

**In this edition...**

After two years of growth for the Australian small-to-mid cap biotech sector, 2011 saw the Bioshares Index fall 24.4%. This didn't stop and maybe attracted investors to the space with \$630 million raised over the year, \$232.6 million of that in the last quarter.

**The Editors**

**Companies Covered: Quarterly Review**

# Bioshares

30 December 2011  
Edition 439

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

## Quarterly Review

### Investors Pour \$630 Million into Sector as Biotech Prices Fall 24.4% for 2011

The **Bioshares Index** weakened further in the December quarter, falling by 6.6% from the previous quarter. In that previous quarter a fall of 14% was recorded. Softness in biotech asset prices has been seen advantageous by some investors who have supported a larger quarterly inflow of secondary financings, with \$232.6 million raised in the December quarter. Over 2011 the Bioshares Index fell 24.4%.

The **Bioshares Large Cap Index**, which takes in CSL, Resmed, Cochlear and Sigma Pharmaceuticals, notched a 5.6% gain for the December quarter, partially compensating for a dramatic slump in the September quarter. Shares in Cochlear lost 36% in the September quarter the company announced a recall on its new cochlear implant, the Nucleus CI500. However, Cochlear shares staged a recovery, climbing 34% to close at \$64.00. CSL shares gained 8% in the December quarter aided by a share buy back program. Over 2011 the Bioshares Large Cap Index lost 15.8%.

The **Nasdaq Biotech Index** recovered almost all the territory it lost in the September quarter by locking in an 11.9% gain in the December quarter. The Nasdaq Biotech Index posted an 11.8% increase over 2011.

The **ASX 300 Index** was largely steady in the December quarter, improving by a modest 1.1%. However, this index fell 14.9% over the year from 4,760 to finish at 4052.

### Outperformers – Quarter

Amongst the 102 stocks monitored by *Bioshares*, Antisense Therapeutics (2.3 cents) recorded the largest share price increase in the September quarter, of 156%. The company successfully completed a Phase I safety trial of its antisense compound ATL1103, which has the potential to treat the growth disorder acromegaly. Antisense is capitalised at \$23 million.

Perth-based Actinogen (5 cents) (Cap: \$4 million) recorded a 127% share price increase, followed by Consegna Group (4.2 cents) with a 121% increase. Actinogen conducts discovery research on actinomycetes (soil bacteria) sourced from Western Australia. Actinomycetes may have potential for treating cancers, as antifungal agents, as antibiotics, for plastic and paper digestion and for treating diseased lawns.

*Cont'd over*

### Index performances by Quarter

	Q3 2010	Q4 2010	Q1 2011	Q2 2011	Q3 2011	Q4 2011
Bioshares Index	1.9%	19.3%	3.9%	-9.4%	-14.0%	-6.6%
Nasdaq Biotech Index	11.9%	8.4%	7.3%	6.5%	-12.5%	11.9%
Bioshares Large Cap Index	-0.9%	8.7%	-3.1%	-7.2%	-11.3%	5.6%
ASX 300 Index	6.8%	3.8%	1.9%	-5.0%	-13.1%	1.1%

	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 - May '11)	45.4%
Year 11 now commenced	-27.7%
<b>Cumulative Gain</b>	<b>204%</b>
<b>Av. annual gain (10 yrs)</b>	<b>21.2%</b>

*Bioshares* is published by Blake Industry & Market Analysis Pty Ltd.

Blake Industry & Market Analysis Pty Ltd  
ACN 085 334 292  
PO Box 193  
Richmond Vic 3121  
AFS Licence  
No. 258032

Enquiries for *Bioshares*

Ph: (03) 9326 5382  
Fax: (03) 9329 3350  
Email: info@bioshares.com.au

**David Blake**

Ph: (03) 9326 5382  
Email: blake@bioshares.com.au

**Mark Pachacz**

Ph: 03 9348 9317  
Email: pachacz@bioshares.com.au

Individual Subscriptions (48 issues/year)

**\$375** (Inc.GST)  
Edition Number 439 (30 December 2011)  
ISSN 1443-850X

Copyright 2011 Blake Industry and Market Analysis Pty Ltd. ALL RIGHTS RESERVED.  
Secondary electronic transmission, photocopying, reproduction or quotation is strictly prohibited without written consent of the publisher.

Consegna Group (Cap: \$24 million) is developing a suite of medical and health assets including a nasal dilation product, the Vibrovein vibrating needle technology, a buccal (lozenge) drug delivery technology and a magnetised nanoparticle cancer treatment technology. During the quarter the company appointed Brendan Fleiter, a former CEO of Crazy Johns and a current director of Australia Post, as a director.

Ignoring Tyrian Diagnostics which recorded a 100% gain over the quarter, but is now in a restructuring phase, the next stock with a significant quarterly gain was Neuren Pharmaceuticals (2.7 cents). Neuren stock increased by 80%. Neuren is part way through a Phase II trial of its peptide in patients with traumatic brain injury.

