popular target for VDAs because they are highly vascularised. Renal cell carcinoma is another highly vascularised tumour and has been selected by Bionomics for this reason, and that there are no VDA competitors working in this space, and also that the market is very large (existing drugs for renal cell cancer generate between US\$500 million - US\$1 billion in sales each a year).

Bionomics has shown that BNC105 is effective in an animal model for renal cancer. In an abstract that from a poster that will be presented at AACR this month, Bionomics has also discovered that there should be a synergistic effect from combining BNC105 with an mTOR inhibitor (such as Afinitor which is the combination in the current Phase II trial). This is because the tumour recovery following VDA assault on the cancer blood vessels is believed to

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Selected Clinical Trial Developments - March Quarter 2010

Company	Code	Product/Therapeutic	Event
1 Avexa	AVX	apricitabine (ATC) (HIV)	Announced results of Phase III study at 24 weeks. Overall ATC conferred more than a 0.4 log 10 additional reduction in viral load.
2 Avexa	AVX	apricitabine (ATC) (HIV)	Released results of 144 weeks dosing of ATC, 36 pts completed treatment, 94% maintained undetectable viral load levels up to 144 week completion. 6 pts did not complete
3 ASDM	AMT	Peripheral Access Device (Hypertensive Extracorporeal Limb Perfusion)	Discussed results from trial in 15 pts with end stage critical limb ischaemia. 2 pts limbs remained extant after at 12 months, 4 limbs after 2 years and 1 limb after 3 years; no perioperative deaths.
4 BioMD	BOD	Cardiocel (tissue patch)	Interim results from 30 pt trial. Product demonstrated reliable tissue strength and constant stitching characteristics with no reported leakages."
5 Bionomics	BNO	BNC105 (cancer)	Commenced Phase II Australian study in mesothelioma pts, 60 subjects.
6 Bionomics	BNO	BNC210 (anti-anxiety)	Announced results of Phase Ia trial; healthy male volunteers were dosed with 2000mg or placebo. Lower cortisol levels recorded in treated subjects. Drug was shown to be safe and well tolerated.
7 Bionomics	BNO	BNC105 (cancer)	Commenced Phase II US-based renal cell cancer trial; expected enrolment 152 pts from up to 12 sites
8 Eastland Medical Systems	EMS	Artemist (anti-malarial)	Completed trial in 30 pts - 15 pts ArTiMist spray; 15 pts with IV quinine. Data yet to be analysed.
9 Halcyon Pharm.	HGN	SUBA-itraconazole	Preliminary results from UK pk study - demonstrated clinical bio-equivalence, at half dose, with Sporanox
10 Imuron	IMC	Bovine Colostrum (Oral antibody) (Immunotherapy)	Commenced Phase II trial, 30 pts, in metabolic syndrome and non-alcoholic hepatitis at Hadassah Hebrew University Medical Centre
11 QRxPharma	QRX	MoxDuo IR (pain)	Commenced second Phase III trial (009) of MoxDuo at 3:2 ratio of morphine to oxycodone. Study will compare flexible dose to low fixed dose in pts with moderate to severe pain
12 QRxPharma	QRX	MoxDuo CR (pain)	Commenced Phase I to study pk profiles of controlled release MoxDuo in 3:2 ratio of morphine to oxycodone
13 Phosphagenics	POH	TPM-Oxycodone (pain)	Announced results from Phase I trial in 20 healthy subjects, comparing matrix against reservoir system, applied daily over ten days. Matrix system found to be superior.
14 Prima Biomed	PRR	CVAC (cancer immunotherapy)	Commenced US Phase IIb trial, 60 pts.
15 pSivida	PVA	Iluvien (diabetic macular edema)	Discussed results - 24 month data; 28.7% of low dose pts and 28.6% of high dose pts gained 15 letters of vision, compared with 16.2 of control pts.
16 Pharmaxis	PXS	ASM8 (allergic asthma)	Completed Phase II trial in 12 pts. Bronchoconstriction was reduced by 32% at early phase and 49% at late phase following challenge.
17 Pharmaxis	PXS	PXS25 (anti-fibrotic, pulmonary)	Completed Phase I trial. Investigated 5 ascending doses in 40 pts (IV admin). Drug was found to be safe and well tolerated.
18 Stirling Products	STI	ImmunoXel	Commenced trials in pts with HIV alone and pts with HIV and TB infection; 120 pts.
19 Stirling Products	STI	ImmunoXel	Nearing completion - trial in 120 pts enrolled in acute respiratory disease in the Ukraine.
20 Sirtex Medical	SRX	Sir-Spheres (liver cancer)	Commenced combination study of Sirspheres with Nexavar (Bayer); 375 pts. 30+ European sites.
21 Viralytics	VLA	CAVATAK (oncolytic) (cancer)	Released Phase I final report on trial in melanoma pts. No serious AE, 5 of 9 pts experienced reductions injected tumour volume or tumour stabilisation.

