

**In this edition...**

Our June quarter review leads this edition and the key point is a resurgence of interest in biotech stocks, qualified by the fact that it has been the Tier-1 stocks that have captured most of the gains. Investment dollars began flowing again although four companies took in nearly 80% of the \$133 million raised in the June quarter.

For companies such as Patrys that have been balancing clinical development aspirations with cash requirements, the change in the biotech investment climate has initiated a change in business strategy, with a shift to early licensing for some of its programs on the cards, but equally a shift to in-licensing of later stage assets also in now in the game plan.

The Editors

**Companies Covered: CXD, PAB,  
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 - Current)	9.7%
<b>Cumulative Gain</b>	<b>113%</b>
<b>Av Annual Gain (8 yrs)</b>	<b>14.7%</b>

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# Bioshares

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

## Quarterly Review

### Strong Gains By Tier-1 Stocks Continues For Second Quarter

Investment interest in listed biotech stocks strengthened considerably in the June quarter, with the **Bioshares Index** recording a solid 20.3% gain from the previous quarter. In contrast, the **Bioshares Large Cap Index** remained much more subdued, posting a 1.1% gain. The leading international biotech stock index, the **Nasdaq Biotech Index**, registered a healthy 9.8% increase for the quarter. The **ASX 300 Index** posted a 10.6% gain for the quarter.

However, the performance of the Bioshares Index, an index that measures the performance on a weighted basis of 119 small to mid cap biotechs, was driven by solid gains in a number of Tier-1 companies. The share price of **Pharmaxis** (Cap'n: \$525 million) increased by 42% for the quarter. Shares in **Cellestis** (Cap'n: \$290 million), **Blackmores** (Cap'n: \$262 million), **Biota** (Cap'n: \$209 million) and **Acrux** (Cap'n: \$181 million) rose 43%, 30%, 99% and 110% respectively.

At the same time, investors should note that the sector includes 72 companies capitalised at less than \$20 million and 49 companies capitalised at less than \$10 million. Many of these companies continue to face a bleak future. Some companies have effectively ceased operations and have delisted from the ASX. One such company in this category is **Stem Cell Sciences**. Attempts are being made to re-capitalise some non-viable biotech companies, with, for example, **Dia B Tech** being used to back-door assets of **Pallane Medical**, **Incitive** acquiring **V-Patch Medical Systems** and **Stirling Products** acquiring **MilPharma**.

The June quarter figure comes on the back of a 16% gain in the March quarter. However, these two quarters of positive growth follow seven quarters of negative growth. Investment sentiment towards biotech stocks could be sustained in the next quarter so long as rivals for speculative investment dollars such as junior mining stocks remain less attractive on a relative reward basis and while the sector continues to deliver a strong positive-to-negative news ratio.

Positive news flow during the quarter included **Pharmaxis'** release of results of its Phase III trial of Bronchitol in cystic fibrosis patients, **Peplin's** discussion of the results of its Phase III trial of PEP005 Gel in patients with actinic keratoses on non-head loca-

*Cont'd over*

#### Index performances by Quarter

	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009
Bioshares Index	-13.8%	-10.9%	-26.1%	16.0%	20.3%
Nasdaq Biotech Index	1.6%	5.4%	-12.7%	-6.4%	9.8%
Bioshares Large Cap Index	-7.9%	12.4%	-8.1%	-3.8%	1.1%
ASX 300 Index	-2.6%	-12.0%	-19.3%	-3.6%	10.6%

tions, **ChemGenex Pharmaceuticals'** release of updated data from its on-going registration trial of omacetaxine in patients with chronic myeloid leukemia who are positive for the T315I mutation. A not insignificant event that has created interest for investors has been the ongoing swine flu situation and its relevance to influenza vaccine manufacturers such as **CSL** and influenza drug company (through its licensee) **Biota Holdings**.

CSL (down 1% for the quarter and down 10% from June 30, 2008) may have put in a stronger quarter if not for the rejection by the US Federal Trade Commission of its proposal to acquire privately held blood products firm **Talecris**. CSL has instituted a share buy back plan as a means of returning funds raised for the acquisition to investors.

Biota is building attractive cash reserves on the back of strong demand for Relenza for both stockpiling and prescription orders. Licensee **GlaxoSmithKline** recently announced a doubling of its annual capacity from 30 to 60 million treatment units per annum. And co-development partner for the second generation flu drug LANI (long acting version) Daiichi Sankyo has elected to proceed with registration plans for Japan following the completion of Phase III studies.

**Universal Biosensors** locked in a 58% gain for the quarter, aided by its signing of an amended master services agreement covering the supply of glucose meter test strips to Johnson & Johnson's Lifescan. The disclosure of an approximate 1 cent per strip service fee was an important new piece of information absorbed by the market.