Amongst larger cap stocks (> \$100 million), Pharmaxis (\$1.04) (Cap. \$318 million) registered a 43% increase after finally receiving a positive opinion for Bronchitol as a cystic fibrosis treatment by the European drug regulator, Phosphagenics (21 cents) (Cap. \$214 million) posted a 40% share price increase as it progressed development of its TPM/Oxycodone pain patch and QRxPharma (\$1.51) (Cap. \$218 million) saw its shares increase by 28% as the company struck a US strategic partnership for MoxDuo IR with global generic drug firm Actavis.

**Underperformers – Quarter**

pSivida (\$1.25) shares lost 72% in the September quarter following the receipt by its licensee Alimera Sciences of a Complete Response letter, declaring non-approval from the FDA for its depot drug for diabetic macular edema, Illuvien.

Bone Medical’s (0.5 cents) shares fell 69% and CBio’s (6.3 cents)

stock decreased by 68%. CBio has been developing Xtoll (recombinant chaperonin 10) as a treatment for rheumatoid arthritis. This drug candidate failed to meet its primary endpoint in a Phase IIa trial, with the trial, as argued by some, as having been conducted using an ineffective dose. Ongoing problems at the board level saw changes to the board and management take place during the quarter. Founding director Stephen Jones, who became chairman in 2000, resigned in November this year.

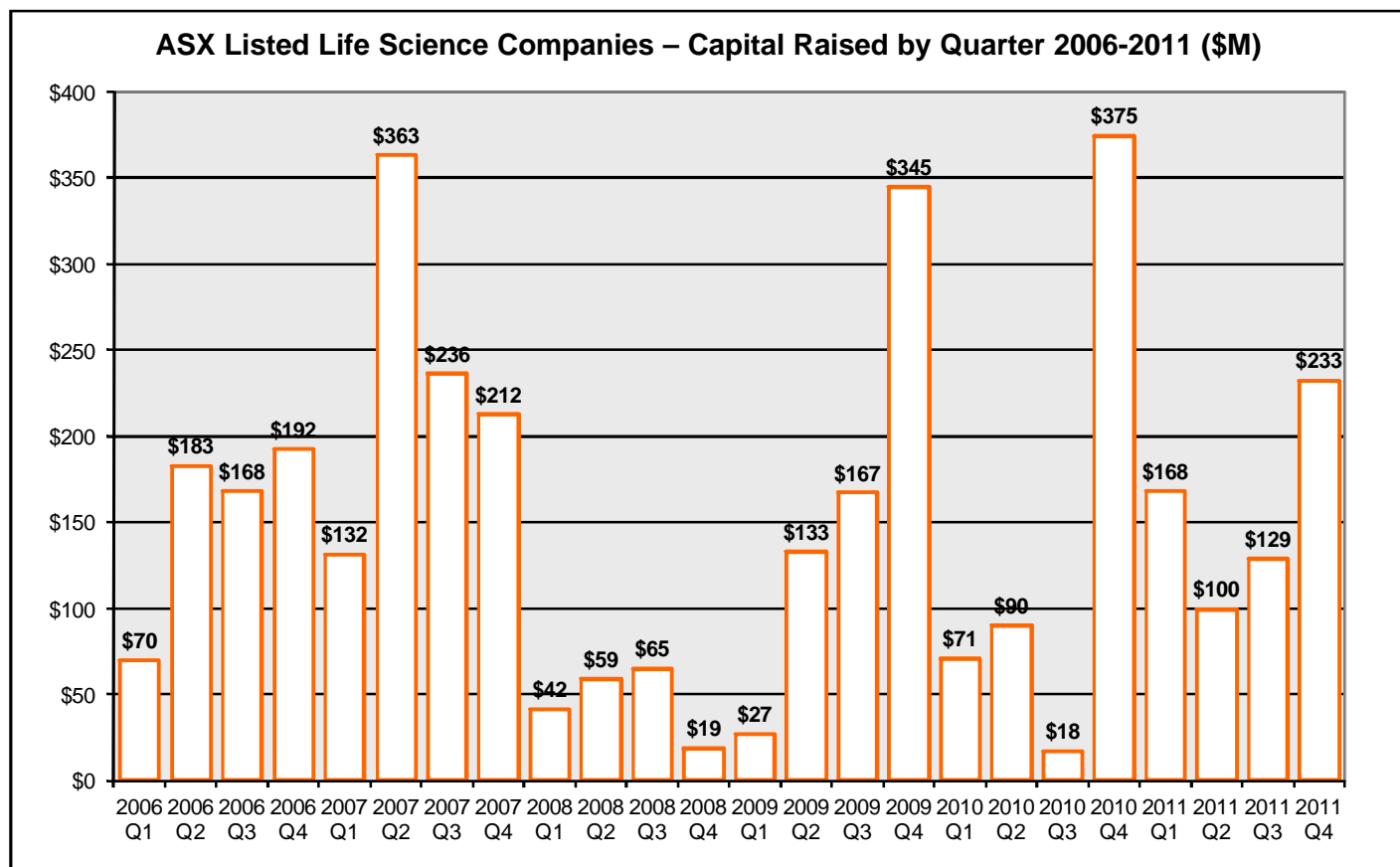
Somewhat remarkably, the company raised \$13 million during the quarter and repaid a \$2 million outstanding convertible note. An option held by Novo Nordisk over Xtoll was allowed to lapse in December. CBio’s net cash provided by financing activities for the period FY2007-FY2011 totalled \$52 million.

