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# Bioshares

2 January 2014  
Edition 535

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

## Quarterly Review

### **Biotechs Ride Sentiment to Boost Cash Holdings**

A modest 1.6% gain in the **Bioshares Index** in the December quarter 2013 masked an increasingly positive trend in investment sentiment towards small cap biotech stocks. The Bioshares Index covers nearly all listed biotech stocks (89), with the exception of CSL, Resmed, Cochlear and Sigma Pharmaceuticals, which are represented by the **Bioshares Large Cap Index**. The Bioshares Large Cap Index increased by 4.4% over the December quarter, 2013.

The breadth of the Bioshares Index means that under-performance by a few companies can offset strong gains made by other stocks. Stocks in the index are weighted which means that large gains by very small stocks have less influence on the overall Bioshares Index. For example, the top performing stock for the December quarter was Resonance Health, with its shares increasing by 350%. However, its capitalisation is a modest \$23 million.

Sentiment towards biotech investing in Australia has been buoyed by a huge resurgence in the USA where the **Nasdaq Biotech Index** has breached new highs. This index closed the year at 2,369 points, up 8.3% for the quarter and up 66% from a year ago.

The IPO window for biotechs is fully open in the US. By the end of December, we estimate 49 life science IPOs (pricings) had taken place in the US in 2013, with filings made in the December quarter by another 20 companies. Locally, two life science companies, Dorsavi and Innate Immunotherapeutics listed on the ASX in December, which raised \$18 million and \$10 million respectively.

ASX-listed life science companies leveraged positive market sentiment to boost their cash reserves in the December quarter, raising \$130 million during the quarter (not including funds raised in IPOs). Excluding capital raisings of greater than \$50 million, the average quarterly inflow of funds to biotech for the six quarters ending September 2013 was \$59 million. In the most recent quarter, there were no 'big ticket' capital raisings, which indicates a lift in support for the development goals of listed life science firms.

*Cont'd over*

#### Index Performance by Quarter

	Q4 2012	Q1 2013	Q2 2013	Q3 2014	Q4 2013
Bioshares Index	-8.7%	-0.1%	-3.0%	17.4%	1.6%
Nasdaq Biotech Index	-3.7%	16.7%	8.6%	20.7%	8.3%
Bioshares Large Cap Index	14.7%	6.9%	4.4%	4.3%	4.4%
ASX 300 Index	5.8%	6.7%	-3.6%	8.7%	2.5%

#### **New Year Publication Schedule**

Please note that Bioshares (536), dated January 24, will be emailed to subscribers on January 27, 2014. (Note, Bioshares is published 48 times a year)

Companies covered: Quarterly Review,  
DVL, III

	Bioshares Portfolio
Year 1 (May '01 - May '02)	21.2%
Year 2 (May '02 - May '03)	-9.4%
Year 3 (May '03 - May '04)	70.6%
Year 4 (May '04 - May '05)	-16.3%
Year 5 (May '05 - May '06)	77.8%
Year 6 (May '06 - May '07)	17.4%
Year 7 (May '07 - May '08)	-36%
Year 8 (May '08 - May '09)	-7.4%
Year 9 (May '09 - May '10)	50.2%
Year 10 (May '10 - May '11)	45.4%
Year 11 (May '11 - May '12)	-18.0%
Year 12 (May '12 - May '13)	3.1%
Year 13 (May '13 - Current)	55.3%
<b>Cumulative Gain</b>	<b>453%</b>
<b>Av. annual gain (13 yrs)</b>	<b>19.5%</b>

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## Top Ten Movers - Dec Quarter 2014

Company	Code	Cap. \$m	Change - Quarter	Price 31/12/13
Resonance Health	RHT	23	350%	\$0.063
SUDA	SUD	72	189%	\$0.078
Anteo Diagnostics	ADO	130	162%	\$0.160
Immuron	IMC	9	125%	\$0.009
OBJ	OBJ	47	106%	\$0.033
Bone Medical	BNE	2	100%	\$0.002
Imugene	IMU	11	89%	\$0.017
Patrys	PAB	34	79%	\$0.052
Admedus	AHZ	195	74%	\$0.155
Regeneus	RGS	85	74%	\$0.460

The top ten stocks by greatest quarterly price gain and by annual gain are tabled above. The quarterly leader, Resonance Health saw its shares increase by 350%, following the approval ahead of time by the FDA of its HepaFat Scan, an MRI based imaging tool for assessing liver fat.