One company that was performed exceptionally well on both a quarterly basis (+25%) and 12 month basis (+100%) was **Nanosonics**. The company has launched its sterilisation product Trophon EPR in Europe in June, which follows Australian TGA approval in February.

### Capital Raisings

The June quarter saw a strong up-tick in capital inflows for the quarter, with \$133 million raised for the quarter on a receipted basis. In contrast, \$27 million was raised in the previous quarter and \$184 million was raised in calendar year 2008.

However, sector leader Pharmaxis accounted for 41% of funds raised in the June quarter, raising \$47 million through a placement and \$7.2 million through a share purchase plan. And just four companies (**Pharmaxis, ChemGenex, Avexa, Impedimed**) collected 77% of total funds raised.

The IPO window continues to remain closed, and will remain that way while numerous shell companies are available for utilisation as back-door listing vehicles.

Companies that are expected to depart the sector in the near future are **Arana Therapeutics**, which is under compulsory acquisition by US based **Cephalon, Heartware**, which is being acquired by **Thoratec**, and **Ventracor** which is being wound-up by administrators.

### Bioshares

Capital Raisings by Australian-listed Biotech Companies Q2 2009

Company	Investment Manager or Investor	Type of raising	Funds raised (\$M)
Pharmaxis	Wilson HTM	Placement	\$47.00
Avexa	ABN Amro Morgans	Ren. Rights Issue	\$17.68
Impedimed	Wilson HTM	Placement	\$12.00
ChemGenex	ABN Amro Morgans	Placement	\$11.00
Viralytics		CN (US\$6M)	\$7.50
ChemGenex	ABN Amro Morgans	SPP	\$7.40
Pharmaxis		Placement	\$7.20
Starpharma	Acorn Capital	Placement	\$5.10
Phylogica		Placement and CN	\$3.84
Genera Biosystems	Australian Ethical Investments	Placement	\$2.99
Polartechncs		SPP	\$2.23
Starpharma		SPP	\$2.00
CathRx	Wilson HTM	Placement	\$1.60
Fluorotechnics		Rights Issue	\$1.23
Biotron		SPP	\$0.80
Incitive	Cygnat Capital	Rights Issue (u/w)	\$0.78
Medical Therapies		Placement	\$0.70
Atos Wellness		Loan (US\$0.5M)	\$0.63
OBJ		Convertible Notes	\$0.41
Mediguard		SPP	\$0.36
Virax Holdings		Placement	\$0.30
Probiomics	Taylor Collison	Placement	\$0.10
<b>Total</b>			<b>\$132.7</b>

## Selected Clinical Trial Developments - June Quarter 2008

	Company	Code	Product/Therapeutic	Event
1	Avexa	AVX	Apricitabine (ATC) - (HIV therapy)	Phase III trial: Data safety monitoring board reviewed 16 week data; recommended study continue with 800mg dose
2	Bionomics	BNO	BNC210 (Anti anxiety)	Commenced Phase I trial
3	Biota	BTA	BTA798 (HRV infection)	Completed Phase IIa challenge study of human rhinovirus (HRV) pts with no evidence of immunity. Planned - 60 pts; actual 41 pts.
4	CathRx	CXD	Catheter - Irrigated Ablation	Commenced pilot study in 15 pts
5	Mesoblast	MSB	Allogeneic MPCs (Stem Cells)	First 5 pts (30 pts) in bone marrow study reported to show early engraftment
6	Mesoblast	MSB	Revascor - Allogeneic MPCs (Stem Cells)	Interim results (20 pts of 60 pts) in heart failure study reported significantly improved heart function over three months
7	Novogen	NRT	Phenoxodiol (Ovarian cancer)	Closed Phase III study at 117 pts
8	Novogen	NRT	GLYC-101 (wound healing)	Reported interim analysis of Phase II study on wound closure and cosmetic outcomes in cosmetic surgery patients
9	Peplin	PLI	PEP005 Gel (Actinic Keratoses - Non head locations)	235 pts treated per protocol in Phase III trial. Total clearance rate of 27.4%, partial clearance rate of 44.4%.
10	Peplin	PLI	PEP005 Gel (Actinic Keratoses - head locations)	Commenced two Phase III trials - 250 pts in each trial.
11	Pharmaxis	PXS	Bronchitol (Cystic fibrosis)	Announced results of trial in 324 pts. Reported a 6.6% improvement in lung function.
12	Phosphagenics	POH	TPM/Oxycodone (Pain)	Completed Phase I trial - repeat insult patch test. Reported that repeat applications do not cause significant opioid induced erythema or sensitisation.
13	Phosphagenics	POH	TPM/Retinoic acid (Acne)	Completed Phase I trial in 27 pts. Reported that retinoic acid could be delivered in greater quantities and with less irritation than Retin-A
14	QRxPharma	QRX	MoxDuo IR (Pain Therapy)	Completed 197 pt Phase III pilot study. Confirmed 12mg morphine/8mg oxycodone as preferred dose for Phase III combination rule study
15	Sirtex Medical	SRX	SIR-Spheres (and 5-FU)	Ann. results of trial in 46 pts with colorectal cancer liver metastases - all exhausted all chemotherapy options. TTP (liver) was 5.5 months for SIR-Spheres/5-FU v 2.1 months for 5-FU alone.
16	Sunshine Heart	SHC	C-Pulse Heart Assist Device	Commenced US feasibility trial in 20 pts
17	Teleso Technologies	TEO	Guide Wire-assisted Peripheral IV Catheter	Commenced post market study in 400 pts
18	Tissue Therapies	TIS	VitroGro (Chronic diabetic ulcers)	Reported data for pt #2, showing 32% healing in diabetic ulcer
19	Virax Holdings	VHL	VIR201 (HIV Immunotherapeutic Vaccine)	Phase I/IIa trial has recruited 74 out of 140 pts

