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Companies covered: **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)	70.6%
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 - May '14)	26.6%
Year 14 (May '14 - May '15)	23.0%
Year 15 (May '15 - May '16)	33.0%
Year 16 (May '16 - May '17)	16.8%
Year 17 (May '17 - Current)	5.9%
Cumulative Gain	811%
Av. Annual gain (14 yrs)	17.9%

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Bioshares

29 March 2018
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Delivering independent investment research to investors on Australian
biotech, pharma and healthcare companies

Quarterly Review

M&A Action Keeps the Bioshares Index in Positive Territory

The **Bioshares Index** recorded a 2.8% increase in the March quarter 2018, a moderate increase compared to the 10.6% increase for the previous quarter. Without the acquisition of Sirtex Medical by Varian Medical Systems for \$1.6 billion, the Bioshares Index would have remained largely steady. The Bioshares Index includes 120 life science stocks and is capitalised in aggregate at \$12.6 billion.

The **Bioshares Large Cap Index**, which includes CSL, Cochlear, Resmed, Blackmores and Mayne Pharma, posted a 8.9% gain for the quarter. Despite Blackmores' share price falling by 26% over the quarter, the weighted effect of CSL's \$70 billion capitalisation, and Resmed's \$18 billion capitalisation meant that their respective 10% and 12% share price increases easily offset Blackmores' share price weakness.

Growth in the **Bioshares MedCann Index** showed that medicinal cannabis stocks remained popular with investors, although that interest may wane as companies face the challenge of meeting investor expectations set through IPOs and capital raisings conducted in 2017. This index of companies, now comprises 15 stocks which are commercialising medicinal and other cannabis assets, recorded a 9.6% gain for the quarter, easing from a 53.4% surge in the December quarter. The aggregate capitalisation of the sector at the close of the quarter was \$1.7 billion.

New additions to this index included Elixinol Global and One Page. Elixinol listed in January, closed the quarter up 70% from its \$1.00 issue price, and finished with a capitalisation of \$175 million. One Page was also added to the index following its announcement of its intention to acquire a vertically integrated medicinal cannabis business in Germany.

Continued over

The 14th **Bioshares**
Biotech
Summit 2018

Registration is now open for this year's Bioshares Biotech Summit
www.bioshares.com.au/queenstown2018.htm

July 27-28
The Rydges Hotel
Queenstown - New Zealand

Bioshares Index – Top 10 Outperformers – Mar. Quarter

Company	Code	Cap. \$m	Change - Quarter	Change - Year	Price 29/03/18
Invision	IVX	196	500%	1100%	\$0.036
Botanix Pharmaceuticals	BOT	75	450%	62%	\$0.110
Innate Immunotherapeutics	IIL	19	171%	-90%	\$0.076
BARD1 Life Sciences	BD1	15	157%	-51%	\$0.018
Viralytics	VLA	469	144%	40%	\$1.685
Cynata Therapeutics	CYP	124	122%	186%	\$1.375
Imugene	IMU	94	120%	106%	\$0.033
Respiri	RSH	39	105%	114%	\$0.090
Immuron	IMC	54	97%	-12%	\$0.375
RHS	RHS	24	93%	260%	\$0.270

M&A Activity

The acquisitions of three companies were announced during the quarter. The first was, as mentioned earlier, Varian Medical Systems offering approximately \$1.5 billion to buy Sirtex Medical. Assuming all approvals and court clearances are obtained, Merck will acquire Viralytics for \$502 million and PerkinElmer will acquire RHS for \$25 million.

These acquisitions (in process) broke a long drought of in-bound M&A interest by large international firms, with the most recent acquisition of significance being that of Cellectis by Qiagen in 2011.

Amongst privately held life science companies, Elastagen is being acquired by Allergan for approximately \$121 million (US\$95 million) with the potential for US\$165 million in contingent payments. Adelaide-based immunoassay business TGR Biosciences is to be acquired by German company Sygnis for a total deal value of €0.4 million (~\$17 million), comprising an up front €6.5 million, a €1.3 million payment due in a year, and earnouts of €3.5 million, but adjusted for €0.6 million in cash held by TGR. TGR has been profitable and paying dividends for several years. TGR is being acquired on an indicative EBITDA multiple of 7.4.

The transactions demonstrate that life science assets can be proven up and developed in Australia and that returns can be made from investing in the sector.