## Top Ten Movers - 2014 (CY)

Company	Code	Cap. \$m	Change - Year	Price 31/12/13
Admedus	AHZ	195	638%	\$0.155
Oncosil Medical	OSL	35	420%	\$0.130
Isona	ISN	88	379%	\$0.335
Prana Biotechnology	PBT	321	267%	\$0.770
Resonance Health	RHT	23	250%	\$0.063
pSiVida	PVA	122	249%	\$4.540
Neuren Pharmaceuticals	NEU	172	229%	\$0.115
Impedimed	IPD	44	206%	\$0.245
Medical Australia	MLA	25	206%	\$0.245
Rhinomed	RNO	15	200%	\$0.045

The annual leader was Admedus (formerly known as Allied Healthcare Group). The 638% increase in this company's stock price can be attributed to CE Mark certification for its Cardiocel tissue repair product, the increase in use of Cardiocel by Australian surgeons under special access schemes and the company's recent acquisition on very favourable terms of a manufacturing facility in Perth being vacated by Sanofi.

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Over the course of 2013, ASX-listed life science companies raised \$714 million, compared to \$257 million in CY 2012. Excluding capital raisings of greater than \$50 million, \$334 million was raised, compared to \$191 million in the previous year. By both measures, it can be seen that biotech companies have been able to inject funds into new programs and support existing programs with fresh capital, even during times when program and product failure has been in evidence.

While three IPOs have taken place in the second half of 2013, it is worth noting the presence of Pharmaust, Oncosil Medical, Novogen, Imugene and Cynata as companies that have taken on the development of assets previously held by other companies or assets which have been ready to move into the next stages of commercialisation under the wings of a listed entity.

## Investment Lessons from 2013

Investors can walk away with several lessons from the year's investment action in biotech on the ASX.

The slow build up of sales for Pharmaxis's Bronchitol in key European territories are a reminder of the ultimate test for commercialisation plans. And not only must the myriad of pricing challenges be overcome, but a medical product must also be relevant to respective patient groups, both in terms of convenience and benefit.

Invariably, spectacular increases in share prices are followed by declines to more realistic levels and where performance meets expectations. A case in point is Isona which saw its share price rocket from \$0.069 to \$0.88, but retraced to \$0.335 (at Dec 31) although it carries a lofty capitalisation of \$88 million.

Regulatory risk was a pre-eminent risk factor in 2013 for biotech investors and will remain so. QRxPharma is a good example of a company which has worked hard to satisfy the FDA concerns but at the same time has been diligent in explaining these issues and concerns to investors. It has maintained a strong degree of credibility with investors despite its receipt of two CRLs from the FDA, with that credibility being well supported in its recent \$11.6 million capital raising.

2013 was a year when speculative money returned to biotech. Investors in early to mid stage drug developers were richly rewarded.

With ongoing strength in the US biotech sector, the Australian biotech sector can be expected to move into 2014 with continued momentum. However, the first half will be a period dominated and judged by regulatory decisions (Tissue Therapies, QRxPharma and Benitec), commencement of clinical programs (Oncosil, Benitec, Innate Immunotherapeutics), and clinical outcomes (Prana Biotechnology, Admedus, Invion and Alchemia).

Overall, the sector is better placed than it was a year ago, with an additional \$714 million raised, a significantly weaker currency which benefits those exporting medical products, and with progress expected to made on clinical development, regulatory and reimbursement fronts. The capital raised also means that the rate of product development can be accelerated in 2014 which should relate to heightened value creation in the year ahead.

Bioshares

*Correction: In the 2014 Top Six Stock Picks section in Bioshares 534, the ticker code for Oncosil Medical should have read 'OSL' not 'OSP'.*

## New Listings

### Dorsavi

Dorsavi (DVL: \$0.42) listed on the ASX in December, raising \$18 million at 40 cents a share. The offer was heavily over-subscribed.

