



July 21-22, 2017
Queenstown · New Zealand

**3 weeks to go! Register now
for Australia's premier
biotech investment meeting.**

Companies covered: IIL, MEB, PAR, RHS
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)	-6.0%
Cumulative Gain	709%
Av. Annual gain (14 yrs)	17.2%

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 - Analyst
Ph: (03) 9326 5382
Email: blake@bioshares.com.au
Mark Pachacz - Analyst
Ph: 0403 850 425
Email: pachacz@bioshares.com.au

Individual Subscriptions (48 issues/year)
\$470 (Inc.GST)
Edition Number 702 (30 June 2017)

Copyright 2017 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.

Bioshares

30 June 2017

Edition 702

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

Quarterly Review

Bioshares Index Loses 14% in June Quarter

The **Bioshares Index** suffered a steep decline of 13.9% in the June quarter, displaying the impact of the failure of Innate Immunotherapeutics MIS416 to yield a positive result in its Phase II trial in multiple sclerosis patients in the secondary progress phase of the disease (see page 2 for commentary on this result.)

While the negative trial result for Innate Immunotherapeutics was one factor contributing to the decline in the index, the reality was that nearly 80% of stocks in the index suffered declines over the quarter, with 40% of stocks registering declines of 20% or greater.

Another influence on Bioshares Index stock prices came from the easing in demand that follows capital raisings and associated run-ups in price. For example, the shares of medicinal cannabis company Auscann were wound back by 52% over the quarter. However, this had followed a \$12 million placement in May and a ~350% increase in its share price between February and April.

The performance of the Bioshares Index was in stark contrast to a 7.9% gain in the **Bioshares Large Cap Index** and a 5.7% gain in the Nasdaq Biotech Index, which has strengthened considerably over 2017 H1.

The increase in the Bioshares Large Cap Index benefited from a 10% increase in CSL's share price, an 8% rise for Cochlear and a 15% upwards move for Resmed, offsetting declines for Blackmores (-15%), Mayne Pharma (-24%), Sigma Pharmaceuticals (-31%) and Sirtex Medical (-9%). The initiation of legal proceedings against MyChemist/MyChemist Warehouse group brought about the decline in Sigma's share price.

Cont'd on page 4

Index Performance by Quarter (Change from previous Qtr)

	Q2 2016	Q3 2016	Q4 2016	Q1 2017*	Q2 2017
Bioshares Index	-2.3%	15.1%	-7.7%	2.4%	-13.9%
Nasdaq Biotech Index	-1.2%	12.4%	-8.4%	10.7%	5.7%
Bioshares Large Cap Index	9.3%	1.2%	-7.1%	19.1%	7.9%
ASX 300 Index	3.0%	4.0%	4.0%	3.4%	-2.4%

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

Correction

We incorrectly stated in our Summit block notice (at the top left hand side of page 1) that 48 ASX LS Companies & 24 ANZ Private Biotechs would be attending the Summit. We mistakenly referred to attendees not companies. The statement should have read that 35 ASX LS Companies & 17 ANZ Private Biotechs would be attending the Summit.

Innate Immunotherapeutics – No Therapeutic Activity for MIS416

Innate Immunotherapeutics (IIL: \$0.062) produced stunning results for its Phase II, 93 patient trial of MIS416 in multiple sclerosis (MS). The results stunned shareholders, patients and the company for the wrong reason – there was no measure of efficacy when compared against placebo on any of the metrics used. The stock was down 90% for the week, with little optimism for any second chance for the drug candidate.

The company described the outcome as a “shock” given the positive Phase IIa data that has been previously generated and the extensive compassionate use experience with the drug candidate over the last eight years.

In doubt now is any continued access for patients under the compassionate use program. Patients from this program had previously described their positive treatment outcomes with the drug candidate and there were positive assessments of patients from one of the treating practitioners in New Zealand.

There was also little optimism from the company's board. Chairman Michael Quinn this week sold all 2 million shares he owned (directly and through family interests) at 5.5 cents a share. Director Andrew Sneddon sold 611,000 shares at 0.45 cents a share. At their peak, these board members' shares were worth \$3.6 million and \$1.8 million (including 364,000 shares still held) respectively.

Innate will be reviewing the data in more depth, particularly around specific patient outcomes in the patients who complied with the trial.

One curious outcome within the data was that 27% of patients in the active arm stopped treatment compared to only 13% in the placebo arm (with 11% in the active arm stopping treatment due to adverse events, compared to 6.5% in the placebo arm). Several of the adverse events were due to the initial response to the treatment which is expected response which includes fever and chills.

In a conference call with investors, CEO Simon Wilkinson said that historically, the beneficial outcomes seen with treatment related to reduction in body pain, improved hand function, and better bladder and bowel control, although these were not always consistent across patients.

The most consistent response was an improvement in fatigue, which in a clinical trial can be difficult to objectively assess.

Wilkinson said that the company was distressed by the impact of the result on patients on current treatment and the wider MS community.

Results from the review into the results is expected within four to six weeks.

The outcome is very disappointing for investors in Innate Immunotherapeutics. The result is a harsh reminder of the risks involved in investing in drug development stocks, and a very good argument for more regular profit taking (of a percentage of

holdings) from investments in biotech stocks, irrespective of how strong previous clinical data and supporting information appears.