USCOM (6.7 cents) shares lost 54%, Isonoa (0.7 cents) shares fell 53%, and Virax Holdings (1 cent) fell 44% over the quarter.

From the group of larger cap stocks, shares in REVA Medical (62 cents) (Cap: \$218 million) decreased by 44%. US-based REVA Medical listed on the ASX in December 2010, raising \$85 million. Its 50 patient pilot study was scheduled for completion in the 2011 Q3 but did not start until 2011 Q4.

Unilife (51 cents) (Cap: \$216 million), a syringe and pump manufacturer, saw its stock fall by 29% in the September quarter. The company raised \$US35.9 million to bolster its September quarter cash and equivalent holdings of US\$17 million.

*Cont'd over*



**Capital Raisings**

ASX listed companies raised \$232.6 million in fresh capital in the December quarter, a figure significantly greater than the \$129 million raised in the September quarter.

Pharmaxis raised \$80 million through a 1:3 non-renounceable rights issue that was fully underwritten. The funds were raised to increase its cash reserves and strengthen its balance sheet in advance of its roll out of Bronchitol in Europe, which received a positive opinion from the CHMP in October, 2011. Pharmaxis has now raised, since its inception in 1999, funds in excess of \$344 million.

Starpharma raised \$32 million through a placement and \$3 million through a share purchase plan, providing funds to support the Phase III clinical program for Vivagel as a potential treatment for bacterial vaginosis. UK investor M&G Investments invested \$20 million through the placement and now has a 7% stake.

Phosphagenics secured \$24.1 million through placements and a further \$3 million from an SPP, primarily to support the clinical development of its pain product TPM/Oxycodone in its new optimised patch format developed in collaboration with 3M.

Towards the end the quarter, Alchemia conducted a placement which raised \$15 million and an SPP which raised \$5 million.

Some SPPs were heavily oversubscribed with Starpharma returning \$9 million in over-subscriptions (retaining \$3 million), Phosphagenics returning \$11 million in over-subscriptions (retaining \$3 million) and Alchemia returning \$7 million in over-subscriptions (retaining \$5 million).

A distinctive feature of capital raisings in the December quarter was that five out of six rights issues were either partially or fully underwritten. This was indicative of a high level of confidence by underwriting brokers in the companies for which they were raising funds.

**Over 2011**

For 2011 as whole, \$630 million was raised by ASX listed life science companies from domestic and international investors, 14% more than for CY2010.

**New Listings**

There were three new life science listings on the ASX in 2011 with Canadian company Bioniche completing a secondary listing in January (raising \$12.5 million), Bluechiip listing in June (raising \$3 million) and GI Dynamics listing in September (raising \$80 million).

Only two companies of Australian origin have listed since the global financial markets crisis of 2008, those being CBio in Febru-

**IPOs in 2011**

Company	Code	Funds Raised (M)	Issue Price	Price 31/12/11	Gain/loss	First Traded
Bioniche	BNC	\$12.5	\$1.50	\$0.65	-57%	27/01/2011
Bluechiip	BCT	\$3.0	\$0.25	\$0.23	-8%	9/06/2011
GI Dynamics	GID	\$80.0	\$1.10	\$0.93	-15%	7/09/2011

ary 2010 and Bluechiip this year, a clear indication of weak appetite that capital markets have had for early stage life science seeking fresh equity investors.

A funding squeeze for private biotech companies coupled to a defunct IPO market is likely to lead to a further thinning in the ranks of mid-sized Australian biotech's in the future.

**Highlights of 2011**

Perhaps the single most important event in the calendar year 2011 was the \$100 million special dividend paid by Acrux to shareholders in April, which followed receipt of milestone payments by Axiron licensee Eli Lilly & Co. This dividend was without precedent in Australian biotech.

Acrux's Phase III development plan of Axiron which it funded with a \$22.5 million capital raising in 2007 is now a textbook play for Australian biotechs, especially those working on improvements to approved molecules and can be channelled through the FDA's 505(b)2 regulatory pathway.

The Acrux playbook can be clearly seen at work in the business plans of Starpharma and Phosphagenics among others, which have marked out high-return, medium risk development plans with a medium term payoff.

Acrux has now had three products approved by one or more of the major regulatory authorities with its most recent product Recuvyra (transdermal fentanyl for dogs) approved by the EMA in October. This is added to Axiron (FDA approved) and Evamist/Ellavie (FDA/EMA approved).

QRxPharma, another company utilising the 505(b)2 pathway, filed a New Drug Application with the FDA during the course of 2011 for its pain drug MoxDuo IR. Its signing of a binding Letter of Intent with generic drug company Actavis in the closing stages of 2011 would appear to herald a new level of both maturity and creativity in deal structuring by ASX listed biotechs. Also demonstrating creativity and independence in respect of product commercialisation was Tissue Therapies which has elected to manage manufacturing and sales contractors for its impending roll out of its wound healing product VitroGro in selected EU territories.

Another highlight for 2011 was the acquisition of TB diagnostics company Cellestis by Dutch firm Qiagen for \$370 million, following an increased bid price from \$3.55 a share to \$3.80 a share.