Dorsavi is commercialising a body movement detection system which will be commercialised in three main areas. These are in sports injury recovery and training (ViPerform), in the workplace to improve work practices (ViSafe), and for use by physiotherapists (ViMove).

The company's products are now generating revenue. The ViMove product is being used in more than 40 physiotherapy clinics in Australia, and three in the UK. In the physiotherapy market, the product is leased to the end user for around \$7,000 a year.

The ViMove product has recently been incorporated into the Monash University education program for the medicine facility. Of interest are comments by Professor Jenny Keating at Monash, who said that 'Accurately measuring movement has always been a challenge for physiotherapists, and historically has been quite subjective.' The Dorsavi products are attached to the body and allow movement of body to be imaged in real time, with alarm sensors that can be worn by the user.

The ViMove product was also recently adopted by the Olympic Park Sports Medicine Centre, with that group describing the technology as '...ground breaking wireless technology that allows us to bring the lab to the clinic and even the field setting.'

The key metric to be monitored with this company is the adoption by physiotherapy clinics, FDA approval in 2014 H1, alliances with insurance companies, and new contracts for use in the work place. In FY2013, the company generated sales of \$0.4 million.

Since Dorsavi is also a revenue generating company, investors will be in a position to judge the company by its sales record over the next 12 to 18 months.

Dorsavi is capitalised at \$51 million.

*Bioshares* recommendation: **Speculative Hold Class A**

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### Innate Immunotherapeutics

Drug developer Innate Immunotherapeutics (IIL: \$0.20) also listed on the ASX in December, at an issue price of 20 cents a share.

Innate is developing a therapy for the treatment of what is termed 'secondary progressive multiple sclerosis'. The company raised \$10 million, which was the bottom of its target offer of between \$10 - \$12 million.

What makes Innate an interesting biotech is that its therapy is already being used in New Zealand on a compassionate use basis in 17 patients with secondary progressive MS. The appealing aspect of this technology is that the therapy is already showing strong results, with 14 of the 17 patients showing 'significant' improvement in their condition. Some of those patients were even prepared to discuss their experiences with the drug, MIS416, on recorded interviews.

The funds raised in the IPO will allow the company to complete a Phase IIb study with MIS416 in Australia in around 100 patients. That study is due to start in Q2 and finish at the end of next year. If the results are positive, the company is likely to license the use of the compound. Whilst the company has generated positive results in patients in its compassionate use program, what a marketing partner is looking to see is results from a blinded study against a placebo.

Around 30% of patients with MS have the secondary progressive form. There are no approved therapies for this type of MS. The company estimates the market opportunity at greater than US\$3 billion a year.

Innate will also extend the compassionate use of MIS416 in New Zealand concurrent with the blinded Phase IIb trial. Results from the extended compassionate use will be made public over 2013/2014.

Innate has a granted 'Use' patent over MIS416 in the US, Australia and New Zealand but no 'Composition of Matter' patent. The one downside to the therapy is that it needs to be delivered weekly via an intravenous infusion. However, the frequency of delivery has been successfully lowered in compassionate use whilst maintaining positive results. The safety profile of MIS416 is excellent. The company will pay a 6% royalty from income it receives to various groups, up to 2020-2022. Its US patent around the technology expires in 2029.

Innate Immunotherapeutics is capitalised at \$41 million (including 33 million loyalty shares which will be granted to earlier shareholders if Phase IIb results are positive).