One of the big winners from Innate was fund manager Australian Ethical Investments (AEI). At its peak, the fund held 11% of the company and sold down to less than 5% well prior to data release. That sell down was documented through ASX releases and noted in *Bioshares* 680 and *Bioshares* 685. AEI paid \$5 million for its shareholding, and had sold \$8.8 million of shares when it went to below a substantial shareholding in January this year with 10.8 million shares. If it had sold its remaining stake at \$0.80, then its net profit would have been \$12.4 million.

Bioshares recommendation: **Sell**

Bioshares

RHS Teams Up with Monash IVF for Novel IVF Screening Technique

RHS (formerly Reproductive Health Science)(RHS: \$0.155) has teamed up with one of the majors in Australia in the IVF market, Monash IVF Group, to develop a new way to conduct pre-implantation genetic (PGS) screening.

PGS is conducted by taking a biopsy on an embryo and conducting a genetic analysis of that embryo prior to implantation. However, one of the natural concerns is that a biopsy may damage the embryo, even though that risk is low. Monash IVF, through its research centre in Adelaide, Repromed, has been developing a process that uses free DNA from culture media used in the IVF process.

Using the RHS Doplify technology to copy the DNA cells, the two companies have validated the process that free DNA matches up from DNA taken from biopsied embryos. Repromed is now conducting a clinical trial to assess pregnancy rates between non-invasive PGS and PGS using biopsied embryos. Patient recruitment has been completed with results expected later this year. A positive outcome will be an improvement in pregnancy rates.

RHS recently completed a capital raising, obtaining \$1.5 million at \$0.14 per share. The funds raised will be used to expand market and business development work around its Doplify and this non-invasive PGS technology.

RHS is capitalised at \$14 million.

Bioshares recommendation: **Speculative Buy Class C**

Bioshares

Medibio – More Positive Diagnostic Data, in PTSD

Medibio (MEB: \$0.36) has previously shown in two previous studies that its technology, which analyses sleeping patterns and changes in cardiac function during sleep is 86% and 82% accurate for diagnosing depression.

This week the company announced that using similar technology that the company has in-licensed from Emory University, that post-traumatic stress disorder (PTSD) can be accurately established in 80% of subjects.

Medibio's core technology was developed at the University of Western Australia and uses circadian, autonomic (part of the peripheral nervous system) and sleep biomarkers (including electrocardiograph data) to aid in the diagnosis and monitoring of disease progression of mental health disorders, including depression.

The technology licensed from Emory University measures ECG data when subjects are resting that is processed with machine-learning algorithms to assess for PTSD.

The core demand for this technology may not be specifically in just diagnosing PTSD, but in monitoring the severity of this condition and in measuring the effectiveness of treatment options, which are poor.

The researchers at Emory University plan to conduct additional studies to measure just such treatment effectiveness. The PTSD study was published in the journal *Physiological Measurement*. The study, in 48 subjects, including 23 with PTSD, was funded by Medibio.

A major market for Medibio's PTSD test (as well as its test for depression) will be with the US Department of Veteran Affairs, which has 18.8 million veterans currently living, with 2.3 million recent veterans who have served over the last 10 years.

While PTSD affects 3.5% of the general population, it affects somewhere between 11% - 30% of returning service members and 14% living with depression, which is about double the overall population (6.7% incidence of depression).

The Medibio technology may be a valuable tool for Veteran Affairs in the US to use to screen returning service members for early intervention in helping members returning with mental health issues such as anxiety, PTSD and depression. Early potential adoption by a large body such as Veteran Affairs may also be an excellent entry point for the Medibio tests.

Medibio is capitalised \$54 million with \$7.5 million in cash at the end of March.

Bioshares recommendation: Speculative Buy Class B

Bioshares

Paradigm Biopharmaceuticals – Negative Trial Outcome for Rhinosul but Reason for Some Optimism

Paradigm Biopharmaceuticals (PAR: \$0.29) reported a negative trial outcome with one of its Phase II programs, in the treatment of hay fever (See *Bioshares* 700).

However there may be some reason for optimism with a review underway of the solution used to carry the active pharmaceutical compound. There is the possibility that the carry solution used lacked viscosity and did not allow the drug to be contained within the nose to achieve a therapeutic outcome.

Paradigm is commercialising the established drug pentosan polysulphate sodium (PPS) for the treatment of a variety of conditions, including bone bruising, hay fever, joint damage associated with Ross River virus infection, and heart failure.

PPS has been on the market since 1949 for a variety of treatments, but primarily for the prevention and treatment of blood clots. PPS not only has anti-clotting properties, but also anti-inflammatory effects, which opens up a wide array of potential indications.

CEO Paul Rennie has shown his confidence in the company, buying just over \$100,000 in shares following the trial outcome at 35 cents per share.

Paradigm has a Phase II trial underway in the treatment of bone bruising, with an injectable form of the same compound used in the hay fever study. Early results from the first 10 patients are expected in Q3 2017, mainly around safety.

A clinical study is also expected to commence this year with the same compound to combat the effects of Ross River infection.