**Regulatory Decisions**

Decisions by regulatory authorities impacted unfavourably on Pharmaxis, Mayne Pharma and pSivida during 2011. Pharmaxis first received a 'negative trend vote' for Bronchitol from the EMA's CHMP. It then lodged an appeal seeking a re-examination was successful with this attempt with the CHMP granting a positive opinion (with some qualifications) in late October.

Mayne Pharma's submission with the EMA for its SUBACAP antifungal drug was placed in doubt with the validity of its key trial

*Cont'd on page 5*

## Capital Raisings by Australian-listed Biotech Companies Q4 2011

Company	Investment Manager or Investor	Type of raising	Funds raised (\$M)
Pharmaxis	Merrill Lynch/Wilson HTM	Non-renounceable Rights Issue (u/w)	\$80.00
Unilife	Jefferies & Company/ Leerink Sw ann/ Griffin Securities	Placement	\$35.46
Starpharma	Bell Potter/Shaw Corporate	Placement	\$32.00
Starpharma		SPP	\$3.00
Phosphagenics	Bell Potter/RBS Morgans	Placement	\$24.10
Phosphagenics	Bell Potter/RBS Morgans	SPP	\$3.00
Alchemia	RBS Morgans/Ladenburg Thalmann	Placement	\$15.00
Alchemia	RBS Morgans/Ladenburg Thalmann	SPP	\$5.00
CBio	Zheng He Securities Pty Ltd	Rights Issue (u/w )	\$10.80
CBio	Zheng He Securities Pty Ltd	Placement	\$2.35
Viralytics	Patersons Securities	SPP (p/u/w)	\$4.70
Isonoa	Patersons Securities	Rights Issue (u/w )	\$4.60
Patrys	Lodge Corporate	Placement	\$3.40
Phylogica	RBS Morgans	Placement	\$2.15
Cyclopharm	CVC Managers Pty Ltd	Rights Issue (u/w )	\$2.10
CathRx	Cybotel Industries Sdn Bhd	Rights Issue (u/w )	\$2.00
Austofix		Placement/s	\$1.00
Immuron		Rights Issue	\$0.53
Bone Medical	La Jolla Cove Investors Inc	Convertible Note	\$0.50
Cellmid		Rights Issue	\$0.48
Healthlinx	La Jolla Cove Investors Inc	Convertible Note	\$0.25
Probiomics	Veritas Securities/Taylor Collisons	Placement	\$0.20
<b>Total raised in Q4 2011</b>			<b>\$232.6</b>
<b>Total raised in Q3 2011</b>			<b>\$128.7</b>
<b>Total raised in Q2 2011</b>			<b>\$99.8</b>
<b>Total raised in Q1 2011</b>			<b>\$168.2</b>
<b>Total - 2011</b>			<b>\$629.4</b>

## Selected Clinical Trial Developments - December Quarter 2011

Company	Code	Product/Therapeutic	Event
Antisense Therapeutics	ANP	ATL1103 (antisense to IGF-1) (acromegaly)	Completed Phase I trial in healthy adult males. Crmpd w as safe and w ell tolerated - 7% reduction in mean IGF-I levels versus baseline at day 21.
Biota	BTA	BTA798 (human rhinovirus infection)	Admitted last subjects to Phase II b study in 300 pts. No adverse events or safety related episodes.
Biotron	BIT	BIT225 (HCV)	Completed Phase IIa trial; 24 pts. In combination w ith ribavarin. Pts on 400mg dose recorded a ~1 log decrease in virus. 87% pts virus free at 3 months.
Cyclopharm	CYC	Technegas (lung ventilation imaging agent) (Pulmonary embolism)	Received FDA approval for 750 pt Phase III trial.
Neuren Pharmaceuticals	NEU	NNZ-2566 (IV) (Traumatic brain injury)	Completed Phase II Cohort 2, intermediate dose infusion (3 mg/kg/hr) - no SAEs reported
Pharmaxis	PXS	Bronchitol (bronchiectasis)	Completed recruitment in Phase III trial of 474 patients w ith bronchiectasis
Phosphagenics	POH	TPMOxycodone (Patch) (chronic pain)	Commenced Phase I trial, 65 pts, evaluating pk, tolerability and safety after both a single 3 day and repeat applications and multiple 3 day applications.
REVA Medical	RVA	ReZolve (symptomatic coronary artery disease)	Commenced enrollment in RESTORE pilot study trial of its ReZolve bioresorbable coronary scaffold; 50 pts
Tissue Therapies	TIS	VitroGro (venous ulcers)	Released final results of trial in 44 pts; 34% completely healed; 43% more than 90% healed.
Viralytics	VLA	CAVATAK (oncolytic immunotherapy)	Commenced site recruitment in US Phase II trial