## **Patrys Re-Aligns Strategy For Current Market**

One of the mantras of Patrys' CEO, Dan Devine, is that you don't ever want to be left with less than one year's cash. When Patrys listed on the ASX in 2007, it raised \$25 million, enough cash to get it to October 2009. Patrys last year increased its funds by \$2.9 million through a small acquisition, and this week it announced a \$6.8 million renounceable rights issue, with \$5 million of that underwritten by a major shareholder (PNK Holdings). The interesting thing about this share issue is that it is being conducted at 25 cents a share, more than double the share price the stock has traded for the last eight months.

According to Devine, the rights issue price was offered by Michael Stork, who is a non-executive director of Patrys and associated with PNK Holdings, perceiving that price as fair value for the rights issue. Following the raising, which closes on August 12, the company will have over \$12 million in cash (based on a \$5 million raising).

### **Re-alignment of Strategy**

Like many companies in the sector, Patrys has realigned its business strategy to reflect the difficult financing conditions the world is facing and can be prepared to face for the medium term (two to three years). Its first lead candidate, called PAT-SM6, will move into clinical studies in a range of solid cancers in coming months. This Phase I trial is expected to be completed in the first half of 2010. However, the pathway for the next program, PAT-LM1, has changed. Patrys will consider partnering this program, to reduce its spend, or will wait until the PAT-SM6 trial progresses, to learn from that trial, and start the PAT-LM1 trial in the first half of 2010.

All of the Patrys drug candidates are antibodies that have been found in humans and been determined to have natural anticancer properties. This is the basis of the Patrys technology. Through evolution of the immune system, humans have developed effective cancer antibodies to mop up cancer cells that are present on a daily basis in all people. Most people avoid developing cancer for the first 60 years of their lives, and it is generally when the immune system deteriorates with older age that the risk of cancer increases considerably with each decade of life.

The strength of the Patrys assets lies not only in the natural antibody drug leads, but also with the novel targets of cancer to which these antibodies have led. To date, Patrys has 17 patent families (either granted or filed) and five of these are around new targets never previously detected. Another strength is in the difficult process of manufacturing human antibodies. Patrys is set to be the first group to manufacture, on a commercial scale, human therapeutic antibodies.

### **Forthcoming Partnering Deal**

Patrys has indicated it is in advanced discussions regarding the partnering of several of its early stage assets with an international biotech/pharmaceutical group. Devine is confident the transaction will move forward with discussions having moved to a very mature stage, although no contract has been signed.

If the company is successful in partnering early stage assets and the PAT-SM1 lead, it will allow the company to concentrate its

efforts on its drug discovery and novel target identification engine room.

### **Phase I PAT-SM6 trial**

This Phase I trial will be conducted in multiple centers in Australia in patients with a range of solid tumours (up to 12 different types in the trial). These patients will have failed other treatments. Although it is primarily a safety study, it will look for anti-cancer effect, such as changes in levels of circulating tumour cells, and patient health and survival.

### **In-licensing Window**

Another part of the new strategy at Patrys is to consider in-licensing opportunities of human cancer antibodies. The dearth of funding in the US has provided a window of opportunity to potentially acquire more advanced assets than the Patrys leads, with positive clinical data and at very favourable prices.

### **Summary**

Patrys is acutely aware of the difficult times for technology developers that require continuous access to funding to commercialise biotech products. It has realigned its strategy to reduce its funding risk, whilst at the same time looking to take advantage of opportunities that might exist due to current market conditions with respect to in-licensing.