Index Performance by Quarter (Change from previous Qtr)

	Q1 2017*	Q2 2017	Q3 2017^	Q4 2017**	Q1 2018
Bioshares Index	2.4%	-13.9%	-6.2%	10.6%	2.8%
Bioshares Large Cap Index	19.1%	7.9%	-2.6%	7.8%	8.9%
Bioshares MedCann Index				53.4%	9.6%
Nasdaq Biotech Index^^	10.7%	5.7%	7.6%	-3.9%	-0.7%
ASX 300 Index	3.4%	-2.4%	-0.6%	6.9%	-4.9%

**Medicinal Cannabis stocks moved from Bioshares Index to separate index

*MYX and SIP included in Bioshares Large Cap Index from Q1 2017

^SRX and SIP moved back to Bioshares Index

^NBI as of March 28

Bioshares Index - Top 10 Underperformers – Mar. Quarter

Company	Code	Cap. \$m	Change - Quarter	Change - Year	Price 29/03/18
Medigard	MGZ	2	-43%	-43%	\$0.017
Imagion Biosystems	IBX	13	-43%		\$0.063
Reva Medical	RVA	161	-43%	-59%	\$0.390
Medibio	MEB	40	-42%	-44%	\$0.200
AirXpanders	AXP	122	-41%	-51%	\$0.425
Atcor Medical	ACG	6	-38%	-60%	\$0.023
G Medical	GMV	82	-38%		\$0.240
Prana Biotechnology	PBT	25	-35%	-35%	\$0.046
Oventus	OVN	38	-35%	-42%	\$0.360
ITL Health Group	ITD	27	-33%	-33%	\$0.315

Outperformers

Invision was most successful performer of the stocks in the Bioshares Index in the March quarter, with its shares rising 500%. The company is now capitalised at \$196 million. Invision has acquired a photo-dynamic therapy which uses next-generation sensitizers, which has potential as a cancer treatment.

Botanix Pharmaceuticals stock rose 450% over the quarter, which was a reflection of positive results reported for the company's Phase Ib trial of its acne treatment candidate BTX1503. The company also completed the largest capital raising for the quarter, with \$15 million in new funding received.

Innate Immunotherapeutics shares rose 171% for the quarter, a consequence of the company's plans to acquire cancer drug developer Amplia Therapeutics.

BARD1 Life Sciences shares developed momentum in conjunction with a capital raising, rising 157% to finish at \$0.018.

Cynata Therapeutics shares (up 122%) moved on the back of a data safety monitoring board's recommendation to progress its Phase I trial of Cymerus into the next cohort of patients. Clearing an initial safety hurdle was also behind Imugene's 120% rise, with no safety, toxicity or tolerability issues reported for its first cohort of three patients.

Underperformers

Medigard clocked in a 114% rise in the previous quarter, so its 43% softening in the March quarter was no surprise.

Imagion Biosystems shares fell 43%, reflecting potentially investors' decision to focus on the stock once it completes pre-clinical tasks and then launches its first-in-human study later in the year.

Although Reva Medical received a CE Mark for its bioresorbable coronary scaffold (stent) in February, an explanation for its depressed share price is that it requires funding for marketing.

Capital Raisings by Australian-listed Biotech Companies Q1 2018

Company	Code	Investment Manager or Investor	Type of Raising	Funds Raised (\$M)
Mesoblast	MSB	Hercules Capital / Cantor Fitzgerald	Credit Facility (T1 - US\$35 M)	\$44.9
Botanix Pharmaceuticals	BOT	Bell Potter / Argonaut Securities	Placement	\$15.0
Noxopharm	NOX	Bell Potter	Placement	\$10.8
Somnomed	SOM	TDM Asset Management	Rights Issue	\$10.4
Oncosil Medical	OSL	Wilson's Corporate Finance	Placement (T1)	\$8.7
Dimerix	DXB		Rights Issue	\$5.5
Dimerix	DXB	Westar Capital / Baker Young Stock Brokers	Placement	\$2.0
LBT Innovations	LBT	PAC Partners / Hawkesbury Partners	Placement	\$7.0
Immutep	IMM	Platinum Asset Management / Australian Ethical / Lucy Turnbull / Ridgeback Capital Investments	Placement	\$6.9
Immuron	IMC	Joseph Gunnar / H.C. Wainwright	Placement	\$5.1
Micro-X	MX1		Convertible Note	\$5.0
Race Oncology	RAC		Placement	\$3.6
Invion	IVX		Rights Issue	\$2.5
Algae.Tec	AEB	Cove Capital	Placement	\$2.5
Patrys	PAB	Somers & Partners	Rights Issue	\$2.4
GI Dynamics	GID		Placement	\$2.0
StemCell United	SCU	Cove Capital / Jinxin Yongjiang Health Food Company Ltd	Rights Issue	\$1.6
Orthocell	OCC	Shaw & Partners	SPP	\$1.5
Phosphagenics	POH		Placement	\$1.4
Bard1 Life Sciences	BD1	Taurus Capital	Placement	\$1.3
Mediguard	MGZ		SPP	\$0.4
Elixinol Global	EXL	Bell Potter	IPO	\$20.0
Total raised in Q1 2018				\$160.5
Total raised YTD 2018				\$160.5

Capital Raisings

In the March quarter 2018, ASX-listed life science companies raised \$161 million through debt financing, placements, rights issues, convertible notes, SPPs and one single IPO.