Company	Price (current)	Price added to portfolio	Date added	<i>Portfolio Changes – 30 December 2011</i>
QRxPharma	\$1.51	\$1.66	October 2011	<b>IN:</b> No changes
Mayne Pharma Group	\$0.390	\$0.435	September 2011	
Genetic Technologies	\$0.11	\$0.18	August 2011	<b>OUT:</b> No Changes
AcruX	\$2.87	\$3.37	June 2011	
Bioniche	\$0.65	\$1.35	March 2011	
Somnomed	\$0.91	\$0.94	January 2011	
Phylogica	\$0.040	\$0.053	September 2010	
Biota Holdings	\$0.80	\$1.09	May 2010	
Tissue Therapies	\$0.39	\$0.21	January 2010	
Atcor Medical	\$0.08	\$0.10	October 2008	
Impedimed	\$0.53	\$0.70	August 2008	
Bionomics	\$0.59	\$0.42	December 2007	
Cogstate	\$0.24	\$0.13	November 2007	
Sirtex Medical	\$4.48	\$3.90	October 2007	
Clinuvel Pharmaceuticals	\$1.55	\$6.60	September 2007	
Pharmaxis	\$1.04	\$3.15	August 2007	
Universal Biosensors	\$0.75	\$1.23	June 2007	
Alchemia	\$0.300	\$0.67	May 2004	

questioned because the comparator drug in the trial, Sporanox, was found to be no better than placebo leading the EMA to argue that “No conclusions on the non-inferiority of SUBACAP compared to the reference drug could be made.”

And as mentioned previously, pSivida licensee Alimera Sciences had its submission for Illuvien knocked back the FDA.

### Outlook

The recurring theme in Australian biotech is that investment decisions are largely conditioned by the stage of development at which a company finds itself. Hence, stock-picking rather than thematic investment is the dominant approach.

Events to monitor in 2012 will be Pharmaxis’ filing of an NDA for Bronchitol with the FDA in H1 2012, which will then throw up an approval time line for Bronchitol in the US.

QRxPharma has been given the date of June 25, 2012 as the deadline for the FDA to decide on MoxDuo IR. QRxPharma has the potential to be one of the very strong performers in 2012, given the potential for stock price uplift in anticipation of approval and because other licensing possibilities remain.

More imminently, Bionomics may sign a licensing deal for its anxiety management compound BNC210.

AcruX’s future exists as a puzzle for investors with the company reducing its head count and scaling back its development programs. If the company is not acquired, it may function merely as a royalty revenues company.

A merger between Hunter Immunology and Probiomics is underway, which could be construed as an IPO for Hunter although the scientific links between the two companies go back many years.

Mesoblast (Cap: \$1.9billion), which is now a biotech company with a substantial international stature, is likely to provide a strong flow of news from clinical trials underway and planned, including in diabetes. The prospects for the company to uncover new treatment possibilities for its adult mesenchymal precursor stem cells is also very high.

The Australian life sciences sector has weathered very demanding conditions since 2008. There have been casualties along the way, but statistically speaking there will, in a high risk high technology sector, always be more failures than successes.

The premier risk for investors remains regulatory risk, where inconsistent and confusing actions stand to thwart the introduction of new medicines and devices and unnecessarily dissipate investors funds.

Investors must also pay attention to the clock when investing in biotech assets and assess investment prospects according to patent terms, emerging competitor products and most importantly changes to medical practise. Companies that work quickly to bring products to clear decision points will be held in higher regard by the market than others.

**Bioshares**

### Correction

In *Bioshares* 438 in our 2012 Stock Picks feature we omitted the capitalisation and share price change for UBI.

The relevant sentence should read:  
‘Universal Biosensors is down 53% from its 12 month high and is now capitalized at only \$122 million.’

## The Australian Listed Life Sciences Sector

**December 31, 2011: Capitalisation \$32.8 billion, 102 companies**

### Bioshares Large Cap. Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/11
CSL	CSL	16,649	Manufactures pharmaceutical products including vaccines and human plasma fractions	8%	-12%	\$32.00
Resmed Inc.	RMD	3,633	Manufactures diagnostic and treatment equipment for sleeping disordered breathing	-16%	-29%	\$2.47
Cochlear	COH	3,528	Manufactures cochlear hearing implants	34%	-23%	\$62.00
Sigma Pharmaceuticals	SIP	648	Pharmaceutical manufacturing and wholesaling	-15%	38%	\$0.55
<b>Capitalisation Total</b>		24,458				

### Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/11
Mesoblast	MSB	1,932	Developing therapies based on mesenchymal pre-cursor stem cells, with applications in cartilage regrowth and heart and bone repair.	-15%	48%	\$6.89
Heartware International	HIN	934	Developing a mechanical heart pump (LVAD)	0%	-22%	\$1.89
Blackmores	BKL	478	Manufactures vitamin, mineral and herbal supplements and skin & hair products in Australia and N.Z.	-6%	2%	\$28.50
Acruz	ACR	478	Developer of the transdermal drug products Axiron and Evamist	-10%	-19%	\$2.87
Starpharma Holdings	SPL	320	Developer of pharmaceutical applications of chemical scaffolds known as 'dendrimers'.	7%	37%	\$1.14
Pharmaxis	PXS	318	Marketing a lung function test, Aridol, and developing the Bronchitol product to treat cystic fibrosis, bronchiectasis and COPD.	43%	-65%	\$1.04
GI Dynamics	GID	261	Commercialising the Endobarrier, an implantable polymer liner for the management of obesity and diabetes	-15%		\$0.93
Sirtex Medical	SRX	250	The company's core technology uses radioactive particles to irradiate tumours in the liver. Approved for use in most major regions.	4%	-26%	\$4.48
QRxPharma	QRX	218	Developing a 'dual opioid' drug to treat moderate to severe pain.	28%	8%	\$1.51
Reva Medical	RVA	218	Developing a bioresorbable coronary stent	-44%	-50%	\$0.62
Unilife Corporation	UNS	216	Developer of retractable syringes	-29%	-42%	\$0.51
Phosphagenics	POH	214	Commercialising a platform technology (alpha-tocopherol) that improves the delivery of pharmaceutical and other products across the skin.	40%	75%	\$0.21