– *Bionomics from previous page*

be assisted by activating the mTOR signaling pathway. Destroying the tumour blood vessel and then blocking one of the paths for the tumour to recover should deliver a more effective and longer lasting therapy.

Interim data from the renal cell cancer trial with BNC105 are expected by the end of 2010. The primary endpoint is progression-free survival which will not take long to measure given the nature of this disease. Progression free survival in previous trials has shown to be between three to five months, with existing treatments increasing this by six to 11 months.

Bionomics started recruiting in January in the US with 152 patients expected to be enrolled. Bionomics has recruited the **Hoosier Oncology Group** in the US to co-ordinate the trial. HOG operates in 50 sites in the US with 400 oncology physicians. The Bionomics trial will only require 10-12 sites. With continuous monitoring, under-performing sites will be dropped and there is a cash incentive for HOG to keep enrolment on track.

The primary endpoint will be progression-free survival at six months, as well as safety and tolerability. BNC105 will be compared against the most recently approved renal cancer drug, Afinitor, which reached the market in 2009. Bionomics has also developed its own proprietary biomarker to test for polymerized versus non-polymerised tubulin, which will allow the company to monitor the vascular disrupting effect in patients. No other VDAs have been tested with the assistance of such an assay, and this should help set dosage levels for patients, so Bionomics can understand at which dose the tumours are being destroyed in each patient.

BNC105 – Mesothelioma

Last month Bionomics opened its Phase II trial with BNC105 to patients who had failed chemotherapy for mesothelioma, for whom there are no other treatment options. In Australia, there are around 700 new cases of mesothelioma diagnosed each year.

In 20-30 years time, the incidence of mesothelioma is expected to spike in New York due to the terrorist attacks that destroyed the World Trade Centre buildings. The mechanism responsible for mesothelioma is still yet to be established, although it is thought the chronic inflammation caused by asbestos exposure leads to the eventual formation of cancer cells.

Mesothelioma causes cell growth on the pleura, the outside of the lung, which when advanced, continues to restrict the breathing capacity of patients. The cancer also grows on the inside of the lungs. The Phase II trial will enroll 24 patients initially. After an interim analysis, which will be revealed in the first half of 2011, the company will decide whether to continue with a further 36 patients in the trial. There will be no other drugs combined in this trial.

The trial will be conducted by the **Australian Lung Trials Group** and the **NHMRC Clinical Trials Centre**. It is not expected there will be any difficulty in recruiting patients. Progression-free survival will be a primary endpoint, with changes in lung capacity and quality of life secondary measures.

Mesothelioma is a difficult cancer to treat. There are limited treatment options and with some response seen in this cancer in the Phase I trial, it is worth investigating. The path to market for this indication if efficacy could be shown may be rapid given there are no treatment options for this patient population (who have failed first line chemotherapy) and life expectancy is around 12 months.

Summary

Over the next 12 months Bionomics is expected to have interim efficacy data from two Phase II cancer trials, one in renal cancer and the other in mesothelioma. These cancers were chosen because (1) of their highly vascularised nature, (2) that no other VDAs are being tested in these indications, (3) that efficacy has been shown in animal studies in both cancers, and (4) that early efficacy was shown in a small number of patients in the Phase I study (cancer progression was stopped in two patients with renal cancer and in one patient with mesothelioma) with no negative impact on cardiac function at higher doses unlike other VDAs. BNC105 is a cancer drug candidate that will be one to watch over the next 12 months.