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

**Bioshares**

**Capital Raisings by Australian-listed Biotech Companies Q4 2013**

<b>Company</b>	<b>Investment Manager or Investor</b>	<b>Type of Raising</b>	<b>Funds Raised (\$M)</b>
Neuren Pharmaceuticals	Bell Potter (Lead Manager), RBS Morgans (Co-Manager)	Placement	\$21.50
Neuren Pharmaceuticals		SPP	\$2.00
Osprey Medical	Canaccord Genuity	Placement	\$14.00
QRxPharma	Morgans Corporate	Placement	\$7.50
QRxPharma		SPP	\$4.10
Admedus	Morgans Corporate	Rights Issue	\$10.40
Genetic Technologies	Ironridge BioPharma Co	Convertible Note	\$5.6
Genetic Technologies	Lodge & Partners/Cygnnet	SPP	\$1.4
Genetic Technologies	Lodge & Partners/Cygnnet	SPP Shortfall	\$1.7
Genetic Technologies	Cygnnet	SPP Topup	\$1.0
Tissue Therapies	Morgans Corporate	Placement (u/w )	\$3.00
Tissue Therapies	Morgans Corporate	Rights Issue (u/w )	\$5.34
Cogstate	Taylor Collison (u/w )	Rights Issue	\$4.0
Cogstate	Dagmar Dolby	Placement	\$3.5
SUDA		Placement	\$5.60
Anteo Diagnostics	Bell Potter Securities	Placement	\$5.5
Patrys	Genuity	Rights Issue	\$5.50
Cynata		Placement	\$5.0
Medical Australia	Windfall (NZ) Trust, Walker Group Holdings	Placement	\$4.00
Ellex Medical Lasers	Taylor Collison		\$3.0
Novogen	Hudson Bay Master Fund Ltd	Convertible Notes	\$3.00
Oncosil Medical		SPP Shortfall	\$1.26
Oncosil Medical		SPP	\$1.22
Imugene	Forrest Capital	Placement	\$2.50
Analytica		Placement	\$2.2
Cellmid		Placement	\$2.0
Actinogen	Otsana Capital, Forrest Capital	Placement	\$1.5
Bluechiip		Placement (T2)	\$1.0
Avexa		SPP	\$1.0
Optiscan Imaging		Convertible Note Tranches	\$0.70
IPOs (Dorsavi - \$18 M, Innate - \$10 M)			\$28.0
<b>Total raised in Q4 2013</b>			<b>\$158.0</b>
<b>Total raised in Q3 2013</b>			<b>\$133.3</b>
<b>Total raised in Q2 2013</b>			<b>\$67.1</b>
<b>Total raised in Q1 2013</b>			<b>\$355.5</b>
<b>Total - 2013 (CY)</b>			<b>\$713.9</b>

<b>Bioshares Model Portfolio (2 January 2014)</b>				<b>Portfolio Changes – 2 January 2014</b>
<b>Company</b>	<b>Price (current)</b>	<b>Price added to portfolio</b>	<b>Date added</b>	
QRxPharma	\$0.800	\$0.620	Dec 2013	<b>IN:</b> No changes
Impedimed	\$0.245	\$0.245	Dec 2013	
Analytica	\$0.026	\$0.025	Dec 2013	<b>OUT:</b> No changes
Imugene	\$0.017	\$0.022	Nov 2013	
Oncosil Medical	\$0.150	\$0.155	Sept 2013	
Invion	\$0.079	\$0.060	August 2013	
IDT Australia	\$0.370	\$0.260	August 2013	
Viralytics	\$0.310	\$0.300	August 2013	
Tissue Therapies	\$0.310	\$0.255	March 2013	
Benitec Biopharma	\$0.585	\$0.40	November 2012	
Somnomed	\$1.10	\$0.94	January 2011	
Cogstate	\$0.360	\$0.13	November 2007	
Universal Biosensors	\$0.47	\$1.23	June 2007	