Paradigm this month in-licensed the rights to the same compound from the University of Oslo for the treatment of degenerative heart failure. The University of Oslo has published data around the ability of PPS to inhibit an enzyme involved with degenerative heart failure (ADAMTS4 versicanase). Paradigm will develop PPS for this indication in partnership with the University of Oslo.

Pending the assessment of the outcome in the hay fever trial, Paradigm may re-trial the compound with an improved formulation.

Paradigm is capitalised at \$30 million with \$4.1 million in cash at the end of March.

Bioshares recommendation: Speculative Buy Class B

Bioshares

Bioshares Model Portfolio (30 June 2017)							Portfolio Changes – 30 June 2017
Company	Code	Price (current)	Price added to portfolio	Recommend- ation	Cap'n (\$M)	Date added	
Clinuvel Pharmaceuticals	CUV	\$6.98	\$4.15	Spec Hold A	\$333	December 2014	IN: No changes OUT: Innate Immunotherapeutics has been removed at 6.2 cents.
Impedimed	IPD	\$0.755	\$0.245	Spec Hold A	\$283	December 2013	
Viralytics	VLA	\$0.970	\$0.300	Spec Buy B	\$233	August 2013	
Bionomics	BNO	\$0.400	\$0.295	Spec Buy A	\$193	March 2016	
AirXpanders	AXP	\$0.645	\$0.745	Spec Buy A	\$184	September 2015	
Somnomed	SOM	\$3.06	\$0.94	Buy	\$173	January 2011	
Opthea	OPT	\$0.750	\$0.160	Spec Buy A	\$150	November 2014	
Cogstate	CGS	\$1.140	\$0.13	Spec Buy A	\$129	November 2007	
Osprey Medical	OSP	\$0.400	\$0.695	Spec Buy B	\$103	September 2015	
Visioneering Technologies	VTI	\$0.425	\$0.435	Spec Buy A	\$84	March 2017	
Pharmaxis	PXS	\$0.250	\$0.260	Spec Buy B	\$80	December 2016	
Micro-X	MX1	\$0.46	\$0.42	Spec Buy A	\$66	May 2017	
Dorsavi	DVL	\$0.290	\$0.480	Spec Buy B	\$49	December 2016	
Volpara Health Technologies	VHT	\$0.360	\$0.375	Spec Buy Class B	\$40	June 2017	
IDT Australia	IDT	\$0.105	\$0.260	Spec Buy B	\$26	August 2013	
Adherium	ADR	\$0.135	\$0.495	Spec Buy A	\$23	March 2016	
Rhinomed	RNO	\$0.185	\$0.320	Spec Buy B	\$17	December 2015	

– from page 1

Capital Raisings

ASX-listed life science companies raised \$225 million during the March quarter, through placements, rights issues and convertible note issues. This figure included \$42.5 million raised by four companies through IPOs – The Hydroponics Company raised \$5 million, Imagion Biosystems \$12 million, G Medical Innovation \$12 million and Cann Group \$13.5 million.

Eight life science companies have listed on the ASX in the first half of 2017. In 2016, 15 companies either IPO'd or completed backdoor listings.

Year to date, \$413 million has been raised by ASX-listed life science firms.

Outperformers

The top performing stock for the June quarter was Asian markets-focused biopharmaceuticals manufacturer Scigen (+159%), a reflection of growth in sales and a growth in net profit of 62% to US\$2.1 million for CY2016.

A broadening awareness amongst the investment community is a possible factor contributing to a 115% rise in Botanix Pharmaceuticals' share price, with investors developing a deeper appreciation for that company's drug development plan and the significant opportunity that exists in the acne treatment space.

Recent IPO candidate Auscann's share price (+108%) benefited from unmet demand for a well structured medicinal cannabis cultivator and producer.

RHS (see page 2) announced a joint program with Monash IVF Group, to develop a new approach for pre-implantation genetic (PGS) screening. Its shares more than doubled over the quarter (+107%), although off a low base.

Dimerix shares increased by 67% over the quarter, motivated by a steady investment outreach program and the prospect of clinical trial data becoming available this month.

Underperformers

The worst performing stock for the quarter was Innate Immunotherapeutics, whose shares fell 92% over the quarter, a consequence of the previously mentioned failure of MIS416 in its Phase II trial,

US domiciled Unilife's share were down 87% over the quarter. The company is being managed through bankruptcy proceedings in the US.

Over the quarter, shares in Memphasys fell 80%, in BARD1 Life sciences by 73%, and in Mediguard by 63%,

Similar to Auscann, which had experienced a share price decline following a strong run-up, shares in medicinal cannabis plays Stem Cell United and MMJ Phytotech fell by 59% and 67% respectively.

Summary

The negative performance of the Bioshares Index in the June quarter was the result of not only the outcome of a clinical trial failure but also a consequence of the tapering in demand that follows surges of interest by investors in various stocks e.g. medicinal cannabis stocks or maturing device manufacturers such as Nanosonics. On a year on year basis, the Bioshares Index posted a 2% gain, suggestive of a lower but stable, positive trend for stocks included in the index as of June 30, 2016.