Bioshares recommendation: **Speculative Buy Class A**

Bioshares

Mesoblast Receives Major Boost from US Health Care Reform

Mesoblast (MSB: \$2.10) has received a major boost regarding the potential value of its technology. Changes to the US health care bill passed last month have substantially increased the market exclusivity for biologic drugs. Generic competitors to any biologics, such as **Genentech**'s antibody drug Avastin, will now have to wait 12 years before a biosimilar can be considered for approval. This is a highly relevant development for Mesoblast, with all of its products being developed to be evaluated as biologic drug candidates.

Mesoblast's core patents around its adult stem cell technology, will start to expire around 2019. If its first product reaches the market in 2014, without any patent extensions, the company would potentially only have had five years of market exclusivity in the US. This is now automatically been extended out to 12 years. And importantly, this 12 year market exclusivity applies to any product the company brings to market before its patents start to expire in 2019, potentially giving the company protection on some products out to 2031.

This is a very positive shift in the pharmaceutical landscape for Mesoblast. The first biosimilar should have a one-year market exclusivity and the biologic copies will still have to establish they are in fact biosimilar. For partnering its programs, the appeal of this technology to pharmaceutical/medical device companies has just been heightened considerably.

Bioshares recommendation: **Speculative Buy Class A**

Bioshares

Bioshares Model Portfolio (9 April 2010)

Company	Price (current)	Price added to portfolio	Date added
Tissue Therapies	\$0.23	\$0.21	January 2010
Biodiem	\$0.16	\$0.15	October 2009
QRxPharma	\$0.90	\$0.25	December 2008
Hexima	\$0.38	\$0.60	October 2008
Atcor Medical	\$0.15	\$0.10	October 2008
CathRx	\$0.16	\$0.70	October 2008
Impedimed	\$0.70	\$0.70	August 2008
Mesoblast	\$2.10	\$1.25	August 2008
Circadian Technologies	\$0.70	\$1.03	February 2008
Patrys	\$0.13	\$0.50	December 2007
Bionomics	\$0.32	\$0.42	December 2007
Cogstate	\$0.28	\$0.13	November 2007
Sirtex Medical	\$5.98	\$3.90	October 2007
Clinuvel Pharmaceuticals	\$0.26	\$0.66	September 2007
Starpharma Holdings	\$0.70	\$0.37	August 2007
Pharmaxis	\$2.73	\$3.15	August 2007
Universal Biosensors	\$1.60	\$1.23	June 2007
Probiotec	\$1.76	\$1.12	February 2007
AcruX	\$2.33	\$0.83	November 2004
Alchemia	\$0.64	\$0.67	May 2004

Portfolio Changes – 9 April 2010**IN:**

No changes.

OUT:

No changes.

AcruX Regains Rights to Women's Testosterone Spray Product

Having secured the commercialization path for one testosterone product – Axiron licensed to **Eli Lilly** – AcruX (\$2.33) has regained rights to its testosterone product program for women, which had previously been licensed to **Vivus**. This is a positive development for AcruX, with the program having stalled at Vivus. AcruX will now need to develop a strategy to complete the commercialization of this potential product.

AcruX's options are to re-partner the program, add further value to the program before partnering, or initiate Phase III trials on its own. The path to market and the actual market for such testosterone product for women with low libido or sexual dysfunction linked to low testosterone is not as clear as it is with the Axiron product for men.

There are no male testosterone products for women currently on the market. **Warner Chicott** (through its acquisition of the pharmaceutical division of **Proctor and Gamble** last year) has filed its product candidate (**Intrinsa**) for approval with the EMA in Europe for the treatment of 'hypoactive sexual desire disorder in natural menopausal women (HSDD)'. In the US, the path to market more complicated.

The FDA is concerned with potential health risks in women from use of male testosterone. **Biosante** has two Phase III studies underway in the US under an SPA (Special Protocol Assessment) with its testosterone for women product candidate (**LibiGel**) in 500 women for six months. One of these trials is to measure safety and the other to assess efficacy in women with HSDD. The company is also conducting a 12 month placebo controlled safety study in between 2,400 - 3,100 women to assess any negative

effect of the drug on the cardiovascular system. Any changes in the incidence of breast cancer will also be monitored. Warner Chicott is not currently conducting any studies with Intrinsa in the US.