This figure was 47% below the \$300 million raised in the December quarter, 2017, and 15% below \$189 million raised in the previous corresponding quarter. In 2017, \$840 million was raised by listed life science companies.

Changes to the Australian Government's R&D Tax Incentive scheme may be announced in the May budget. If provisions of the scheme are tightened such that eligible Australian life science companies will receive less in the way of refunds, then the demand for debt funding may increase going forward if biotech equity markets show increased levels of sensitivity.

Bioshares

Bioshares Model Portfolio (29 March 2018)

Company	Code	Price (current)	Price added to portfolio	Recommendation	Cap'n (\$M)	Date added
Clinuvel Pharmaceuticals	CUV	\$9.90	\$4.15	Spec Buy A	\$473	December 2014
Bionomics	BNO	\$0.56	\$0.295	Spec Buy A	\$270	March 2016
Somnomed	SOM	\$3.04	\$0.94	Buy	\$189	January 2011
AirXpanders	AXP	\$0.43	\$0.745	Spec Buy A	\$122	September 2015
Opthea	OPT	\$0.58	\$0.160	Spec Buy A	\$117	November 2014
Volpara Health Technologies	VHT	\$0.72	\$0.375	Spec Hold A	\$105	June 2017
Pharmaxis	PXS	\$0.33	\$0.260	Spec Buy A	\$104	December 2016
Osprey Medical	OSP	\$0.29	\$0.695	Spec Hold B	\$97	September 2015
Visioneering Technologies	VTI	\$0.45	\$0.435	Spec Buy A	\$88	March 2017
Micro-X	MX1	\$0.39	\$0.38	Spec Buy A	\$56	May 2017
MediBio	MEB	\$0.20	\$0.395	Spec Buy A	\$40	September 2017
Dorsavi	DVL	\$0.21	\$0.480	Spec Buy B	\$35	December 2016
Adalta	1AD	\$0.34	\$0.23	Spec Buy A	\$34	July 2017
Factor Therapeutics	FTT	\$0.04	\$0.041	Spec Buy B	\$33	March 2018
Adherium	ADR	\$0.17	\$0.495	Spec Buy A	\$29	May 2016
AcruX	ACR	\$0.16	\$0.31	Spec Buy A	\$27	July 2017
Rhinomed	RNO	\$0.13	\$0.320	Spec Buy B	\$15	December 2015

Portfolio Changes – 29 March 2018

IN:
No changes

OUT:
No changes

Selected Clinical Trial Developments - Q1 2018

Company	Code	Product/Therapeutic	Event
Actinogen Medical	ACW	Xanamem (Alzheimer's disease)	Reached half way point in recruitment in 174 pt trial (across 20 sites in the US, UK and Australia)
Benitec Biopharma	BLT	BB-101(DNA construct producing antisense RNA to EGRF) (head and neck squamous cell carcinoma)	Commenced 30 pt Phase II study; 5-8 sites across the USA and Russia
Factor Therapeutics	FTT	VF001-DP (wound healing, venous leg ulcers)	Reported 107 pts recruited in 168 pt trial
Cyclopharm	CYC	Technegas (lung imaging agent - structural ventilation)	Reported 40 pts recruited and imaged in Phase III, 240 pt non-inferiority study
Cynata Therapeutics	CYP	CYP-001 (allogenic, induced pluripotent stem cell-derived mesenchymal stem)	All 8 pts in low er dose cohort demonstrated at least a Partial Response. No treatment-related serious adverse events or safety concerns identified
Imugene	IMU	IMU-131 (HER-Vaxx) (cancer vaccine)	Reported no safety, toxicity or tolerability issues w ith dosing of pts in first cohort (3pts).
Immutep	IMM	Eftilagimod-alpha (LAG-3)g fusion protein) (metastatic melanoma)	Initiated 30mg cohort (6 pts) in Phase I trial. In combination w ith pembrolizumab (Keytruda)
Immuron	IMC	IMM-124E (NASH)	133 pt Phase II trial delivered mixed results. Effects on LPS, ALT and AST levels w ere observed, but no significant effect on liver fat levels.
MMJ Phytotech	MMJ	Satipharma CBD capsules (refractoru or treatment resistant epilepsy)	15 pt, open label trial. 8 of 10 pts of first cohort completed trial. Reported "promising evidence of efficacy". In 6 pts, reported a 59%-91% reduction in mean monthly seizure frequency in 12 w eeks follow ing treatment.
Mesoblast	MSB	MPC-06-ID (allogeneic mesenchymal precursor stem cells) (chronic low er back pain)	Completed enrolment in 404 pt Phase III trial
Neurotech International	NTI	Mente Autism (neurofeedback device)	Completed trial, analysis underw ay
OBJ	OBJ	Magnetophoresis enhanced transdermal ibuprofen patch	24 pt trial. Reported statistically significant difference between active patch and placebo, for VAS for pain on movement, WOMAC pain and WOMAC function scores.
Orthocell	OCC	CelGro (repair of damaged or severed nerves)	Reported treatment of first 6 pts, at 20 days post operation; product w as safe and w ell tolerated
Oncosil Medical	OSL	Oncosil (targeted radioactive isotope - Phosphorus032) (pancreatic cancer)	Announced, 27 of 35 pts implanted. 20 pts have reached key w eek 8. 14 reached key w eek 16. 2 pts have advanced to surgical resection.
Paradigm Biopharmaceuticals	PAR	Pentosan Polysulphate Sodium (PPS) (knee osteoarthritis)	Reported 50% recruitment reached in randomised, double blind, placebo controlled Phase IIb trial. 100 subjects.
Paradigm Biopharmaceuticals	PAR	Pentosan Polysulphate Sodium (PPS) (Ross River virus)	Reported 70% recruitment reached in randomised, double blind, placebo controlled Phase IIb trial. 24 subjects.
Starpharma	SPL	DEP cabazitaxel (advanced solid tumours)	Commenced Phase I/II trial. 35 pts (15 Phase I, 20 Phase II). Open label, dose finding study.