The current capital raising strengthens the company's financial position and there are several milestones over the next 12 months that will drive the company's share price. These include clinical progress with its lead candidate, PAT-SM6, and partnering announcements, both on the early stage assets and the second lead compound, PAT-LM1, which is also approaching readiness for clinical trials.

Patrys is capitalised at \$27 million.

*Bioshares* recommendation: **Speculative Buy Class B**

**Bioshares**

## CathRx Update

CathRx (CXD: \$0.40) has had its third diagnostic cardiac catheter approved in Europe, the loop catheter, which now gives it the full suit of cardiac catheters used in diagnostic procedures for atrial flutter and atrial fibrillation. Its first treatment catheter, an ablation catheter started clinical trials in Melbourne last week and the company is hopeful of gaining approval for that catheter in Europe in the first quarter of 2010.

### Correction

In last week's edition, we stated that by October 2010, CathRx expected to gain 5.5% penetration of the European market. This figure represents sales of \$20 million a year from a total market worth \$360 million, not a total market of \$90 million. At this point the company anticipates being cash flow positive.

Previously, new entrants into the European catheter market have gained a 5% market share within two years from introducing generic type catheters. This gives CathRx confidence that its novel catheter design will allow its products to comfortably achieve at least a similar penetration level given the improved attributes of its catheters. These include a removable stylet that allows deflection size to be varied, and a strong signal generation.

Sales of the catheters should start to achieve meaningful levels from September this year, now that the company has the full suite of diagnostic catheters approved from which to compete.

*Bioshares* recommendation: **Speculative Buy Class B**

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### Clinical Trials Survey - Updated and Corrected

We have updated our Clinical Trials Survey published in *Bioshares* 318, having post-publication received responses that did not get through via email or were provided as new data.

The Updated Summary Table and the Updated Full Survey Appendix can be found as separate attachments to this edition of *Bioshares*.

### Bioshares Model Portfolio (3 July 2009)

Company	Price (current)	Price added to portfolio	Date added
ASDM	\$0.28	\$0.30	December 2008
QRxPharma	\$0.39	\$0.25	December 2008
Hexima	\$0.37	\$0.60	October 2008
Atcor Medical	\$0.22	\$0.10	October 2008
CathRx	\$0.40	\$0.70	October 2008
Impedimed	\$0.65	\$0.70	August 2008
Mesoblast	\$0.79	\$1.25	August 2008
Cellestis	\$2.99	\$2.27	April 2008
IDT	\$1.45	\$1.90	March 2008
Circadian Technologies	\$0.76	\$1.03	February 2008
Patrys	\$0.13	\$0.50	December 2007
Bionomics	\$0.22	\$0.42	December 2007
Cogstate	\$0.26	\$0.13	November 2007
Sirtex Medical	\$3.47	\$3.90	October 2007
Clinuvel Pharmaceuticals	\$0.31	\$0.66	September 2007
Starpharma Holdings	\$0.33	\$0.37	August 2007
Pharmaxis	\$2.38	\$3.15	August 2007
Universal Biosensors	\$0.94	\$1.23	June 2007
Biota Holdings	\$1.30	\$1.55	March 2007
Probiotec	\$2.05	\$1.12	February 2007
Peplin Inc	\$0.59	\$0.83	January 2007
Chemgenex Pharma.	\$0.63	\$0.38	June 2006
Cytopia	\$0.07	\$0.46	June 2005
Acrux	\$1.11	\$0.83	November 2004
Alchemia	\$0.36	\$0.67	May 2004

### Portfolio Changes – 2 July 2009

#### IN:

No changes

#### OUT:

Arana Therapeutics has been removed from the portfolio at \$1.39 following acquisition by Cephalon.

## The Australian Listed Life Sciences Sector

**June 30, 2009: Capitalisation \$32.4 billion, 125 companies**

### Bioshares Large Cap. Index

Company	Code	Cap. \$m	Principal Activities	Change Quarter	Change Year	Price 30/06/09
CSL	CSL	19,266	Manufactures pharmaceutical products including vaccines and human plasma fractions	-1%	-10%	\$32.15
Resmed Inc.	RMD	3,624	Manufactures diagnostic and treatment equipment for sleeping disordered breathing	-2%	43%	\$5.19
Cochlear	COH	3,234	Manufactures cochlear hearing implants	15%	32%	\$57.70
Sigma Pharmaceuticals	SIP	1,067	Pharmaceutical manufacturing and wholesaling	15%	24%	\$1.22