At the moment, we understand that smaller (cut up) doses of the male testosterone patches are being used by women off label. The potential global market for a male testosterone product for women is estimated at being worth over \$1 billion a year.

For AcruX, there are still some decisions to be made on how it will progress this program. However having regained the commercial rights, it is now free to explore its options.

Bioshares recommendation: **Speculative Buy Class A**

Bioshares

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<p>Announced February 2010</p>  <p>is being acquired by</p>  <p>The underwriter acted as financial advisor to Finnzymes Ltd.</p>	<p>December 2009</p>  <p>has licensed its MoGel® drug delivery system for ophthalmic indications to</p>  <p>The underwriter acted as financial advisor to BTG plc.</p>	<p>October 2009</p>  <p>has been acquired by</p>  <p>The underwriter acted as financial advisor to Eurogentec.</p>	<p>August 2009</p>  <p>has sold its HySol™ drug delivery technology to</p>  <p>(up to US\$10,000,000)</p> <p>The underwriter acted as financial advisor to BTG plc.</p>	<p>January 2009</p>  <p>has been acquired by</p>  <p>The underwriter acted as financial advisor to the shareholders of Labcorp Limited.</p>	<p>December 2008</p>  <p>has acquired</p>  <p>(US\$7,000,000)</p> <p>The underwriter acted as financial advisor to Panomics (Spain) in Adjunctive, Inc.</p>
<p>July 2008</p>  <p>has acquired</p>  <p>(US\$22,000,000)</p> <p>The underwriter acted as financial advisor to Biocompatibles International.</p>	<p>February 2008</p>  <p>has been acquired by</p>  <p>(\$415,000,000)</p> <p>The underwriter acted as financial advisor to Sigma Pharmaceuticals.</p>	<p>January 2008</p>  <p>has been acquired by</p>  <p>(\$441,000,000)</p> <p>The underwriter acted as financial advisor to Panbio Limited.</p>	<p>May 2007</p>  <p>has acquired</p>  <p>The underwriter acted as financial advisor to Ansell Limited.</p>	<p>March 2007</p>  <p>has sold its Human Health point-of-care diagnostic products has been to</p>  <p>The underwriter acted as financial advisor to Agensix Limited.</p>	<p>February 2007</p>  <p>Proposed strategic alliance and investment of up to €35,100,000 in</p>  <p>The underwriter acted as financial advisor to GenMatrix Ltd.</p>
<p>December 2006</p>  <p>has acquired</p>  <p>(\$180,000,000)</p> <p>The underwriter acted as financial advisor to Novozymes A/S.</p>	<p>August 2006</p>  <p>has acquired</p>  <p>(\$170,000,000)</p> <p>The underwriter acted as financial advisor to Alchemia & Associates Limited.</p>	<p>July 2006</p>  <p>has acquired</p> <p>Delta Biotechnology Ltd</p>  <p>The underwriter acted as financial advisor to Novozymes A/S.</p>	<p>April 2006</p>  <p>has assigned IP and general distribution rights for its Animal Health business to</p>  <p>The underwriter acted as financial advisor to Agensix Limited.</p>	<p>December 2004</p>  <p>has been acquired by</p>  <p>(€298,240,000)</p> <p>The underwriter acted as financial advisor to The Gribbles Group Limited.</p>	<p>June 2004</p>  <p>has merged with ChemCrest Therapeutics Inc. to create ChemCrest Pharmaceuticals Limited</p>  <p>(\$344,000,000)</p> <p>The underwriter acted as financial advisor to ACT Biosciences Ltd.</p>

Achelous Partners specializes in locating and executing upon novel merger and acquisition opportunities and providing senior level advice for its global life science and healthcare client base

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The Australian Listed Life Sciences Sector