The ASX-Listed Life Sciences Sector
March 29, 2018: Capitalisation \$116 billion, 142 companies

Bioshares Large Cap. Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 29/03/18
CSL	CSL	70,330	Manufactures pharmaceutical products including vaccines and human plasma fractions	10%	24%	\$155.46
Resmed Inc.	RMD	17,661	Manufactures diagnostic and treatment equipment for sleeping disordered breathing	12%	33%	\$12.36
Cochlear	COH	10,452	Manufactures cochlear hearing implants	6%	34%	\$181.62
Blackmores	BKL	2,167	Manufactures vitamin, mineral and herbal supplements and skin & hair products in Australia and N.Z.	-26%	12%	\$125.77
Mayne Pharma Group	MYX	1,129	Manufactures, develops and markets generic drugs, with operations in Australia and the USA	6%	-48%	\$0.740

Capitalisation Total 101,738

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 29/03/18
Sirtex Medical	SRX	1,547	Sale and manufacture of radioactive particles to irradiate tumours in the liver. In the process of being acquired by Varian Medical Systems.	68%	55%	\$27.740
Sigma Pharmaceuticals	SIG	827	Pharmaceutical manufacturing and wholesaling	-21%	-40%	\$0.780
Nanosonics	NAN	769	Developing a novel disinfection technology, the first product is a point of care ultrasound probe disinfection unit, branded Trophon EPR	-7%	-17%	\$2.570
API	API	739	Pharmaceutical wholesaler	-11%	-26%	\$1.500
Mesoblast	MSB	701	Developing cellular medicines based on its proprietary mesenchymal lineage adult stem cells for high, unmet medical needs including advanced heart failure, chronic low back pain, acute graft versus host disease and inflammatory conditions such as biologic refractory rheumatoid arthritis.	2%	-35%	\$1.490
Clinuvel Pharmaceuticals	CUV	473	Markets an analogue of the alpha-MSH protein, named Scenesse, as a photo-protective agent. Approved in Europe.	21%	44%	\$9.900
Viralytics	VLA	469	Developing a cancer treatment based on the application of viruses (oncolytic virus technology). In the process of being acquired by Merck.	144%	40%	\$1.685
Starpharma Holdings	SPL	463	Developer of pharmaceutical chemical scaffolds known as 'dendrimers'	-8%	87%	\$1.250
Medical Developments	MVP	416	Commercialising the Pentrox inhaler for temporary pain relief. Used widely in ambulances across Australia.	-2%	39%	\$7.040
Polynovo	PNV	347	Developing novel polymer-based products for treating wounds and burns	2%	96%	\$0.530
Neuren Pharmaceuticals	NEU	295	Developing neuroprotective therapeutics.	-7%	112%	\$2.970