**Capitalisation Total** 27,191

### Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change Quarter	Change Year	Price 30/06/09
Pharmaxis	PXS	525	Marketing a lung function test, Aridol, and developing the Bronchitol product to treat cystic fibrosis, bronchiectasis and COPD.	42%	59%	\$2.41
Arana Therapeutics	AAH	315	Developing therapeutic products for the treatment cancer and inflammatory diseases. <b>Cephalon has acquired more than 90% of the company and is moving to compulsory acquisition of the remainder.</b>	-1%	25%	\$1.38
Cellestis	CST	290	Marketing a diagnostic for latent tuberculosis	43%	23%	\$3.02
Heartware International	HIN	276	Developing a mechanical heart pump (LVAD). <b>US company Thoratec is acquiring Heartware</b>	-9%	120%	\$0.88
Blackmores	BKL	262	Manufactures vitamin, mineral and herbal supplements and skin & hair products in Australia and N.Z.	30%	-2%	\$16.00
Biota	BTA	209	Commercialised Relenza anti-flu drug and flu diagnostic kits. Now developing an improved version.	99%	55%	\$1.20
Sirtex Medical	SRX	187	The company's core technology uses radioactive particles to irradiate tumours in the liver. Approved for use in most major regions.	46%	12%	\$3.35
ChemGenex Pharmaceuticals	CXS	184	Developer of the drug Omacetaxine, which has potential to treat CML patients that develop the T315i mutation.	25%	-42%	\$0.65
Acrux	ACR	181	A Pooled Dev. Fund commercialising a drug delivery technology that uses sunscreen penetration enhancers to aid transdermal drug delivery.	110%	-7%	\$1.14
Peplin	PLI	160	Developing a plant derived compound, PEP005, to treat non-melanocytic skin cancers.	-13%	33%	\$0.52
Universal Biosensors	UBI	147	Development, manufacture and commercialisation of a range of in vitro diagnostic tests for point-of-care use.	58%	10%	\$0.94
API	API	147	Pharmaceutical wholesaler	46%	-22%	\$0.57
Mesoblast	MSB	113	Developing therapies based on mesenchymal pre-cursor stem cells, with applications in cartilage regrowth and heart and bone repair.	-2%	-9%	\$0.83

Company	Code	Cap. \$m	Principal Activities	Change Quarter	Change Year	Price 30/06/09
Scigen	SIE	110	Developer and manufacturer of biopharmaceuticals. Company is based in Singapore and was spun out of Sonic Healthcare in 2002.	376%	233%	\$0.20
Probiotec	PBP	99	Manufacturer, marketer and distributor of a range of over the counter (OTC) pharmaceuticals, complementary medicines and speciality ingredients	36%	56%	\$2.10
Phosphagenics	POH	90	Commercialising a drug delivery technology improving the delivery of vitamin E and existing pharmaceutical products through phosphorylation.	-4%	35%	\$0.14
Clinuvel Pharmaceuticals	CUV	85	Developing an analogue of the alpha-MSH protein as a photo-protective agent	37%	-10%	\$0.28
Nanosonics	NAN	79	Developing a novel disinfection technology. The first product is a point of care ultrasound probe disinfection unit.	25%	100%	\$0.40
Avexa	AVX	78	Developing antiviral therapies for HIV and Hepatitis B and a novel antibiotic.	22%	-63%	\$0.12
Starpharma Holdings	SPL	70	Developer of pharmaceutical applications of chemical scaffolds known as 'dendrimers'.	19%	24%	\$0.34
Impedimed	IPD	70	Develops devices that aid the diagnosis of secondary lymphoedema, muscle wasting and other disorders	-9%	-18%	\$0.64
Unilife Medical Solutions	UNI	68	Developer of retractable syringes.	17%	-33%	\$0.31
Institute of Drug Technology	IDT	62	Manufacturer of pharmaceutical ingredients to international standards for major pharmaceutical groups.	-8%	-22%	\$1.44
Alchemia	ACL	57	Commercialising new solid phase carbohydrate synthesis technology. First product, a synthetic heparin, to be launched by Dr Reddy's in 2009/10.	20%	18%	\$0.36
Rockeby Biomed	RBY	56	Research, development and marketing of rapid testing technologies for infectious diseases in animals and humans.	39%	213%	\$0.03
Bionomics	BNO	53	Developing drugs to treat cancer and CNS diseases, and has also developed a gene diagnostic for epilepsy.	-5%	-38%	\$0.21
Novogen	NRT	53	Developing analogues of naturally occurring phenolic hormones to treat cancers and other conditions.	4%	-55%	\$0.52
Progen Pharmaceuticals	PGL	51	A developer of cancer therapeutics	11%	-38%	\$0.85
Living Cell Technologies	LCT	43	Developing cell therapies for diabetes, haemophilia and Huntington's disease.	64%	-27%	\$0.18
pSiVida	PVA	37	Developing drug delivery technologies, with a special focus on ophthalmic applications	73%	-98%	\$2.01
Clovercorp	CLV	36	Development and production of omega-3 food additives from tuna oil.	19%	34%	\$0.22
Circadian Technologies	CIR	33	Developing drugs, including antibodies, around the VEGF C and VEGF D targets.	6%	-17%	\$0.73