March 31, 2010: Capitalisation \$37.4 billion, 111 companies

Bioshares Large Cap. Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/10
CSL	CSL	20,089	Manufactures pharmaceutical products including vaccines and human plasma fractions	12%	12%	\$36.43
Resmed Inc.	RMD	5,264	Manufactures diagnostic and treatment equipment for sleeping disordered breathing	18%	32%	\$7.00
Cochlear	COH	4,119	Manufactures cochlear hearing implants	5%	45%	\$72.84
Sigma Pharmaceuticals	SIP	548	Pharmaceutical manufacturing and wholesaling	-53%	-56%	\$0.47
Capitalisation Total		30,019				

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/10
Heartware International	HIN	663	Developing a mechanical heart pump (LVAD)	19%	43%	\$1.39
Pharmaxis	PXS	638	Marketing a lung function test, Aridol, and developing the Bronchitol product to treat cystic fibrosis, bronchiectasis and COPD.	4%	67%	\$2.83
Biota	BTA	406	Commercialised Relenza anti-flu drug and flu diagnostic kits. Now developing an improved version, laninamivir with partner Daiichi Sankyo.	-6%	278%	\$2.27
AcruX	ACR	376	A Pooled Dev. Fund commercialising a drug delivery technology that uses sunscreen penetration enhancers to aid transdermal drug delivery	7%	333%	\$2.34
Blackmores	BKL	367	Manufactures vitamin, mineral and herbal supplements and skin & hair products in Australia and N.Z.	5%	79%	\$22.00
Sirtex Medical	SRX	332	The company's core technology uses radioactive particles to irradiate tumours in the liver. Approved for use in most major regions.	-21%	160%	\$5.95
Unilife Corporation	UNS	330	Developer of retractable syringes	15%	294%	\$1.05
API	API	295	Pharmaceutical wholesaler	-12%	55%	\$0.61
Mesoblast	MSB	286	Developing therapies based on mesenchymal pre-cursor stem cells, with applications in cartilage regrowth and heart and bone repair.	50%	140%	\$2.04
Cellestis	CST	285	Marketing a diagnostic for latent tuberculosis	-9%	40%	\$2.96
Universal Biosensors	UBI	270	Development, manufacture and commercialisation of a range of in vitro diagnostic tests for point-of-care use	-7%	192%	\$1.72
Starpharma Holdings	SPL	165	Developer of pharmaceutical applications of chemical scaffolds known as 'dendrimers'.	-1%	142%	\$0.69
Scigen	SIE	155	Developer and manufacturer of biopharmaceuticals. Company is based in Singapore and was spun out of Sonic Healthcare in 2002.	-20%	567%	\$0.28
Nanosonics	NAN	132	Developing a novel disinfection technology, the first product is a point of care ultrasound probe disinfection unit	-8%	89%	\$0.61

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/10
Avexa	AVX	127	Developing antiviral therapies for HIV and HCV and a novel antibiotic	-3%	60%	\$0.15
ChemGenex Pharmaceuticals	CXS	123	Developer of the drug Omacetaxine, which has potential to treat CML patients that develop the T315i mutation.	-56%	-16%	\$0.44
Alchemia	ACL	117	Commercialising new solid phase carbohydrate synthesis technology. First product, a synthetic heparin, to be launched by Dr Reddy's in 2009/10	-15%	108%	\$0.62
Bionomics	BNO	107	Developing drugs to treat cancer and CNS diseases, and has also developed a gene diagnostic for epilepsy.	-11%	52%	\$0.34
Halcygen Pharm.	HGN	103	Developing an improved dosing anti-fungal drug, Subazole and operating manufacturing services	8%	258%	\$0.72
Prima Biomed	PRR	95	Developing the CVac immunotherapy.	-7%	637%	\$0.14
QRxPharma	QRX	94	Developing a 'dual opioid' drug to treat moderate to severe pain.	18%	229%	\$0.92
Probiotec	PBP	86	Manufacturer, marketer and distributor of a range of over the counter (OTC) pharmaceuticals, complementary medicines and speciality ingredients	-34%	6%	\$1.63
Phosphagenics	POH	85	Commercialising a drug delivery technology improving the delivery of vitamin E and existing pharmaceutical products through phosphorylation.	69%	-18%	\$0.12
Ascent PharmaHealth	APH	82	A generic pharmaceutical manufacturer and distributor. Strides ArcoLabs intends to buy out minority shareholders.	57%	120%	\$0.33
Impedimed	IPD	82	Develops devices that aid the diagnosis of secondary lymphoedema, muscle wasting and other disorders	-4%	7%	\$0.75
Clinuvel Pharmaceuticals	CUV	80	Developing an analogue of the alpha-MSH protein as a photo-protective agent	-2%	29%	\$0.27
pSiVida	PVA	78	Developing drug delivery technologies, with a special focus on ophthalmic applications	-1%	262%	\$4.20
Living Cell Technologies	LCT	66	Developing cell therapies for diabetes, haemophilia and Huntington's disease	14%	127%	\$0.25
Solagran	SLA	53	Developing complementary medical compounds called Bioeffectives.	-28%	125%	\$0.18
Genera Biosystems	GBI	50	Develops, manufactures and distributes advanced molecular diagnostic tests, with a particular focus on women's health.	-7%	90%	\$0.74
Novogen	NRT	45	Developing analogues of naturally occurring phenolic hormones to treat cancers and other conditions.	-25%	-11%	\$0.45
OBJ	OBJ	44	Developing transdermal drug delivery technologies	38%	700%	\$0.04
Clovercorp	CLV	42	Development and production of omega-3 food additives from tuna oil.	4%	42%	\$0.26
Cordlife	CBB	40	Rolling out tissue banking services in Australia and Asia	-21%	38%	\$0.44