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 29/03/18
Impedimed	IPD	282	Markets products that aid the diagnosis of secondary lymphoedema, muscle wasting and other disorders	-27%	3%	\$0.745
Bionomics	BNO	270	Developing drugs to treat cancer and CNS diseases, and has also developed a gene diagnostic for epilepsy.	45%	49%	\$0.560
AFT Pharmaceuticals	AFP	204	Development and sale of pharmaceuticals in Australasia and Rest-of-World	-29%	-14%	\$2.100
Invion	IVX	196	Development of Photosoft, a photosensitiser derived from chlorophyll, which it is believed can accumulate selectively in tumours and be manipulated for therapeutic purposes.	500%	1100%	\$0.036
Somnomed	SOM	189	Markets oral devices for the treatment of sleep apnea and snoring.	-16%	-8%	\$3.040
Reva Medical	RVA	161	Developing the Fantom scaffold, its third version of a bioresorbable coronary stent	-43%	-59%	\$0.390
Clovercorp	CLV	157	Development and production of omega-3 food additives from tuna oil	30%	90%	\$0.950
Cynata Therapeutics	CYP	124	Stell cell technology company aiming to produce unlimited uniform, pharmaceutical grade MSCs from a single donor.	122%	186%	\$1.375
Ellex Medical Lasers	ELX	124	Develops, manufactures and markets solid state ophthalmic lasers used to treat secondary cataracts and retinal disorders.	-10%	-21%	\$0.865
AirXpanders	AXP	122	Design, manufacture and distributor of the Aeroform, a patient controlled tissue expander, for use in breast reconstruction after mastectomy	-41%	-51%	\$0.425
Opthea	OPT	114	Developing OPT-302 to treat wet AMD (an eye disease)	-19%	-30%	\$0.565
Telix Pharmaceuticals	TLX	114	Development of molecularly-targeted radiation (MTR) therapies and diagnostics	-12%		\$0.575
Volpara	VHT	105	Markets breast density assessment tools and analytics, for use with breast X-ray screening programs	44%	53%	\$0.720
Noxopharm	NOX	104	Developing a cancer treatment, NOX66, a formulation of idronoxil, which targets NADH oxidase 2.	-20%	103%	\$0.905
Pharmaxis	PXS	104	Markets the lung function test, Aridol. Bronchitol is approved in Europe for the management of cystic fibrosis. Developing a suite of compounds from amine oxidase platform.	27%	12%	\$0.325
Osprey Medical	OSP	97	Markets DYEVERT, a device which reduces the amount of dye needed in imaging procedures	-30%	-34%	\$0.285
Imugene	IMU	94	Developing a Her2 positive cancer vaccine technology	120%	106%	\$0.033
Cogstate	CGS	90	Markets cognitive performance diagnostic products	-11%	-23%	\$0.790
Visioneering Technologies	VTI	88	Markets a next-generation contact lens	-19%		\$0.445

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 29/03/18
G Medical	GMV	82	Developing next generation mobile health and e-health devices, and cloud and medical call centres	-38%		\$0.240
Cyclopharm	CYC	81	A nuclear medicine company that markets the Technegas lung imaging system	25%	46%	\$1.185
ResApp Health	RAP	79	Developing digital healthcare solutions to diagnose and manage respiratory conditions	54%	-68%	\$0.120
Admedus	AHZ	79	Diversified medical products group. Markets Cardiocel, a bio-scaffold and is also developing a HSV-2 vaccine.	5%	-7%	\$0.310
Botanix Pharmaceuticals	BOT	75	Developing BTX1503 for the treatment of acne. BTX1503 combines synthetic cannabidiol with a transdermal drug delivery system, Permetrex.	450%	62%	\$0.110
Anatara Life Sciences	ANR	74	Developing a natural antibiotic for the animal production industries	-13%	25%	\$1.500
Oncosil Medical	OSL	72	Developing Oncosil, a brachytherapy for pancreatic cancer and liver cancer	-16%	37%	\$0.130
SDI	SDI	68	Manufacture & distribution of amalgam (fillings) & other dental materials and product R&D	-6%	-5%	\$0.570
Compumedics	CMP	66	Develops, manufactures and markets sleep diagnostic and monitoring equipment.	-12%	-31%	\$0.370
Medadvisor	MDR	64	Medication adherence software platform company	2%	48%	\$0.049
pSiVida	PVA	63	Developing drug delivery technologies, with a special focus on ophthalmic applications. To delist from the ASX in May. Also will change name to Eyepoint Pharmaceuticals.	11%	-36%	\$1.610
Phylogica	PYC	60	Developing peptide compound libraries for use in human therapeutics	-30%	-10%	\$0.028
Avita Medical	AVH	58	Markets ReCell, a skin repair product	-10%	-42%	\$0.057
Probiotec	PBP	57	Manufacturer, marketer and distributor of a range of over the counter (OTC) pharmaceuticals, complementary medicines and speciality ingredients	3%	107%	\$0.930
Micro-X	MX1	56	Development of a mobile medical x-ray imager for hospitals, a version for deployed military use and a mobile security back-scatter imager	-9%	-20%	\$0.390
Immutep	IMM	55	Development immuno-oncology drug candidates IMP761 and IMP321 (eftilagimod alpha)	5%	-26%	\$0.023
Immuron	IMC	54	Sales and development of hyper-immune bovine colostrum products for therapeutic use	97%	-12%	\$0.375
Bioxyne	BXN	52	Sale and distribution of probiotics	-11%	290%	\$0.082
OBJ	OBJ	51	Developing transdermal drug delivery technologies	-28%	-57%	\$0.029