Company	Code	Cap. \$m	Principal Activities	Change Quarter	Change Year	Price 30/06/09
Hexima	HXL	32	Research and development of genetic technologies that can enhance the resistance of crops to insects and fungal pathogens.	3%	-50%	\$0.35
Ascent PharmaHealth	APH	32	A generic pharmaceutical manufacturer and distributor.	-13%	-24%	\$0.13
Cordlife	CBB	31	Rolling out tissue banking services in Australia and Asia	6%	6%	\$0.34
USCOM	UCM	31	Marketing a non-invasive heart output function monitor.	12%	316%	\$0.77
QRxPharma	QRX	29	Developing a 'dual opioid' drug to treat moderate to severe pain.	39%	-34%	\$0.39
CathRx	CXD	28	Developing novel modular cardiac catheters for the diagnosis and treatment of abnormal heart rhythms	29%	-50%	\$0.40
Genera Biosystems	GBI	27	Develops, manufactures and distributes advanced molecular diagnostic tests, with a particular focus on women's health.	36%	83%	\$0.53
Southern Dental Industries	SDI	27	Manufacture & distribution of amalgam (fillings) & other dental materials and product R&D.	-10%	32%	\$0.23
Prana Biotechnology	PBT	25	Developing drugs to treat CNS diseases such as Alzheimer's and Parkinson's	-34%	-70%	\$0.13
Ventracor	VCR	25	Under administration.	0%	-67%	\$0.08
Brain Resource Corp	BRC	25	Development and commercialisation of functional brain analysis techniques.	35%	-18%	\$0.27
Compumedics	CMP	22	Develops, manufactures and markets sleep diagnostic and monitoring equipment.	0%	-7%	\$0.14
Patrys	PAB	21	Developing human antibody therapies for the treatment of lung, pancreatic, gastric and colon cancers	160%	-57%	\$0.13
Antisense Therapeutics	ANP	21	Developing antisense compounds to treat multiple sclerosis and acromegaly	12%	-50%	\$0.04
Prima Biomed	PRR	21	Developing the CVac immunotherapy.	163%	400%	\$0.05
Solagran	SLA	21	Developing complementary medical compounds called Bioeffectives.	11%	-72%	\$0.09
KarmelSonix	KSX	21	Respiratory and pulmonary devices company	72%	-57%	\$0.04
Atcor Medical	ACG	19	Markets the SphygmoCor device, a noninvasive technology that provides information regarding the functioning of the cardiovascular system	0%	90%	\$0.19
Bone Medical	BNE	19	Developing treatments for bone and joint degenerative diseases such as arthritis and osteoporosis.	-20%	-17%	\$0.20



Company	Code	Cap. \$m	Principal Activities	Change Quarter	Change Year	Price 30/06/09
Polartech	PLT	19	Commercialising instruments to diagnose pre-cancer and cancer, in particular cervical cancer and melanomas.	-35%	-46%	\$0.07
Somnomed	SOM	18	Commercialising an oral device for the treatment of sleep apnea and snoring.	28%	-28%	\$0.02
Acuvax	ACU	17	Holds interests in various therapeutics and vaccines	-3%	-66%	\$0.03
Genetic Technologies	GTG	16	Provides DNA paternity testing services and holds broad patents relating to the use of non-coding DNA.	-10%	-50%	\$0.05
Cogstate	CGS	16	Marketing cognitive performance diagnostic products.	2%	85%	\$0.24
Sunshine Heart	SHC	15	Developing the C-Pulse heart assist device. The C-Pulse wraps around and compresses the aorta, increasing blood flow through the body.	-29%	-9%	\$0.05
Fermiscan Holdings	FER	14	Commercialising the use of x-ray diffraction to aid in the screening of breast cancer.	-44%	-86%	\$0.10
Cyclopharm	CYC	14	A nuclear medicine company that markets the Technegas lung imaging system	17%	-54%	\$0.08
Halcygen	HGN	14	Developing an improved dosing anti-fungal drug, Subazole, based on drug delivery technology developed by Mayne Pharma.	-10%	-53%	\$0.18
Fluorotechnics	FLS	13	Development and sale of scientific equipment and consumables, including fluorescent stains.	-50%	0%	\$0.50
Tissue Therapies	TIS	13	Developing the VitroGro product for ulcer and wound healing	-26%	68%	\$0.16
Labtech Systems	LBT	12	Developing the MicroStreak technology for the automation of microbiology laboratory processing	-7%	-38%	\$0.13
Phylogica	PYC	12	Developing phylomer (protein fragment shapes) compound libraries for use in human therapeutics.	10%	-31%	\$0.06
Ellex Medical Lasers	ELX	11	Develops, manufactures and markets solid state ophthalmic lasers used to treat secondary cataracts and retinal disorders.	-24%	-55%	\$0.13
ITL	ITD	10	Develops and distributes medical devices such as safety equipment to prevent needle stick injuries and sterile preparation kits.	5%	-21%	\$0.08
Viralitics	VLA	10	Developing a cancer treatment based on the application of viruses (oncolytic virus technology).	-11%	-34%	\$0.03
Advanced Surgical Design & Manufacture	AMT	10	A developer and manufacturer of prosthetic implants and medical devices	-20%	-24%	\$0.28
Imugene	IMU	10	Developing animal products such as antibiotic alternatives used in the stock feed industry using a vaccine and gene therapy approach	-6%	-3%	\$0.07
Vita Life Sciences	VSC	10	Development, manufacture and distribution of prescription and OTC medicines as well as complementary and alternative medicines, dietary supplements and health foods.	150%	0%	\$0.20