Bioshares

Bioshares Index – Top 10 Outperformers – June Quarter

Company	Code	Cap. \$m	Change - Quarter	Change - Year	Price 30/06/17
Scigen	SIE	39	159%	600%	\$0.070
Botanix Pharmaceuticals	BOT	23	115%		\$0.043
Cann Group	CAN	68	108%		\$0.625
RHS	RHS	14	107%	15%	\$0.155
Dimerix	DXB	18	67%	43%	\$0.010
The Hydroponics Co.	THC	31	48%		\$0.295
Optiscan Imaging	OIL	37	40%	390%	\$0.098
Phylogica	PYC	91	39%	231%	\$0.043
Cynata Therapeutics	CYP	55	27%	97%	\$0.610
Phosphagenics	POH	24	27%	58%	\$0.019

Bioshares Index - Top 10 Underperformers – June Quarter

Company	Code	Cap. \$m	Change - Quarter	Change - Year	Price 30/06/17
Innate Immunotherap.	IIL	14	-92%	-84%	\$0.062
Unilife Corporation	UNS	5	-87%	-93%	\$0.005
Memphasys	MEM	1	-80%	-83%	\$0.001
BARD1 Life Sciences	BD1	6	-73%		\$0.010
Medigard	MGZ	1	-63%	-71%	\$0.011
StemCell United	SCU	31	-59%	321%	\$0.080
MMJ Phytotech	MMJ	67	-58%	33%	\$0.325
Auscann Group Holdings	AC8	115	-52%		\$0.425
Anteo Diagnostics	ADO	18	-52%	-60%	\$0.016
Simavita	SVA	8	-51%	-46%	\$0.027

Selected Clinical Trial Developments - Q2 2017

Company	Code	Product/Therapeutic	Event
Actinogen Medical	ACW	Xanamem (Alzheimer's disease)	Treated first US patients in 174 pt trial (across 20 sites in the US, UK and Australia)
Avita Medical	AVH	ReCell (burns)	106 pt, randomised trial showed that ReCell advanced the rate of healing by 37%, compared to skin grafts (p<0.001)
Avita Medical	AVH	ReCell (severe burns)	Achieved both co-primary endpoints in 30 pt trial; 30% less donor skin was used with ReCell compared to skin graft (p<0.001); incidence of healing within 8
Botanix Pharmaceuticals	BOT	BTX1503 (synthetic cannabidiol) (acne)	Commenced Phase Ia safety, dosing and PK study
Cynata Therapeutics	CYP	CYP-001 (allogenic, induced pluripotent stem cell-derived mesenchymal stem cell) (GVHD)	Commenced Phase I study in 16 pts, who will have had a bone marrow transplant or similar procedure
Factor Therapeutics	FTT	VF001 (synthetic, combines parts of vitronectin and IGF0-1) (venous leg ulcers)	Phase II trial, aiming to screen 210 patients to achieve 168 randomised subjects (25 sites). Most clinical trial sites had been initiated by April; 1 site had dropped out. Academic sites yet to really start.
Innate Immunotherapeutics	IIL	MIS416 (Secondary progressive multiple sclerosis)	Phase II trial did not show clinically meaningful or statistically significant differences in measures of neuromuscular function or patient reported outcomes
MMJ Phytotech	MMJ	PTL201 (THC/CBD capsules) (spasticity related symptoms in multiple sclerosis pts)	Received Israel MoH approval to commence Phase II trial; randomised, placebo controlled, parallel group study in 70 pts
Mesoblast	MSB	MPC-150-IM (allogeneic mesenchymal precursor stem cells) (advanced chronic heart failure)	Announced that pre-specified interim futility analysis (at 270 of 600 pts) was successful
MGC Pharma	MXC	DermaPlus (product range) (cannabidiol) (skin conditions)	Reported that the products achieved an 80% improvement in acne prone skin, 73% improvement of irritated skin, and over 70% improvement in the visual appearance of redness, dryness, flaky and oily skin condition
Opthea	OPT	OPT-302 (soluble VEGFR3) (wet AMD)	Phase I/II trial; 51 pts. Safety endpoint was met. 90% of evaluable pts maintained or improved visual acuity at week 12; in treatment naïve pts who received combination tx, the mean change in visual acuity was 10.8 letters
Paradigm Biopharmaceuticals	PAR	Rhinosul (intra-nasal Pentosan Polysulphate Sodium) (allergic rhinitis)	Phase IIa trial did not meet primary endpoints of total nasal symptom score and peak nasal respiratory flow
Prescient Therapeutics	PTX	PTX-200 (AKT inhibitor) (breast cancer)	Completed dosing Phase Ib trial, 29 pts; however, last pt in trial died
Pharmaxis	PXS	Bronchitol (inhaled mannitol) (cystic fibrosis)	Completed Phase III trial; 423 pts; Delivered a statistically significant (p=0.020) improvement effect of 54ml over placebo and a relative effect of 2.2% (p=0.025) over 26 week treatment period
ResApp health	RAP	ResAppDx (smartphone application for the diagnosis and management of respiratory disease)	Pediatric clinical study update, 1,127 subjects. Achieved between 90% and 100% positive percent agreement with clinical diagnosis; and between 89% and 96% negative percent agreement
Regeneus	RGS	Progenza (allogeneic stem cell platform) (knee osteo-arthritis)	In a Phase I safety trial, showed that both doses appeared safe and were well tolerated