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/11
Bionomics	BNO	203	Developing drugs to treat cancer and CNS diseases, and has also developed a gene diagnostic for epilepsy.	23%	90%	\$0.59
Prima Biomed	PRR	168	Developing the CVac immunotherapy.	-3%	-6%	\$0.16
Biota	BTA	145	Developer of anti-infective drugs, including the flu drug Relenza. Inavir, developed with Daiichi Sankyo, a long acting flu drug now approved in Japan.	-1%	-19%	\$0.80
Nanosonics	NAN	138	Developing a novel disinfection technology, the first product is a point of care ultrasound probe disinfection unit	15%	-31%	\$0.60
API	API	129	Pharmaceutical wholesaler	18%	-40%	\$0.27
Universal Biosensors	UBI	119	Development, manufacture and commercialisation of a range of in vitro diagnostic tests for point-of-care use	-19%	-51%	\$0.75
Alchemia	ACL	84	Oncology drug developer. Has partnered a generic anti-coagulant drug with Dr Reddys	-17%	-52%	\$0.30
Impedimed	IPD	82	Develops devices that aid the diagnosis of secondary lymphoedema, muscle wasting and other disorders	17%	-35%	\$0.53
Bioniche	BNC	67	Developing bladder cancer treatment and food safety vaccine; sale of veterinary products	-7%	0%	\$0.65
Tissue Therapies	TIS	65	Developing the VitroGro product for ulcer and wound healing	-16%	-47%	\$0.39
Mayne Pharma Group	MYX	59	Developing an improved dosing anti-fungal drug, Subazole and operating manufacturing services	5%	-45%	\$0.39
Anteo Diagnostics	ADO	56	Developer of a biological coatings technology that can be applied to immunoassays, bio-separations, drug delivery and other medical devices	25%	-13%	\$0.07
Genetic Technologies	GTG	51	Provides DNA paternity testing services and holds broad patents relating to the use of non-coding DNA.	-31%	233%	\$0.11
Clovercorp	CLV	50	Development and production of omega-3 food additives from tuna oil.	0%	-23%	\$0.30
Clinuvel Pharmaceuticals	CUV	48	Developing an analogue of the alpha-MSH protein, named Scenesse, as a photo-protective agent	3%	-93%	\$1.55
Prana Biotechnology	PBT	44	Developing drugs to treat CNS diseases such as Alzheimer's and Parkinson's	0%	24%	\$0.16
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.	-23%	0%	\$0.04
Scigen	SIE	38	Developer and manufacturer of biopharmaceuticals. Company is based in Singapore and was spun out of Sonic Healthcare in 2002.	0%	-48%	\$0.07
Somnomed	SOM	38	Markets an oral device for the treatment of sleep apnea and snoring.	-19%	-7%	\$0.91



Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/11
Neuren Pharmaceuticals	NEU	31	Developing neuroprotective therapeutics	80%	69%	\$0.03
Medical Developments	MVP	31	Commercialising the Penthrax inhaler for temporary pain relief. Used widely in ambulances across Australia.	29%	45%	\$0.58
Avita Medical	AVH	30	Markets ReCell, a skin repair product	32%	14%	\$0.13
Avexa	AVX	26	Developing an HIV drug, apricitabine.	-26%	-21%	\$0.03
Allied Health Group	AHZ	26	Formed through the merger of Allied Medical and BioMD. Diversified medical products group.	25%	33%	\$0.04
pSiVida	PVA	26	Developing drug delivery technologies, with a special focus on ophthalmic applications	-72%	-74%	\$1.25
Viralytics	VLA	25	Developing a cancer treatment based on the application of viruses (oncolytic virus technology)	-32%	2%	\$0.34
Consegna Group	CGP	24	Asset development company, with interests in Vibrovein, Linguet, BreatheAssist and Aspen Medisys. (Formerly Helicon Group)	121%	40%	\$0.04
Antisense Therapeutics	ANP	23	Developing antisense compounds to treat multiple sclerosis and acromegaly	156%	229%	\$0.02
Circadian Technologies	CIR	22	Developing drugs, including antibodies, around the VEGF C and VEGF D targets	0%	-18%	\$0.47
Probiotec	PBP	21	Manufacturer, marketer and distributor of a range of over the counter (OTC) pharmaceuticals, complementary medicines and speciality ingredients	16%	-40%	\$0.40
Brain Resource Corp	BRC	21	Development and commercialisation of functional brain analysis techniques	7%	15%	\$0.23
OBJ	OBJ	21	Developing transdermal drug delivery technologies	13%	-22%	\$0.02
Solagran	SLA	20	Developing complementary medical compounds called Bioeffectives.	-17%	-57%	\$0.06
Calzada	CZD	19	Holds a 100% stake in PolyNovo, a polymer chemistry company.	-7%	115%	\$0.06
Asian Ctr for Liver Diseases and Transpl.	AJJ	19	Manages liver treatment centres in Asia. Not previously included in these tables. Made a backdoor listing through Costarella Design in 2009.	11%	-9%	\$0.10
Biotron	BIT	19	Developing a compound to treat HCV	28%	4%	\$0.13
Bluechiip	BCT	18	Development, manufacture and commercialisation of a tracking system for biological samples	-8%		\$0.23
Cogstate	CGS	18	Marketing cognitive performance diagnostic products	50%	2%	\$0.24



Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/11
Phylogica	PYC	18	Developing peptide compound libraries for use in human therapeutics.	-30%	-38%	\$0.04
Southern Dental Industries	SDI	18	Manufacture & distribution of amalgam (fillings) & other dental materials and product R&D.	15%	-25%	\$0.15
Immuron	IMC	17	Specialises in R&D of hyper-immune bovine colostrum products for therapeutic use in animals and humans.	-12%	-24%	\$0.05
IDT Australia	IDT	17	Manufacturer of pharmaceutical ingredients to international standards for major pharmaceutical groups.	13%	-35%	\$0.39
Vita Life Sciences	VSC	17	Development, manufacture and distribution of prescription and OTC medicines as well as complementary and alternative medicines, dietary supplements and health foods	4%	16%	\$0.29
CathRx	CXD	16	Developing novel modular cardiac catheters for the diagnosis and treatment of abnormal heart rhythms	-31%	-64%	\$0.10
Optiscan Imaging	OIL	16	Manufacture of confocal microscopes for clinical diagnosis	39%	69%	\$0.13
Living Cell Technologies	LCT	16	Developing cell therapies for diabetes, haemophilia and Huntington's disease	-16%	-66%	\$0.05
Cbio	CBZ	15	Drug development company, focus is on Xtoll product for rheumatoid arthritis	-68%	-71%	\$0.06
Isona	ISN	15	Respiratory and pulmonary devices company. (Name changed from Karmelsonix)	-53%	-67%	\$0.01
Compumedics	CMP	15	Develops, manufactures and markets sleep diagnostic and monitoring equipment.	23%	-53%	\$0.09
ITL	ITD	14	Develops and distributes medical devices such as safety equipment to prevent needle stick injuries and sterile preparation kits.	29%	39%	\$0.11
Benitec Biopharma	BLT	14	R&D company focusing on gene silencing, specifically DNA delivered RNAi, technology	-25%	-40%	\$0.02
Eastland Medical Systems	EMS	12	Developing the anti-malarial product ArTiMist.	50%	-59%	\$0.02
Progen Pharmaceuticals	PGL	12	A developer of cancer therapeutics	48%	-29%	\$0.20
Ellex Medical Lasers	ELX	11	Develops, manufactures and markets solid state ophthalmic lasers used to treat secondary cataracts and retinal disorders.	18%	-57%	\$0.13
Atcor Medical	ACG	11	Markets the SphygmoCor device, a noninvasive technology that provides information regarding the functioning of the cardiovascular system	26%	-11%	\$0.08
Cordlife	CBB	10	Rolling out tissue banking services in Australia and Asia	-3%	-78%	\$0.07
Novogen	NRT	10	Developing analogues of naturally occurring phenolic hormones to treat cancers and other conditions.	-31%	-17%	\$0.10

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/11
Genera Biosystems	GBI	10	Develops, manufactures and distributes advanced molecular diagnostic tests, with a particular focus on women's health.	12%	-68%	\$0.15
Analytica	ALT	10	A medical devices company that has developed a retractable syringe	-5%	-27%	\$0.02
Patrys	PAB	10	Developing human antibody therapies for the treatment of lung, pancreatic, gastric and colon cancers	-37%	-65%	\$0.03
Agenix	AGX	9	Developing a compound to treat Hepatitis B, AGX1009. Also seeking a partner in China to develop Thromboview, an imaging agent.	-25%	-50%	\$0.01
Cyclopharm	CYC	9	A nuclear medicine company that markets the Technegas lung imaging system	11%	-51%	\$0.04
Biodiem	BDM	9	Focused on the development of LAIV influenza vaccines	-5%	-42%	\$0.08
Medical Australia	MLA	8	Manufacture and supply of medical devices and equipment. Not previously included in these tables. Previously known as BMDI Tuta and IMD Group	-14%	38%	\$0.02
Cellmid	CDY	7	Developing therapies that target the midkine protein. Recently launched a range of hair loss products.	-16%	-47%	\$0.02
Cryosite	CTE	7	Provides specialised storage services, especially for umbilical cord blood	45%	32%	\$0.15
Advanced Surgical Design & Manufacture	AMT	7	A developer and manufacturer of prosthetic implants and medical devices	27%	-45%	\$0.19
NuSep Holdings	NSP	7	Manufacture and sale of protein separations technologies	-36%	-70%	\$0.07
Holista Colltech	HCT	6	Has developed a novel technology for the extraction of collagen from sheepskins	-15%	5%	\$0.12
Austofix	AYX	5	Manufacturer and developer of orthopaedic fixation devices	0%	-53%	\$0.29
Resonance Health	RHT	5	Marketing the FerriScan technology, a non-invasive tool for measuring liver iron levels	-13%	-38%	\$0.01
Actinogen	ACW	4	Early stage developer of antibiotics that show activity against MRSA and VRE bacteria	127%	-17%	\$0.05
LBT Innovations	LBT	4	Developed the MicroStreak technology for the automation of microbiology laboratory processing	-7%	-42%	\$0.04
USCOM	UCM	3	Marketing a non-invasive heart output function monitor	-54%	-77%	\$0.07
NeuroDiscovery	NDL	3	Focusing on pain drug development following management buyout of electrophysiology business	-3%	-26%	\$0.03
Healthlinx	HTX	3	Detecting novel functions of known and new protein and peptides for therapeutic purposes.	-40%	-85%	\$0.01