Company	Code	Cap. \$m	Principal Activities	Change Quarter	Change Year	Price 30/06/09
Austofix	AYX	10	Manufacturer and developer of orthopaedic fixation devices	1%	-11%	\$0.85
Avita Medical	AVH	9	Markets ReCell, a skin repair product	33%	1%	\$0.10
Eastland Medical Systems	EMS	9	Developing retractable syringes, ClipOn and VetLock, and anti-malarial product ArTiMist.	-33%	-81%	\$0.03
Biotron	BIT	9	Developing a compound to treat HCV	6%	-43%	\$0.09
Benitec	BLT	9	R&D company focusing on gene silencing, specifically DNA delivered RNAi, technology.	14%	-67%	\$0.03
BioProspect	BPO	8	Developing insecticides from naturally occurring molecules	13%	-6%	\$0.02
Metabolic Pharmaceuticals	MBP	8	Holds a 60% stake in PolyNovo, a polymer chemistry company.	17%	-36%	\$0.03
Analytica	ALT	8	A medical devices company that has developed a retractable syringe	-44%	-4%	\$0.02
Stirling Products	STI	8	Acquiring Milpharma Pty Ltd, a pharmaceutical manufacturing business.	17%	-72%	\$0.01
Agenix	AGX	7	Currently suspended from trading. Developing Thromboview, a blood clot diagnostic imaging agent.	0%	-54%	\$0.02
Medical Developments	MVP	7	Commercialising the Penthrax inhaler for temporary pain relief. Used widely in ambulances across Australia.	-32%	-59%	\$0.14
Biodiem	BDM	7	Focused on the development of LAIV influenza vaccines	-23%	-11%	\$0.09
Tyrian Diagnostics	TDX	6	Developer of diagnostic products.	4%	-78%	\$0.03
IM Medical	IMI	6	Markets the Intelliheart Cardiovascular Diagnostic System. Now acquiring a radiology and imaging business.	100%	-75%	\$0.004
Cytobia	CYT	6	Small molecule drug development company with a focus on kinase targets. Lead program, CYT997 is at the Phase II level of development.	-44%	-64%	\$0.07
Neuren Pharmaceuticals	NEU	6	Developing neuroprotective therapeutics	380%	-78%	\$0.02
Medigard	MGZ	6	Developed retractable syringe technology and other safety medical products.	6%	55%	\$0.09
BioMD	BOD	6	Developing a tissue engineering technology, termed ADAPT	0%	-20%	\$0.04
Virax Holdings	VHL	6	Developing a therapeutic and prophylactic vaccine for HIV.	35%	30%	\$0.04