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 29/03/18
Invitrocue	IVQ	49	Singapore-based analytical services company (life sciences). Listed through BUN.	25%	18%	\$0.100
Universal Biosensors	UBI	47	Development, manufacture and commercialisation of a range of in vitro diagnostic tests for point-of-care use	-10%	-34%	\$0.270
Benitec Biopharma	BLT	41	R&D company focusing on gene silencing, specifically DNA delivered RNAi technology	0%	18%	\$0.200
Medibio	MEB	40	Commercialising a test for depression and anxiety	-42%	-44%	\$0.200
Vita Life Sciences	VLS	40	Development, manufacture and distribution of prescription and OTC medicines as well as complementary and alternative medicines, dietary supplements and health foods	-5%	-33%	\$0.735
Respiri	RSH	39	Respiratory and pulmonary devices company. Markets Airsona, an ehealth product.	105%	114%	\$0.090
Patrys	PAB	38	Currently evaluating strategic collaborations and other complementary assets. Recently inlicensed two nucleus-penetrating antibodies, Deoxymabs 3E10 and 5C6	78%	486%	\$0.041
Oventus	OVN	38	Developing an oral appliance to treat sleep apnea and snoring	-35%	-42%	\$0.360
Mach 7 Technologies	M7T	38	Development and sales enterprise imaging management platform	7%	-90%	\$0.290
Kazia Therapeutics	KZA	36	Formerly Novogen. Developing GDC-084 for the treatment of glioblastoma multiform (a brain cancer).	67%	12%	\$0.750
Asian American Medical Group	AJJ	35	Manages liver treatment centres in Asia; expanding into radiation oncology	5%	-13%	\$0.105
Dorsavi	DVL	35	Commercialising a wireless sensor movement monitoring system and products for use in the Elite Sports, OH&S and medical/physiotherapy markets	-30%	-48%	\$0.210
Paradigm Biopharm.	PAR	35	Development of existing approved drug, pentosan polysulphate sodium to treat bone marrow oedema and allergic rhinitis	4%	-39%	\$0.290
Adalta	1AD	34	Developing AD-114 for the treatment of idiopathic pulmonary fibrosis (IPF) and other human fibrotic diseases	36%	48%	\$0.340
Orthocell	OCC	34	Developing and marketing regenerative medicine products	-10%	-23%	\$0.305
Actinogen Medical	ACW	33	Developing Xanamem for the treatment of dementia in Alzheimer's disease patients	15%	-25%	\$0.047
Optiscan Imaging	OIL	32	Manufactures confocal microscopes for clinical diagnosis	-25%	7%	\$0.075
USCOM	UCM	31	Markets Uscom, a non-invasive heart output function monitor, BP+ non-invasive central blood pressure product and digital ultrasonic spirometry products	10%	15%	\$0.230

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 29/03/18
Brain Resource Corp	BRC	30	Development and commercialisation of functional brain analysis techniques	-3%	-36%	\$0.058
Factor Therapeutics	FTT	29	Developing VF-001, for the treatment of venous leg ulcers and potentially to treat ocular conditions	-22%	-43%	\$0.040
Adherium	ADR	29	Commercialising the Smartinhaler range of devices that attach to prescription third-party inhalers, which improve compliance and efficacy	65%	-6%	\$0.165
Vectus Biosystems	VBS	28	Developing an anti-fibrotic compound, VB0004, with applications in heart and kidney disease	-12%	-23%	\$1.190
Race Oncology	RAC	27	Completing the development of a chemotherapy drug, called Bisantrene, which was the subject of more than 40 phase II clinical studies during the 1980s and 1990s.	-18%	64%	\$0.360
ITL Health Group	ITD	27	Divested custom pack business. Now operates a DTC pathology test business, MyHealthTest and ITL BioMedical, which manufactures devices for clinical, laboratory and blood banking markets.	-33%	-33%	\$0.315
Cellmid	CDY	27	Develops and markets therapies and diagnostic tests for fibrotic diseases, cancer, ischemic diseases of the heart and hair loss.	-8%	-36%	\$0.470
AcruX	ACR	27	Developer of topical generic drugs	7%	-45%	\$0.160
LBT Innovations	LBT	26	Developer of innovative products which deliver productivity benefits across a range of life science settings	-19%	-54%	\$0.150
Genetic Signatures	GSS	26	Development and sale of molecular diagnostics(MDx) kits and products	-23%	-42%	\$0.250
Regeneus	RGS	25	Commercialisation of autologous adipose derived stem cells and factors. Markets HiQCell for human use and CryoShot for veterinary use.	-4%	-20%	\$0.120
Prana Biotechnology	PBT	25	Developing drugs to treat CNS diseases such as Alzheimer's and Parkinson's	-35%	-35%	\$0.046
RHS	RHS	24	Markets the pre-implantation IVF screening kit, EmbryoCollect. <i>In the process of being acquired by PerkinElmer.</i>	93%	260%	\$0.270
Alcidion	ALC	24	Markets a health informatics platform, which incorporates an intelligent EMR, clinical decision support engine, data Integration capability, smartforms, terminology support and	-20%	-47%	\$0.039
Bluechip	BCT	24	Development, manufacture and commercialisation of a tracking system for biological samples	-12%	91%	\$0.061
Prescient Therapeutics	PTX	22	Developing compounds to treat various cancers	57%	5%	\$0.105
Genetic Technologies	GTG	22	Markets Brevagen, a breast cancer risk prediction tool	-31%	-10%	\$0.009
Holista Colltech	HCT	22	Extracts collagen from sheepskins and markets natural healthcare products.	32%	-28%	\$0.115