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/10
Somnomed	SOM	36	Commercialising an oral device for the treatment of sleep apnea and snoring.	9%	161%	\$0.94
Institute of Drug Technology	IDT	36	Manufacturer of pharmaceutical ingredients to international standards for major pharmaceutical groups.	-40%	-46%	\$0.84
Hexima	HXL	34	Research and development of genetic technologies that can enhance the resistance of crops to insects and fungal pathogens.	-10%	26%	\$0.43
Progen Pharmaceuticals	PGL	33	A developer of cancer therapeutics	0%	-28%	\$0.55
Prana Biotechnology	PBT	33	Developing drugs to treat CNS diseases such as Alzheimer's and Parkinson's	-7%	-26%	\$0.14
Circadian Technologies	CIR	33	Developing drugs, including antibodies, around the VEGF C and VEGF D targets	3%	4%	\$0.72
Compumedics	CMP	32	Develops, manufactures and markets sleep diagnostic and monitoring equipment.	11%	43%	\$0.20
Tissue Therapies	TIS	30	Developing the VitroGro product for ulcer and wound healing	38%	2%	\$0.22
Eastland Medical Systems	EMS	28	Developing retractable syringes, ClipOn and VetLock, and anti-malarial product ArTiMist.	7%	63%	\$0.08
Anteo Diagnostics	ADO	27	Developer of a biological coatings technology that can be applied to immunoassays, bio-separations, drug delivery and other medical devices	657%	253%	\$0.05
Patrys	PAB	27	Developing human antibody therapies for the treatment of lung, pancreatic, gastric and colon cancers	16%	190%	\$0.15
Southern Dental Industries	SDI	27	Manufacture & distribution of amalgam (fillings) & other dental materials and product R&D.	-21%	-10%	\$0.23
USCOM	UCM	26	Marketing a non-invasive heart output function monitor	-11%	-10%	\$0.62
Cbio	CBZ	24	Drug development company, focus is on Xtoll product for rheumatoid arthritis	-68%		\$0.32
Brain Resource Corp	BRC	24	Development and commercialisation of functional brain analysis techniques	-13%	30%	\$0.26
Analytica	ALT	24	A medical devices company that has developed a retractable syringe	49%	49%	\$0.06
Imuron	IMC	23	Specialises in R&D of hyper-immune bovine colostrum products for therapeutic use in animals and humans.	-2%	60%	\$0.08
Viralytics	VLA	22	Developing a cancer treatment based on the application of viruses (oncolytic virus technology)	46%	46%	\$0.05
Phylogica	PYC	21	Developing phylomer (protein fragment shapes) compound libraries for use in human therapeutics.	-33%	76%	\$0.09
Healthlinx	HTX	21	Detecting novel functions of known and new protein and peptides for therapeutic purposes.	78%	167%	\$0.16