Capital Raisings by Australian-listed Biotech Companies Q2 2017

Company	Code	Investment Manager or Investor	Type of Raising	Funds Raised (\$M)
Reva Medical	RVA		Convertible Notes (US\$33.8M)	\$45.7
Reva Medical	RVA		Convertible Notes (US\$13.3M)	\$17.5
Opthea	OPT	Wilson Corporate Finance	Placement	\$45.0
Auscann	AC8	Canopy Growth Corp/ Tribeca	Placement	\$12.0
Micro-X	MX1	Wilson Corporate Finance	Placement	\$5.2
Micro-X	MX1	Wilson Corporate Finance	Rights Issue	\$4.8
Immuron	IMC	Joseph Gunnar &Co/ WallachBeth Capital	US Public Offer (US\$6.1M)	\$8.0
Botanix Pharmaceuticals	BOT	Argonaut	Placement	\$7.4
Oventus	OVN	Bell Potter Securities	Placement	\$7.0
GI Dynamics	GID	Crystal Amber Fund	Convertible Notes (US\$5M)	\$6.6
Zelda Therapeutics	ZLD	Merchant Corporate Advisory/ CPS Capital Group	Placement	\$6.0
Biotron	BIT	CPS Capital Group	Rights Issue	\$4.7
Creso Pharmaceuticals	CPH		Placement (T2)	\$3.2
RHS	RHS	Taylor Collison	Placement	\$1.5
Simavita	SVA		Placement	\$1.5
Simavita	SVA	Lodge Corporate	Rights Issue	\$0.8
Allegra Orthopaedics	AMT		Rights Issue	\$1.2
Creso Pharma	CPH		SPP	\$1.0
Brain Resource	BRC	Gleneagle Securities	Placement	\$1.0
Stem Cell United	SCU		Convertible Note (Conversions)	\$1.0
Invion	IVX		Placement	\$0.7
Invitrocue	IVQ		Placement	\$0.7
The Hydroponics Company	THC	Gleneagle Securities/ Red Leaf Securities	IPO	\$5.0
Imagion Biosystems	IBX	Focus Capital Partners	IPO	\$12.0
G Medical Innovation	GSS	Otsana Capital	IPO	\$12.0
Cann Group	CAN	Canaccord Genuity/ PAC Partners	IPO	\$13.5
Total raised in Q2 2017				\$224.9
Total raised in Q1 2017				\$188.7
Total raised YTD 2017				\$413.6

The ASX-Listed Life Sciences Sector

June 30, 2017: Capitalisation \$100.7 billion, 133 companies

Bioshares Large Cap. Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/06/17
CSL	CSL	62,643	Manufactures pharmaceutical products including vaccines and human plasma fractions	10%	23%	\$138.03
Resmed Inc.	RMD	14,235	Manufactures diagnostic and treatment equipment for sleeping disordered breathing	8%	21%	\$10.04
Cochlear	COH	8,927	Manufactures cochlear hearing implants	15%	28%	\$155.45
Blackmores	BKL	1,651	Manufactures vitamin, mineral and herbal supplements and skin & hair products in Australia and N.Z.	-15%	-27%	\$95.840
Mayne Pharma Group	MYX	1,640	Manufactures, develops and markets generic drugs, with operations in Australia and the USA	-24%	-43%	\$1.085
Sigma Pharmaceuticals	SIP	959	Pharmaceutical manufacturing and wholesaling	-31%	-21%	\$0.895
Sirtex Medical	SRX	934	The company's core technology uses radioactive particles to irradiate tumours in the liver. Approved for use in most major regions.	-9%	-36%	\$16.250

Capitalisation Total 90,989

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/06/17
API	API	933	Pharmaceutical wholesaler	-7%	13%	\$1.905
Mesoblast	MSB	890	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.	-9%	93%	\$2.080
Nanosonics	NAN	756	Developing a novel disinfection technology, the first product is a point of care ultrasound probe disinfection unit, branded Trophon EPR	-18%	16%	\$2.540
Reva Medical	RVA	354	Developing the Fantom scaffold, its third version of a bioresorbable coronary stent	-9%	-22%	\$0.860
Clinuvel Pharmaceuticals	CUV	333	Developing an analogue of the alpha-MSH protein, named Scenesse, as a photo-protective agent. Approved in Europe.	2%	62%	\$6.980
Medical Developments	MVP	292	Commercialising the Pentrox inhaler for temporary pain relief. Used widely in ambulances across Australia.	-2%	-19%	\$4.950
Impedimed	IPD	284	Markets products that aid the diagnosis of secondary lymphoedema, muscle wasting and other disorders	5%	-20%	\$0.755
Starpharma Holdings	SPL	269	Developer of pharmaceutical chemical scaffolds known as 'dendrimers'	9%	13%	\$0.730
Viralytics	VLA	233	Developing a cancer treatment based on the application of viruses (oncolytic virus technology)	-19%	-1%	\$0.970
AFT Pharmaceuticals	AFP	212	Development and sale of pharmaceuticals in Australasia and Rest-of-World	-27%	-25%	\$2.180
Bionomics	BNO	193	Developing drugs to treat cancer and CNS diseases, and has also developed a gene diagnostic for epilepsy.	7%	40%	\$0.400
AirXpanders	AXP	186	Design, manufacture and distributor of the Aeroform, a patient controlled tissue expander, for use in breast reconstruction after mastectomy	-25%	-31%	\$0.645