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 29/03/18
Phosphagenics	POH	21	Commercialising a platform technology (alpha-tocopherol) , for human and animal applications.	-28%	-13%	\$0.013
Neurotech International	NTI	20	Development and sales of Mente (and platform), a treatment for improving behaviours of people with autism and other neurological conditions	-10%		\$0.180
IDT Australia	IDT	20	Manufacturer of pharmaceutical ingredients to international standards for major pharmaceutical groups.	-11%	-43%	\$0.080
Rhythm Biosciences	RHY	19	Developing Colostat, a blood test for the early detection of colorectal cancer	-5%		\$0.190
Innate Immuno-therapeutics	IIL	19	Assessing its options following the failure of MIS416 in a Phase II clinical trial	171%	-90%	\$0.076
Anteo Diagnostics	ADO	18	Developer of a biological coatings technology that can be applied to immunoassays, bio-separations, drug delivery and other medical devices	0%	-52%	\$0.016
Dimerix	DXB	18	Developing a combination therapy, DMX200, to treat chronic kidney disease.	-8%	-4%	\$0.115
StemCell United	SCU	18	Applies a proprietary stem cell technology to culture and grow plant extracts for use in Traditional Chinese Medicine.	-13%	-82%	\$0.035
Genera Biosystems	GBI	17	Develops, manufactures and distributes advanced molecular diagnostic tests, with a particular focus on women's health.	-20%	-16%	\$0.160
GI Dynamics	GID	17	Commercialising the Endobarrier, an implantable polymer liner for the management of obesity and diabetes	0%	-60%	\$0.028
Bio-Gene Technology	BGT	17	Commercialisation of the insecticides Flavocide (synthetic) and Qcide (plant-derived), in the fields of human health and crop protection.	-33%		\$0.135
Suda Pharmaceuticals	SUD	17	Developing drugs for oro-mucosal administration. Recently divested trading business.	-13%	-33%	\$0.014
Proteomics International	PIQ	17	Provider of protein chemistry analytical services. Seeking to commercialise a diabetic kidney disease diagnostic.	-13%	18%	\$0.235
Analytica	ALT	17	Markets the Pericoach product to aid in the management of female urinary incontinence. Has appointed advisor to sell Pericoach and Autoburette and possibly the company.	20%	0%	\$0.006
Sienna Cancer Diagnostics	SDX	16	Development and sale of an in vitro diagnostic, SCD-A7, as an adjunct to urine cytology, in the field of bladder cancer detection and diagnosis	-9%		\$0.100
Rhinomed	RNO	15	Developing nasal technologies with applications for sport performance, sleep and drug delivery.	0%	-28%	\$0.130
BARD1 Life Sciences	BD1	15	Developing cancer diagnostics and therapies. Lead program is the BARD1 lung cancer test. Acquired Swiss company BARD1AG.	157%	-51%	\$0.018
TBG Diagnostics	TDL	14	Development of HLA SSA and SBT diagnostic kits and related services	8%	-61%	\$0.066