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/10
KarmelSonix	KSX	20	Respiratory and pulmonary devices company	-21%	20%	\$0.03
Cyclopharm	CYC	20	A nuclear medicine company that markets the Technegas lung imaging system	5%	64%	\$0.12
Cogstate	CGS	19	Marketing cognitive performance diagnostic products	-10%	21%	\$0.29
Sunshine Heart	SHC	18	Developing the C-Pulse heart assist device. The C-Pulse wraps around and compresses the aorta, increasing blood flow through the body.	-11%	-51%	\$0.03
Advanced Surgical Design & Manufacture	AMT	18	A developer and manufacturer of prosthetic implants and medical devices	-17%	43%	\$0.50
Benitec	BLT	16	R&D company focusing on gene silencing, specifically DNA delivered RNAi, technology	13%	95%	\$0.04
Avita Medical	AVH	15	Markets ReCell, a skin repair product	-12%	93%	\$0.15
Atcor Medical	ACG	15	Markets the SphygmoCor device, a noninvasive technology that provides information regarding the functioning of the cardiovascular system	-19%	-21%	\$0.15
Bone Medical	BNE	15	Developing treatments for bone and joint degenerative diseases such as arthritis and osteoporosis.	4%	-44%	\$0.14
Stirling Products	STI	15	Development of R-Salbutamol based products and the Immunoxell immune modulator	-14%	0%	\$0.01
Ellex Medical Lasers	ELX	14	Develops, manufactures and markets solid state ophthalmic lasers used to treat secondary cataracts and retinal disorders.	-6%	0%	\$0.17
BioProspect	BPO	14	Developing insecticides from naturally occurring molecules	-31%	80%	\$0.03
Biodiem	BDM	14	Focused on the development of LAIV influenza vaccines	-20%	61%	\$0.19
Virax Holdings	VHL	14	Developing a therapeutic and prophylactic vaccine for HIV	45%	208%	\$0.08
Antisense Therapeutics	ANP	13	Developing antisense compounds to treat multiple sclerosis and acromegaly	-60%	-33%	\$0.02
PharmAust	PAA	13	Operates Epicem and PharmAust . Investing in Manufacturing, which provide products and services to biotech and pharma companies. Now investing in oil and gas.	14%	163%	\$0.05
Genetic Technologies	GTG	13	Provides DNA paternity testing services and holds broad patents relating to the use of non-coding DNA.	-17%	-30%	\$0.04
Neuren Pharmaceuticals	NEU	12	Developing neuroprotective therapeutics	-11%	560%	\$0.03
Vita Life Sciences	VSC	12	Development, manufacture and distribution of prescription and OTC medicines as well as complementary and alternative medicines, dietary supplements and health foods	9%	200%	\$0.24
Calzada	CZD	11	Formerly Metabolic Pharmaceuticals. Holds a 87.65 % stake in PolyNovo, a polymer chemistry company.	10%	43%	\$0.03