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/11
Probiomics	PCC	3	Proprietary ownership of a unique probiotic strain. <b>Merging with Hunter Immunology.</b>	67%	0%	\$0.01
Acuvax	ACU	2	Holds interests in various therapeutics and vaccines	0%	-67%	\$0.001
Virax Holdings	VHL	2	Developing a therapeutic and prophylactic vaccine for HIV	-44%	-63%	\$0.01
Leaf Energy	LER	2	Plant genetic technologies business, lead product is vitronectin.	-21%	-40%	\$0.08
Tyrian Diagnostics	TDX	2	<b>In restructure phase; reviewing strategic options. Out-licensing IP.</b>	100%	-71%	\$0.002
Imugene	IMU	2	Developing animal products such as antibiotic alternatives used in the stock feed industry using a vaccine and gene therapy approach	-40%	-78%	\$0.01
Medigard	MGZ	1	Developed retractable syringe technology and other safety medical products.	-38%	-71%	\$0.02
OMI Holdings	OMI	1	Commercialising a safety syringe	-33%	-75%	\$0.002
Bone Medical	BNE	1	Developing treatments for bone and joint degenerative diseases such as arthritis and osteoporosis.	-69%	-88%	\$0.01
<b>Capitalisation Total</b>		<b>8,320</b>				

## Listed Biotech Investment Funds or Companies

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/11
Biotech Capital	BTC	5	The entity is now engaged in the orderly sale of assets.	-21%	-49%	\$0.07

**Capitalisation Total** 5

**Capitalisation Total - All Indices** 32,783

**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**

**Corporate Subscribers:** Pharmaxis, Starpharma Holdings, Cogstate, Bionomics, Circadian Technologies, Biota Holdings, Impedimed, QRxPharma, Patrys, LBT Innovations, Mesoblast, Atcor Medical, Tissue Therapies, Viralytics, Phosphagenics, Immuron, Phylogica, Bluechiip, pSivida, Antisense Therapeutics, Benitec BioPharma, Allied Healthcare Group, Genetic Technologies

**Disclaimer:**

Information contained in this newsletter is not a complete analysis of every material fact respecting any company, industry or security. The opinions and estimates herein expressed represent the current judgement of the publisher and are subject to change. Blake Industry and Market Analysis Pty Ltd (BIMA) and any of their associates, officers or staff may have interests in securities referred to herein (Corporations Law s.849). Details contained herein have been prepared for general circulation and do not have regard to any person’s or company’s investment objectives, financial situation and particular needs. Accordingly, no recipients should rely on any recommendation (whether express or implied) contained in this document without consulting their investment adviser (Corporations Law s.851). The persons involved in or responsible for the preparation and publication of this report believe the information herein is accurate but no warranty of accuracy is given and persons seeking to rely on information provided herein should make their own independent enquiries. Details contained herein have been issued on the basis they are only for the particular person or company to whom they have been provided by Blake Industry and Market Analysis Pty Ltd. The Directors and/or associates declare interests in the following ASX Healthcare and Biotechnology sector securities: ACL, ACR, ADO, BNO, BTA, CGS, COH, CSL, CUV, MYX, HCG, IDT, IMU, PAB, PBP, PXS, PYC, SOM, SPL, TIS, UBI. These interests can change at any time and are not additional recommendations. Holdings in stocks valued at less than \$100 are not disclosed.

**Subscription Rates (inc. GST)**

48 issues per year (electronic distribution): **\$375**

For multiple email distributions within \$590 2-3 email addresses  
 the same business cost centre, our \$800 4-5 email addresses  
 pricing structure is as follows: \$1020 6-10 email addresses

To subscribe, post/fax this subscription form to:

**Bioshares**  
**PO Box 193 Richmond VIC 3121**  
**Fax: +61 3 9329 3350**

I enclose a cheque for \$ \_\_\_\_\_ made payable to **Blake Industry & Market Analysis Pty Ltd**, or

Please charge my credit card \$ \_\_\_\_\_ MasterCard  Visa

Card Number

Signature \_\_\_\_\_ Expiry date \_\_\_\_\_

**Subscriber details**

Name \_\_\_\_\_

Organisation \_\_\_\_\_

Ph ( ) \_\_\_\_\_

Emails \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_