Company	Code	Cap. \$m	Principal Activities	Change Quarter	Change Year	Price 30/06/09
Occupational & Medical Innovations	OMI	5	Developing safety devices used in the healthcare industry, including safety syringes.	-4%	-34%	\$0.13
PharmAust	PAA	5	Operates Epichem and PharmAust Manufacturing, which provide products and services to biotech and pharma companies	5%	-9%	\$0.02
Resonance Health	RHT	5	Marketing the FerriScan technology, a non-invasive tool for measuring liver iron levels	8%	40%	\$0.01
Optiscan Imaging	OIL	5	Manufacture of confocal microscopes for clinical diagnosis	-5%	-83%	\$0.04
Medic Vision	MVH	5	Marketing training software and hardware for surgeons.	0%	-31%	\$0.05
Cryosite	CTE	5	Provides specialised storage services, especially for umbilical cord blood	-5%	-33%	\$0.10
Actinogen	ACW	3.8	Early stage developer of antibiotics that show activity against MRSA and VRE bacteria	111%	58%	\$0.10
Imuron	IMC	3.8	Specialises in R&D of hyper-immune bovine colostrum products for therapeutic use in animals and humans.	-48%	-50%	\$0.03
Medical Therapies	MTY	3.4	Developing therapies that target the midkine protein	80%	-67%	\$0.02
Incitive	ICV	3.2	Has acquired V-Patch Medical Systems.	80%	-82%	\$0.01
OBJ	OBJ	3.0	Developing transdermal drug delivery technologies	-20%	-71%	\$0.00
Colltech	CAU	2.9	Has developed a novel technology for the extraction of collagen from sheepskins.	11%	-55%	\$0.01
Healthlinx	HTX	2.7	Detecting novel functions of known and new protein and peptides for therapeutic purposes.	-52%	-60%	\$0.03
Narhex Life Sciences	NLS	2.6	Currently suspended from trading. Developed a low cost protease inhibitor for treatment of HIV in Chinese market.	0%	0%	\$0.02
Atos Wellness	ATW	2.4	Manages wellness centres in Singapore, Malaysia, India, Australia, Austria and Germany	-68%	-85%	\$0.01
Biosignal	BOS	2.4	Assessing new business opportunities	186%	-78%	\$0.02
Dia-B Tech	DIA	2.3	Acquiring Pallane Medical Pty Ltd, which is developing the RETCIFTM virology diagnostic test. Currently suspended from trading.	17%	-53%	\$0.01
Giaconda	GIA	2.3	Developed novel (patented) combinations of registered drugs for the treatment of gastrointestinal disorders.	-56%	-89%	\$0.03
Helicon Group	HCG	2.3	Exploiting niche market opportunities for medical products in China and other Asian markets.	69%	-58%	\$0.03

Company	Code	Cap. \$m	Principal Activities	Change Quarter	Change Year	Price 30/06/09
Norwood Abbey	NAL	2.2	Developing needle-free and micro needle drug delivery technologies	0%	-65%	\$0.01
NeuroDiscovery	NDL	2.1	Provides electrophysiology services to biotech and pharma, and is developing range of compounds for treating neuropathic pain.	-8%	-59%	\$0.04
Probiomics	PCC	2.1	Proprietary ownership of a unique probiotic strain	40%	-46%	\$0.01
Telesso Technologies	TEO	1.9	Funding a trial of US company Vascular Pathways' guidewire assisted peripheral catheter, with view to acquisition.	45%	-95%	\$0.03
Anteo Diagnostics	ADO	1.8	Developer of a biological coatings technology that can be applied to immunoassays, bio-separations, drug delivery and other medical devices.	-33%	-75%	\$0.01
Biopharmica	BPH	1.6	Managing cancer treatment and detection and bacterial DNA diagnostic projects. Portfolio investment approach.	-27%	-52%	\$0.02
Genesis Research & Development Corp.	GEN	1.4	Developing RNAi based therapeutics. Interests in agricultural biotechnologies.	-17%	-44%	\$0.05
Avastra Sleep Centres	AVS	1.4	Consolidating sleep disorder testing centres in the USA	-15%	-71%	\$0.01
Freedom Eye	FYI	0.9	Assessing new business opportunities	-40%	-73%	\$0.00
Select Vaccines	SLT	0.8	Development and commercialisation of infectious diseases diagnostics, vaccines and therapeutics for hepatitis-related diseases	-25%	-75%	\$0.00
NuSep	NSP	0.1	Currently suspended from trading. Manufacture and sale of protein separations technologies.	0%	-58%	\$0.05

**Capitalisation Total** 5,179

#### Listed Biotech Investment Funds

Company	Code	Cap. \$m	Principal Activities	Change Quarter	Change Year	Price 30/06/09
Biotech Capital	BTC	13	A Pooled Development Fund investing in unlisted Australian biotech companies and in public biotechs, including Alchemia, Starpharma, Neurodiscovery and Phylogica.	7%	-14%	\$0.16
Xceed Capital	XCD	2	Holds a 25.5% stake Polynovo and owns 100% of Boron Molecular, a chemistry services company.	-29%	-71%	\$0.02

**Capitalisation Total** 13

**Capitalisation Total - All Indexes** 32,383

**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**

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