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/10
Austofix	AYX	11	Manufacturer and developer of orthopaedic fixation devices	-20%	19%	\$1.00
CathRx	CXD	11	Developing novel modular cardiac catheters for the diagnosis and treatment of abnormal heart rhythms	-76%	-52%	\$0.15
Biotron	BIT	10	Developing a compound to treat HCV	1%	20%	\$0.10
Fluorotechnics	FLS	10	Development and sale of scientific equipment and consumables, including fluorescent stains	-18%	-59%	\$0.33
Medical Developments	MVP	10	Commercialising the Penthrax inhaler for temporary pain relief. Used widely in ambulances across Australia.	9%	-10%	\$0.19
LBT Innovations	LBT	9	Developed the MicroStreak technology for the automation of microbiology laboratory processing	-21%	-30%	\$0.10
Cellmid	CDY	9	Developing therapies that target the midkine protein	-18%	180%	\$0.03
Resonance Health	RHT	9	Marketing the FerriScan technology, a non-invasive tool for measuring liver iron levels	-11%	92%	\$0.03
Medigard	MGZ	9	Developed retractable syringe technology and other safety medical products.	20%	50%	\$0.12
Optiscan Imaging	OIL	9	Manufacture of confocal microscopes for clinical diagnosis	-20%	53%	\$0.07
ITL	ITD	8	Develops and distributes medical devices such as safety equipment to prevent needle stick injuries and sterile preparation kits.	-19%	-15%	\$0.06
Tyrian Diagnostics	TDX	7	Developer of diagnostic products, including the ReadRite-Alpha Amylase test (a wheat quality test)	-6%	-40%	\$0.02
Acuvax	ACU	7	Holds interests in various therapeutics and vaccines	-35%	-63%	\$0.01
Holista Colltech	HCT	7	Has developed a novel technology for the extraction of collagen from sheepskins	-10%	44%	\$0.13
Imugene	IMU	7	Developing animal products such as antibiotic alternatives used in the stock feed industry using a vaccine and gene therapy approach	-48%	-36%	\$0.05
BioMD	BOD	6	Developing a tissue engineering technology, termed ADAPT	19%	14%	\$0.05
Cryosite	CTE	6	Provides specialised storage services, especially for umbilical cord blood	-20%	14%	\$0.12
Probiomics	PCC	6	Proprietary ownership of a unique probiotic strain	-14%	280%	\$0.02
NuSep	NSP	5	Manufacture and sale of protein separations technologies	-25%	300%	\$0.20
Medic Vision	MVH	4	Marketing training software and hardware for surgeons	-41%	-56%	\$0.02

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/10
IM Medical	IMI	4	Markets the Intelliheart Cardiovascular Diagnostic System	-33%	0%	\$0.00
Atos Wellness	ATW	3	Manages wellness centres in Singapore, Malaysia, India, Australia, Austria and Germany. Suspended from quotation.	20%	-55%	\$0.02
Teleso Technologies	TEO	3	Investigating new business activities	51%	141%	\$0.05
Incitive	ICV	3	Has licensed a pipeline of animal health products from Peptech Animal Health. Demerging biotech assets. Acquiring oil and gas interests.	-14%	20%	\$0.01
Giaconda	GIA	3	Developed novel (patented) combinations of registered drugs for the treatment of gastrointestinal disorders.	-17%	-43%	\$0.04
NeuroDiscovery	NDL	2	Provides electrophysiology services to biotech and pharma	20%	5%	\$0.04
Helicon Group	HCG	2	Exploiting niche market opportunities for medical products in China and other Asian markets.	-10%	69%	\$0.03
Select Vaccines	SLT	2	Development and commercialisation of infectious diseases diagnostics, vaccines and therapeutics for hepatitis-related diseases	14%	100%	\$0.01
Genesis Research & Development Corp.	GEN	2	Developing RNAi based therapeutics. Interests in agricultural biotechnologies.	-20%	-20%	\$0.05
Actinogen	ACW	2	Early stage developer of antibiotics that show activity against MRSA and VRE bacteria	-10%	0%	\$0.05
Capitalisation Total		7,349				

Listed Biotech Investment Funds or Companies

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/03/10
BPH Corporate	BPH	17	Formerly Biopharmica. Managing cancer treatment and detection and bacterial DNA diagnostic projects. Portfolio investment approach.	-30%	167%	\$0.08
Biotech Capital	BTC	16	A Pooled Development Fund investing in unlisted Australian biotech companies and in public biotechs, including Alchemia, Starpharma, Neurodiscovery and Phylogica.	-30%	40%	\$0.21
Xceed Capital	XCD	3	Holds a stake in Calzada and owns 100% of Boron Molecular, a chemistry services company.	-41%	-54%	\$0.01
Capitalisation Total		35				

Capitalisation Total - All Indexs **37,403**

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, Starpharma Holdings, Cogstate, Bionomics, ChemGenex Pharmaceuticals, Circadian Technologies, Biota Holdings, Halcygen Pharmaceuticals, Peplin, Impedimed, QRxPharma, Patrys, Labtech Systems, Hexima, Tyrian Diagnostics, Mesoblast, Atcor Medical, CathRx, BioMd, Tissue Therapies, Viralytics

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