#### Selected Clinical Trial Developments - Q4 2013

<b>Company</b>	<b>Code</b>	<b>Product/Therapeutic</b>	<b>Event</b>
Antisense Therapeutics	ANP	ATL1103 (acromegaly)	Announced interim results from dosing of 8 pts at 3 months. Higher dose of 400mg showed a progressive rate of reduction in IGF-1 levels
Avita Medical	AVH	ReCell (spray-on-skin) (hypopigmented burn sca)	Released interim results from investigator-led 20 ps study; company said the results were 'positive'
Circadian Technologies	CIR	VGX-100 (anti VEGF-C antibody)(Cancer)	Completed Phase Ib study of VGX-100 in combination with Avastin (24 pts in Phase I b arm)
Invion	IVX	IVX102 (nadalol)	Phase II trial placed on hold by FDA, while the titration and termination criteria are aligned; up to 136 pts with chronic bronchitis enrolled in a validated smoking cessation program
Progen Pharmaceuticals	PGL	PG545	Received clearance to begin IV trial in 25 pts with advanced solid tumours
Progen Pharmaceuticals	PGL	PI-88 (liver cancer)	Licensee Medigen Biottech completed enrollment of 500 pts in Phase III trial, of PI-88 in the treatment of primary liver cancer after surgical resection
Osprey Medical	OSP	Limb Recovery System	Commenced diabetic limb efficacy study in 20 pts
Living Cell Tech.	LCT	NTCELL (alginate-encapsulated porcine choroid plexus cells) (Parkinson's disease)	Received clearance to progress to final 3 pts in 4 pt safety trial
Patrys	PAB	PAT-SM6 (human antibody) (multiple myeloma)	Phase I/IIa - Reported that 4 out of 11 currently evaluable patients experienced stable disease post treatment
Prima Biomed	PRR	CVax (ovarian cancer)	Has redesigned CAN-004 (CR2) Phase II trial in epithelial ovarian cancer patients to address 210 second remission pts; endpoint changed to overall survival
Prana Biotech	PBT	PBT2 (Alzheimer's disease)	Completed IMAGINE trial in 40 pts (2 pts withdrew), with prodromal or mild AD; 33 pts to continue in extension trial
Mesoblast	MSB	Allogeneic MPCs (Diabetes)	Completed Phase II trial in 61 pts. Reported an improvement in glycemic control as evidenced by reduction in hemoglobin A1c

## **The Australian Listed Life Sciences Sector**

**December 31, 2013 : Capitalisation \$53.3 billion, 94 companies**

### Bioshares Large Cap. Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/13
CSL	CSL	33,423	Manufactures pharmaceutical products including vaccines and human plasma fractions	8%	28%	\$68.96
Resmed Inc.	RMD	7,527	Manufactures diagnostic and treatment equipment for sleeping disordered breathing	-6%	35%	\$5.30
Cochlear	COH	3,362	Manufactures cochlear hearing implants	-3%	-26%	\$58.92
Sigma Pharmaceuticals	SIP	728	Pharmaceutical manufacturing and wholesaling	12%	-12%	\$0.65
<b>Capitalisation Total</b>		45,040				

### Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/13
Mesoblast	MSB	1,879	Developing therapies based on mesenchymal pre-cursor stem cells, with applications in cartilage regrowth and heart and bone repair. Acquired assets from Osiris Therap.	3%	10%	\$5.850
Sirtex Medical	SRX	658	The company's core technology uses radioactive particles to irradiate tumours in the liver. Approved for use in most major regions.	-14%	-11%	\$11.730
Unilife Corporation	UNS	485	Developer of retractable syringes	41%	133%	\$0.805
Acrux	ACR	426	Developer of the transdermal drug products Axiron, Evamist/Ellavie and Recuvyra	-22%	-10%	\$2.560
Mayne Pharma Group	MYX	417	Manufactures, develops and markets generic drugs, with operations in Australia and the USA	15%	147%	\$0.740
Blackmores	BKL	354	Manufactures vitamin, mineral and herbal supplements and skin & hair products in Australia and N.Z.	-25%	-38%	\$20.850
Prana Biotechnology	PBT	321	Developing drugs to treat CNS diseases such as Alzheimer's and Parkinson's	73%	267%	\$0.770
Bionomics	BNO	311	Developing drugs to treat cancer and CNS diseases, and has also developed a gene diagnostic for epilepsy.	-8%	110%	\$0.755
GI Dynamics	GID	300	Commercialising the Endobarrier, an implantable polymer liner for the management of obesity and diabetes	-9%	36%	\$0.750
API	API	293	Pharmaceutical wholesaler	25%	28%	\$0.600
Starpharma Holdings	SPL	246	Developer of pharmaceutical applications of chemical scaffolds known as 'dendrimers'	-16%	-33%	\$0.865
Nanosonics	NAN	221	Developing a novel disinfection technology, the first product is a point of care ultrasound probe disinfection unit	2%	73%	\$0.840

## Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/13
Admedus	AHZ	195	Diversified medical products group. Investor in Coridon, a vaccine technology company. (Admedus was formerly named Allied Healthcare Group)	74%	638%	\$0.155
Alchemia	ACL	185	Biopharmaceutical company with a revenue generating product, generic fondaparinux. Lead product HA-Irinotecan in a pivotal Phase III trial for colorectal cancer.	-7%	48%	\$0.570
Neuren Pharmaceuticals	NEU	172	Developing neuroprotective therapeutics	21%	229%	\$0.115
Reva Medical	RVA	160	Developing a bioresorbable coronary stent	-20%	-9%	\$0.480
Anteo Diagnostics	ADO	130	Developer of a biological coatings technology that can be applied to immunoassays, bio-separations, drug delivery and other medical devices	162%	154%	\$0.160
pSiVida	PVA	122	Developing drug delivery technologies, with a special focus on ophthalmic applications	5%	249%	\$4.540
QRxPharma	QRX	122	Developing a 'dual opioid' drug (MoxDuo) to treat moderate to severe pain	-4%	-17%	\$0.745
Phosphagenics	POH	117	Commercialising a platform technology (alpha-tocopherol) that improves the delivery of pharmaceutical and other products across the skin.	37%	-21%	\$0.115
Vita Life Sciences	VSC	89	Development, manufacture and distribution of prescription and OTC medicines as well as complementary and alternative medicines, dietary supplements and health foods	6%	177%	\$1.580
Isona	ISN	88	Respiratory and pulmonary devices company. Recently launched Airsona, an ehealth product.	-55%	379%	\$0.335
SDI	SDI	87	Manufacture & distribution of amalgam (fillings) & other dental materials and product R&D.	21%	132%	\$0.730
Clovercorp	CLV	85	Development and production of omega-3 food additives from tuna oil.	-1%	-11%	\$0.515
Regeneus	RGS	85	Commercialisation of autologous adipose derived stem cells and factors. Markets HiQCell for human use and CryoShot for veterinary use.	74%	0%	\$0.460
Osprey Medical	OSP	84	Developing the CINCOR and AVERT systems to limit the incidence of contrast induced nephropathy.	-6%	62%	\$0.680
Universal Biosensors	UBI	81	Development, manufacture and commercialisation of a range of in vitro diagnostic tests for point-of-care use	-37%	-50%	\$0.460
Tissue Therapies	TIS	78	Developing the VitroGro product for ulcer and wound healing	0%	-2%	\$0.305
SUDA	SUD	72	Developing the anti-malarial product ArTiMist. Acquired drug delivery technology and suite of products in development from Novodel.	189%	129%	\$0.078
Medical Developments	MVP	66	Commercialising the Pentrox inhaler for temporary pain relief. Used widely in ambulances across Australia.	-12%	-31%	\$1.160

## Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/13
Dorsavi	DVL	51	Commercialising a wireless sensor movement monitoring system and products for use in the Elite Sports, OH&S and medical/physiotherapy markets	5%		\$0.420
Bioniche	BNC	49	Developing a bladder cancer treatment and food safety vaccine; sale of veterinary products. <b>To de-list from the ASX.</b>	-8%	9%	\$0.350
Somnomed	SOM	49	Markets oral devices for the treatment of sleep apnea and snoring.	-6%	35%	\$1.100
Benitec Biopharma	BLT	49	R&D company focusing on gene silencing, specifically DNA delivered RNAi technology	55%	64%	\$0.575
Prima Biomed	PRR	48	Developing the CVac immunotherapy.	0%	-65%	\$0.039
OBJ	OBJ	47	Developing transdermal drug delivery technologies	106%	74%	\$0.033
Impedimed	IPD	44	Markets products that aid the diagnosis of secondary lymphoedema, muscle wasting and other disorders	36%	206%	\$0.245
Avita Medical	AVH	44	Markets ReCell, a skin repair product	13%	13%	\$0.135
Invion	IVX	39	Evaluating Xtoll biologic for lupus and developing an approved heart drug, Nadalol, for COPD and asthma.	29%	47%	\$0.084
Ellex Medical Lasers	ELX	39	Develops, manufactures and markets solid state ophthalmic lasers used to treat secondary cataracts and retinal disorders.	16%	89%	\$0.360
Clinuvel Pharmaceuticals	CUV	36	Developing an analogue of the alpha-MSH protein, named Scenesse, as a photo-protective agent	-40%	-48%	\$0.950
Cogstate	CGS	36	Marketing cognitive performance diagnostic products	-23%	9%	\$0.360
Oncosil Medical	OSL	35	Developing Oncosil, a brachytherapy for pancreatic cancer.	0%	420%	\$0.130
Innate Immuno-therapeutics	IIL	34	Developing MIS416 to treat secondary progressive multiple sclerosis	0%		\$0.200
Patrys	PAB	34	Developing human antibody therapies for the treatment of lung, pancreatic, gastric and colon cancers	79%	37%	\$0.052
Calzada	CZD	33	Holds a 100 % stake in PolyNovo, a polymer chemistry company.	-2%	68%	\$0.079
Pharmaxis	PXS	32	Markets the lung function test, Aridol. Bronchitol is approved in Europe for the management of cystic fibrosis	-19%	-92%	\$0.105
Novogen	NRT	32	Acquired Triaxial Pharmaceuticals in 2012. Now developing 'super' benzopyrans for the treatment of cancer.	21%	21%	\$0.200



## Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/13
Genetic Technologies	GTG	31	Provides DNA paternity testing services and holds broad patents relating to the use of non-coding DNA.	-30%	-23%	\$0.055
Scigen	SIE	30	Developer and manufacturer of biopharmaceuticals. Company is based in Singapore and was spun out of Sonic Healthcare in 2002.	10%	38%	\$0.055
IDT Australia	IDT	28	Manufacturer of pharmaceutical ingredients to international standards for major pharmaceutical groups.	4%	70%	\$0.375
Living Cell Technologies	LCT	28	Developing cell therapies for diabetes, Parkinson's disease and Huntington's disease	-9%	56%	\$0.078
Atcor Medical	ACG	27	Markets the SphygmoCor device, a noninvasive technology that provides information regarding the functioning of the cardiovascular system	-11%	143%	\$0.170
Viralytics	VLA	27	Developing a cancer treatment based on the application of viruses (oncolytic virus technology)	-19%	-9%	\$0.305
Brain Resource Corp	BRC	25	Development and commercialisation of functional brain analysis techniques	-24%	2%	\$0.250
Medical Australia	MLA	25	Manufacture and supply of medical devices and equipment. Has acquired Medivet, an animal stem cell company	4%	206%	\$0.245
ITL	ITD	24	Develops and distributes medical devices such as safety equipment to prevent needle stick injuries and sterile preparation kits.	-3%	41%	\$0.290
Resonance Health	RHT	23	Marketing the FerriScan technology, a non-invasive tool for measuring liver iron levels	350%	250%	\$0.063
Probiotec	PBP	22	Manufacturer, marketer and distributor of a range of over the counter (OTC) pharmaceuticals, complementary medicines and speciality ingredients	27%	0%	\$0.420
Asian American Medical Group	AJJ	22	Manages liver treatment centres in Asia	-25%	-34%	\$0.105
Antisense Therapeutics	ANP	22	Developing antisense compounds to treat multiple sclerosis and acromegaly	7%	36%	\$0.150
Cryosite	CTE	21	Provides specialised storage services, especially for umbilical cord blood	-29%	21%	\$0.460
Cellmid	CDY	21	Developing therapies that target the midkine protein. Recently launched a range of hair loss products.	7%	93%	\$0.029
Analytica	ALT	19	A medical devices company that has developed a retractable syringe	50%	23%	\$0.027
Cynata Therapeutics	CYP	16	Stem cell technology company aiming to produce unlimited uniform, pharmaceutical grade MSCs from a single donor. Recently completed 1:20 share consolidation	19%	0%	\$0.500
PharmAust	PAA	16	Manages Epichem, a drug discovery business. Also developing an veterinary anti-parasitic compound (PPL-1) as a human and animal cancer therapy	0%	57%	\$0.011

## Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/13
Rhinomed	RNO	15	Developing nasal technologies with applications for sport performance, sleep and drug delivery.	7%	200%	\$0.045
Cyclopharm	CYC	15	A nuclear medicine company that markets the Technegas lung imaging system	25%	47%	\$0.250
Compumedics	CMP	14	Develops, manufactures and markets sleep diagnostic and monitoring equipment.	6%	16%	\$0.086
Holista Colltech	HCT	14	Extracts collagen from sheepskins and markets natural healthcare products.	45%	37%	\$0.100
Progen Pharmaceuticals	PGL	14	A developer of cancer therapeutics, including PI-88 and PG545	4%	-17%	\$0.250
Genera Biosystems	GBI	12	Develops, manufactures and distributes advanced molecular diagnostic tests, with a particular focus on women's health.	32%	21%	\$0.145
NuSep Holdings	NSP	12	Manufacture and sale of protein separations technologies	48%	-1%	\$0.074
Biotron	BIT	11	Developing compounds to treat HCV and HIV.	-11%	-44%	\$0.076
Avexa	AVX	11	Developing an HIV drug, apricitabine. Has invested in a US coal company.	-20%	-37%	\$0.012
Imugene	IMU	11	Developing a Her2 positive cancer vaccine technology, obtained through the acquisition of Biolife, also developing a buccal drug delivery technology	89%	55%	\$0.017
Bluechiip	BCT	11	Development, manufacture and commercialisation of a tracking system for biological samples	-36%	-51%	\$0.093
USCOM	UCM	11	Marketing a non-invasive heart output function monitor. Recently acquired Pulsecor, which has developed a non-invasive central blood pressure product.	-22%	-30%	\$0.140
Phylogica	PYC	10	Developing peptide compound libraries for use in human therapeutics	-6%	-32%	\$0.017
Circadian Technologies	CIR	10	Developing drugs, including antibodies, around the VEGF C and VEGF D targets	-27%	-41%	\$0.205
Immuron	IMC	9	Sales and development of hyper-immune bovine colostrum products for therapeutic use	125%	-10%	\$0.009
Optiscan Imaging	OIL	9	Manufactures confocal microscopes for clinical diagnosis	-13%	-39%	\$0.054
LBT Innovations	LBT	8	Developed the MicroStreak technology for the automation of microbiology laboratory processing. Now developing an Automated Optical Plate Sorting system.	3%	37%	\$0.078
Actinogen	ACW	4.4	Collaborating with Leaf Energy on bioethanols project	57%	10%	\$0.022

## Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/13
Medigard	MGZ	3	Developed retractable syringe technology and other safety medical products.	12%	75%	\$0.028
Advanced Surgical Design & Manufacture	AMT	2	A developer and manufacturer of prosthetic implants and medical devices	-9%	-52%	\$0.050
Agenix	AGX	2	Seeking to outlicenseThromboview, an imaging agent. Acquired TB diagnostic assets from Tyrian Diagnostics.	-5%	-97%	\$0.018
Bone Medical	BNE	2	Developing treatments for bone and joint degenerative diseases such as arthritis and osteoporosis.	100%	0%	\$0.002
Bioxyne	BXN	1.9	Terminated proposed acquisition of Vitality Devices during the June Quarter. HI-164OV assets sold to Mariposa Health. Continuing with sale and distribution of probiotics.	67%	-29%	\$0.010

**Capitalisation Total** 9,302

## Listed Biotech Investment Funds or Companies

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/13
Biotech Capital	BTC	2	The entity is engaged in the orderly sale of assets.	0%	-37%	\$0.022

**Capitalisation Total** 2

**Capitalisation Total - All Indices** 54,344

**How Bioshares Rates Stocks**

For the purpose of valuation, Bioshares divides biotech stocks into two categories. The first group are stocks with existing positive cash flows or close to producing positive cash flows. The second group are stocks without near term positive cash flows, history of losses, or at early stages of commercialisation. In this second group, which are essentially speculative propositions, Bioshares grades them according to relative risk within that group, to better reflect the very large spread of risk within those stocks. For both groups, the rating “Take Profits” means that investors may re-weight their holding by selling between 25%-75% of a stock.

**Group A**

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

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

**Group B**

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

**Speculative Buy – Class A**

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

**Speculative Buy – Class B**

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

**Speculative Buy – Class C**

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

**Speculative Hold – Class A or B or C**

**Sell**

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