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/06/17
Somnomed	SOM	177	Markets oral devices for the treatment of sleep apnea and snoring.	-7%	-15%	\$3.060
ResApp Health	RAP	176	Developing digital healthcare solutions to diagnose and manage respiratory conditions	-20%	-20%	\$0.295
Medlab Clinical	MDC	153	Development, production and marketing of nutraceuticals. Also developing cannabis product to treat cancer patients with intractable pain.	-8%	86%	\$0.855
Opthea	OPT	150	Developing OPT-302 to treat wet AMD (an eye disease)	-7%	52%	\$0.750
Cogstate	CGS	130	Markets cognitive performance diagnostic products	12%	46%	\$1.140
Ellex Medical Lasers	ELX	129	Develops, manufactures and markets solid state ophthalmic lasers used to treat secondary cataracts and retinal disorders.	-3%	12%	\$1.065
Neuren Pharmaceuticals	NEU	122	Developing neuroprotective therapeutics	-3%	24%	\$0.068
Polynovo	PNV	117	Developing novel polymer-based products for treating wounds and burns	-22%	-25%	\$0.210
Auscann Group Holdings	AC8	115	Developing medical cannabis products for the Australian market	-52%		\$0.425
Compumedics	CMP	112	Develops, manufactures and markets sleep diagnostic and monitoring equipment.	18%	74%	\$0.635
Osprey Medical	OSP	103	Markets DYEVERT, a device which reduces the amount of dye needed in imaging procedures	-7%	82%	\$0.400
pSiVida	PVA	93	Developing drug delivery technologies, with a special focus on ophthalmic applications	-6%	-42%	\$2.360
Phylogica	PYC	91	Developing peptide compound libraries for use in human therapeutics	39%	231%	\$0.043
OBJ	OBJ	85	Developing transdermal drug delivery technologies	-29%	-41%	\$0.048
Visionering Technologies	VTI	84	Markets a next-generation contact lens	-2%	0%	\$0.425
Pharmaxis	PXS	80	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.	-14%	-2%	\$0.250
Universal Biosensors	UBI	73	Development, manufacture and commercialisation of a range of in vitro diagnostic tests for point-of-care use	1%	30%	\$0.415
Clovercorp	CLV	73	Development and production of omega-3 food additives from tuna oil	-12%	21%	\$0.440
SDI	SDI	69	Manufacture & distribution of amalgam (fillings) & other dental materials and product R&D	-3%	12%	\$0.580
Cann Group	CAN	67.9	Medicinal cannabis company focused on the breeding, cultivation and production stages	108%		\$0.625
Admedus	AHZ	68	Diversified medical products group. Markets Cardiocel, a bio-scaffold and is also developing a HSV-2 vaccine.	-21%	-18%	\$0.265
MMJ Phytotech	MMJ	67	Developing medical cannabis products	-58%	33%	\$0.325
Living Cell Technologies	LCT	63	Developing cell therapies for diabetes, Parkinson's disease and Huntington's disease	-15%	49%	\$0.110
Vita Life Sciences	VSC	59	Development, manufacture and distribution of prescription and OTC medicines as well as complementary and alternative medicines, dietary supplements and health foods	-5%	-22%	\$1.050
Prima Biomed	PRR	58	Development of cancer immuno-therapy company, based on targeting LAG-3.	-10%	-32%	\$0.028