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 29/03/18
Living Cell Technologies	LCT	14	Development of NTCELL for the treatment of Parkinson's Disease, and potentially for eye and ear diseases.	-11%	-82%	\$0.024
Imagion Biosystems	IBX	13	Developing MagSense, a diagnostic technology which exploits the principles of superparamagnetic relaxometry	-43%		\$0.063
Recce	RCE	13	Development of an antibiotic ("RECCE") as a cancer treatment	-15%	-36%	\$0.145
Novita Healthcare	NHL	12	Design and development of training exercises that target core issues in early childhood and academic skills. Acquired Newly, and online matching marketplace which connects	-23%	-8%	\$0.034
Scigen	SIE	12	Singapore based developer and manufacturer of biopharmaceuticals, including human growth hormone, human insulin and human GCSF	-27%	-19%	\$0.022
Allegra Orthopedics	AMT	12	A developer and manufacturer of prosthetic implants and medical devices.	-14%	-65%	\$0.120
PharmAust	PAA	11	Manages Epichem, a drug discovery business. Also developing a veterinary anti-parasitic compound (PPL-1) as a human and animal cancer therapy.	-5%	14%	\$0.057
Lifespot Health	LSH	10	Acquired Lifespot AG, which has been developing a system for the diagnosis and evaluation of skin diseases, and BodyTel AG, which has been developing a system for the	-4%	-55%	\$0.135
Biotron	BIT	10	Developing compounds to treat HCV and HIV	-14%	-32%	\$0.025
Memphasys	MEM	9	Developing a sperm separation technology, SpermSep. Formerly NuSep.	0%	-60%	\$0.002
Resonance Health	RHT	8	Marketing the FerriScan technology, a non-invasive tool for measuring liver iron levels	-5%	-9%	\$0.021
Simavita	SVA	7	Commercialising an incontinence assessment technology	77%	-58%	\$0.023
Atcor Medical	ACG	6	Under restructuring. To be renamed Cardiex (CDX).	-38%	-60%	\$0.023
Antisense Therapeutics	ANP	6	Developing antisense compounds to treat multiple sclerosis and Duchenne Muscular Dystrophy	54%	-3%	\$0.037
Cryosite	CTE	5	Provides specialised storage services, especially for umbilical cord blood	-8%	-39%	\$0.115
Jayex Healthcare	JHL	2	Commercialisation of the Enlighten patient workflow platform	0%	-47%	\$0.016
Medigard	MGZ	2	Developed retractable syringe technology and other safety medical products.	-43%	-43%	\$0.017

Capitalisation Total

12,642

Medicinal Cannabis Companies (Cultivated Production)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 29/03/18
Auscann Group Holdings	AC8	425	Developing medical cannabis products for the Australian market. Holds Australian ODC cultivation (MC) and manufacture license and TGA manufacture license.	96%	76%	\$1.565
Cann Group	CAN	416	Medicinal cannabis company focused on the breeding, cultivation and production stages. Holds Australian ODC cultivation (MC) and research license (CR).	9%		\$2.980
Elixinol Global	EXL	175	A supplier of hemp and medicinal cannabis products	70%		\$1.700
TPI Enterprises	TPE	122	Licensed poppy producer. Narcotic raw material processor. Holds Australian ODC cultivation (MC) and research license (CR).	-31%		\$1.510
Medlab Clinical	MDC	109	Development, production and marketing of nutraceuticals. Also developing cannabis product to treat cancer patients with intractable pain.	-23%	-35%	\$0.600
Creso Pharma	CPH	83	A developer of medical cannabis therapies. Headquartered in Zug, Switzerland. Acquired Hemp Industries, which grows hemp in Slovakia.	-18%	-1%	\$0.755
MMJ Phytotech	MMJ	81	Developing medical cannabis products for the Canadian market	-16%	-52%	\$0.365
Zelda Therapeutics	ZLD	79	A medical cannabis company researching treatments for cancer, dermatological indications and for sleep disorders	13%	19%	\$0.105
The Hydroponics Co.	THC	67	A medicinal cannabis company formed through the acquisition of Canndeo, an off-shoot of Agri Fibre Industries	-21%		\$0.540
Queensland Bauxite	QBL	61	Holds 55% stake in Medical Cannabis Ltd	-30%		\$0.040
Bod Australia	BDA	22	Developer and distributor of natural, evidence-based cosmetics and natural medicines. Holds medicinal cannabis import license. Overseas partner is Linnea SA.	-1%	0%	\$0.385
CannPal Animal Therap.	CP1	21	Research and development of cannabis-based therapeutics for companion animals	13%		\$0.225
Algae.Tec	AEB	20	Investor in Uruguayan company Biogenics. Has applied to the Australian ODC to cultivate and produce medicinal cannabis	8%		\$0.026
One Page	1PG	14	Has entered into binding agreement to buy parent company of the IIAPA Medical Group based in Germany.	0%		\$0.165
eSense Health	ESE	12	Specialises in phytochemical profiling of plants to develop and reverse engineer terpenes for medical and other applications. Currently suspended.	-45%		\$0.165
MGC Pharmaceuticals	MXC	10	A medical and cosmetic cannabis company with growing operations in Slovenia. Acquired Czech company Panax Pharma.	-3%	12%	\$0.086

Capitalisation Total **1,715**

Listed Biotech Investment Funds or Companies

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 29/03/18
BTC Health	BTC	28	Provides capital and management expertise to high-growth Australian biotech, medtech and pharmaceutical companies	-8%	11%	\$0.220
Capitalisation Total		28				
Capitalisation Total - All Indices		116,123				

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: Cogstate, Bionomics, LBT Innovations, Viralytics, Opthea, RHS, ResApp, Pharmaxis, Dimerix, Cyclopharm, Adalta, Medibio, Phylogica, Pharmaust

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