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/06/17
Cyclopharm	CYC	56	A nuclear medicine company that markets the Technegas lung imaging system	1%	-16%	\$0.820
Zelda Therapeutics	ZLD	56	A medical cannabis company researching treatments for cancer, dermatological indications and for sleep disorders	-16%	0%	\$0.074
Cynata Therapeutics	CYP	55	Stem cell technology company aiming to produce unlimited uniform, pharmaceutical grade MSCs from a single donor.	27%	97%	\$0.610
Medibio	MEB	54	Commercialising a test for depression and anxiety	0%	11%	\$0.360
Micro-X	MX1	53	Development of a mobile medical x-ray imager for hospitals, a version for deployed military use and a mobile security back-scatter imager	-6%	53%	\$0.460
ITL	ITD	50	Develops and distributes medical devices such as safety equipment to prevent needle stick injuries and sterile preparation kits.	11%	215%	\$0.520
Creso Pharma	CPH	49	A developer of medical cannabis therapies. Headquartered in Zug, Switzerland. Acquired Hemp Industries, which grows hemp in Slovakia.	-27%		\$0.560
Anatara Life Sciences	ANR	49	Developing a natural antibiotic for the animal production industries	-17%	-21%	\$1.000
Avita Medical	AVH	49	Markets ReCell, a skin repair product	-21%	-16%	\$0.077
Dorsavi	DVL	49	Commercialising a wireless sensor movement monitoring system and products for use in the Elite Sports, OH&S and medical/physiotherapy markets	-28%	-9%	\$0.290
Oncosil Medical	OSL	47	Developing Oncosil, a brachytherapy for pancreatic cancer and liver cancer	2%	-31%	\$0.097
MGC Pharmaceuticals	MXC	47	A medical and cosmetic cannabis company with growing operations in Slovenia. Acquired Czech company Panax Pharma.	-40%		\$0.046
Factor Therapeutics	FTT	45	Developing VF-001, for the treatment of venous leg ulcers and potentially to treat ocular conditions	-11%	82%	\$0.062
Alcidion	ALC	42	Markets a health informatics platform, which incorporates an intelligent EMR, clinical decision support engine, data Integration capability, smartforms, terminology support and standards based web services	-7%	57%	\$0.069
Volpara	VHT	41	Markets breast density assessment tools and analytics, for use with breast X-ray screening programs	-26%		\$0.370
Genetic Signatures	GSS	41	Development and sale of molecular diagnostics(MDx) kits and products	-9%	-26%	\$0.390
G Medical	GMV	40	Developing next generation mobile health and e-health devices, and cloud and medical call centres	-15%		\$0.170
Imagion	IBX	40	Developing MagSense, a diagnostic technology which exploits the principles of superparamagnetic relaxometry	-3%	0%	\$0.195
Scigen	SIE	39	Singapore based developer and manufacturer of biopharmaceuticals, including human growth hormone, human insulin and human GCSF	159%	600%	\$0.070
Actinogen Medical	ACW	38	Developing Xanamem for the treatment of dementia in Alzheimer's disease patients	-3%	-15%	\$0.061
Optiscan Imaging	OIL	37	Manufactures confocal microscopes for clinical diagnosis	40%	390%	\$0.098
Orthocell	OCC	37	Developing and marketing regenerative medicine products	-9%	24%	\$0.360

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/06/17
Acrux	ACR	36	Developer of the transdermal drug products Axiron, Evamist/Ellavie and Recuvyra	-26%	-70%	\$0.215
LBT Innovations	LBT	36	Developer of innovative products which deliver productivity benefits across a range of life science settings	-22%	76%	\$0.255
Immuron	IMC	35	Sales and development of hyper-immune bovine colostrum products for therapeutic use	-36%	8%	\$0.270
GI Dynamics	GID	34	Commercialising the Endobarrier, an implantable polymer liner for the management of obesity and diabetes	-11%	158%	\$0.062
Imugene	IMU	33	Developing a Her2 positive cancer vaccine technology	-13%	75%	\$0.014
Vectus Biosystems	VBS	33	Developing an anti-fibrotic compound, VB0004, with applications in heart and kidney disease	-10%	3%	\$1.400
TBG Diagnostics	TDL	33	Development of HLA SSA and SBT diagnostic kits and related services	-12%	-25%	\$0.150
Noxopharm	NOX	31	Developing a cancer treatment, NOX66, a formulation of idronoxil, which targets NADH oxidase 2.	-18%		\$0.365
StemCell United	SCU	31	Applies a proprietary stem cell technology to culture and grow plant extracts for use in Traditional Chinese Medicine. Intends to cooperate with iCAN Israel Cannabis.	-59%	321%	\$0.080
The Hydroponics Co.	THC	31	A medicinal cannabis company formed through the acquisition of Canndeo, an off-shoot of Agri Fibre Industries	48%		\$0.295
Medadvisor	MDR	30	Medication adherence software platform company	-3%	-16%	\$0.032
Asian American Medical Group	AJJ	30	Manages liver treatment centres in Asia; expanding into radiation oncology	-17%	0%	\$0.100
Oventus	OVN	30	Developing an oral appliance to treat sleep apnea and snoring	-47%		\$0.330
Paradigm Biopharm.	PAR	29	Development of existing approved drug, pentosan polysulphate sodium to treat bone marrow oedema and allergic rhinitis	-39%	-17%	\$0.290
Prana Biotechnology	PBT	27	Developing drugs to treat CNS diseases such as Alzheimer's and Parkinson's	-28%	-49%	\$0.051
Invitrocue	IVQ	27	Singapore-based analytical services company (life sciences). Listed through BUN.	-29%	-2%	\$0.060
Cellmid	CDY	27	Developing therapies that target the midkine protein. Recently launched a range of hair loss products through Advangen subsidiary.	-32%	-24%	\$0.025
IDT Australia	IDT	26	Manufacturer of pharmaceutical ingredients to international standards for major pharmaceutical groups.	-25%	-53%	\$0.105
Benitec Biopharma	BLT	26	R&D company focusing on gene silencing, specifically DNA delivered RNAi technology	-26%	29%	\$0.125
Novogen	NRT	24	Developing 'super' benzopyrans for the treatment of cancer	-25%	-48%	\$0.050
Regeneus	RGS	24	Commercialisation of autologous adipose derived stem cells and factors. Markets HiQCell for human use and CryoShot for veterinary use.	-23%	-8%	\$0.115
Phosphagenics	POH	24	Commercialising a platform technology (alpha-tocopherol) , for human and animal applications.	27%	58%	\$0.019
Botanix Pharmaceuticals	BOT	23	Developing BTX1503 for the treatment of acne. BT1503 combines synthetic cannabidiol with a transdermal drug delivery system, Permetrex.	115%		\$0.043
Adherium	ADR	23	Commercialising the Smartinhaler range of devices that attach to prescription third-party inhalers, which improve compliance and efficacy	-23%	-73%	\$0.135

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/06/17
SUDA	SUD	23	Developing drugs for oro-mucosal administration	-10%	-5%	\$0.019
Neurotech International	NTI	22	Development and sales of Mente (and platform), a treatment for improving behaviours of people with autism and other neurological conditions	-17%		\$0.250
Probiotec	PBP	22	Manufacturer, marketer and distributor of a range of over the counter (OTC) pharmaceuticals, complementary medicines and speciality ingredients	-4%	-16%	\$0.430
Adalta	1AD	22	Developing AD-114 for the treatment of idiopathic pulmonary fibrosis (IPF) and other human fibrotic diseases	22%		\$0.280
USCOM	UCM	21	Marketing the Uscom non-invasive heart output function monitor, BP+ non-invasive central blood pressure product and digital ultrasonic spirometry products	-5%	-24%	\$0.190
Mach 7	M7T	21	Sale of enterprise imaging management platform, and 3D medical specific printing and holographic projection solutions. Completed share consolidation, 10:1	-40%	-53%	\$0.175
Holista Colltech	HCT	19	Extracts collagen from sheepskins and markets natural healthcare products.	-34%	-42%	\$0.105
Respiri	RSH	19	Respiratory and pulmonary devices company. Markets Airsona, an ehealth product.	2%	19%	\$0.043
Dimerix	DXB	18	Developing a combination therapy, DMX200, to treat chronic kidney disease.	67%	43%	\$0.010
Anteo Diagnostics	ADO	18	Developer of a biological coatings technology that can be applied to immunoassays, bio-separations, drug delivery and other medical devices.	-52%	-60%	\$0.016
eSense Health	ESE	18	Specialises in phytochemical profiling of plants to develop and reverse engineer terpenes for medical and other applications	-41%		\$0.285
Rhinomed	RNO	17	Developing nasal technologies with applications for sport performance, sleep and drug delivery	3%	-3%	\$0.185
Genetic Technologies	GTG	17	Markets Brevagen, a breast cancer risk prediction tool	-30%	-63%	\$0.007
Recce	RCE	16	Development of an antibiotic ("RECCE") as a cancer treatment	-9%	-18%	\$0.205
Allegra Orthopedics	AMT	14	A developer and manufacturer of prosthetic implants and medical devices.	-50%	13%	\$0.170
Innate Immuno-therapeutics	IIL	14	Developing MIS416 to treat secondary progressive multiple sclerosis	-92%	-84%	\$0.062
Reproductive Health Sc.	RHS	14	Markets the pre-implantation IVF screening kit, EmbryoCollect	107%	15%	\$0.155
Genera Biosystems	GBI	13	Develops, manufactures and distributes advanced molecular diagnostic tests, with a particular focus on women's health.	-32%	-35%	\$0.130
Analytica	ALT	13	Developing the Pericoach product to aid in the management of female urinary incontinence	-17%	0%	\$0.005
Lifespot Health	LSH	13	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	-15%		\$0.170
Race Oncology	RAC	12	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.	2%		\$0.225
Prescient Therapeutics	PTX	11	Developing compounds to treat various cancers	-48%	-41%	\$0.052
Brain Resource Corp	BRC	10	Development and commercialisation of functional brain analysis techniques	-22%	-48%	\$0.070

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/06/17
Resonance Health	RHT	10	Marketing the FerriScan technology, a non-invasive tool for measuring liver iron levels	4%	41%	\$0.024
Proteomics International	PIQ	9	Provider of protein chemistry analytical services. Seeking to commercialise a diabetic kidney disease diagnostic.	-23%	-42%	\$0.155
PharmAust	PAA	9	Manages Epichem, a drug discovery business. Also developing a veterinary anti-parasitic compound (PPL-1) as a human and animal cancer therapy.	22%	-27%	\$0.061
Bioxyne	BXN	9	Sale and distribution of probiotics	-19%	-26%	\$0.017
Simavita	SVA	8	Commercialising an instrumented incontinence assessment device	-51%	-46%	\$0.027
Atcor Medical	ACG	8	Markets the SphygmoCor device, a noninvasive technology that provides information regarding the functioning of the cardiovascular system	-39%	-72%	\$0.035
Biotron	BIT	8	Developing compounds to treat HCV and HIV	-46%	-67%	\$0.020
Bluechiip	BCT	8	Development, manufacture and commercialisation of a tracking system for biological samples	-13%	27%	\$0.028
Cryosite	CTE	7	Provides specialised storage services, especially for umbilical cord blood	-16%	-24%	\$0.160
Medical Australia	MLA	6	Manufacture and supply of medical devices and equipment.	-16%	12%	\$0.046
Novita Healthcare	NHL	5.9	Formerly Avexa. Acquired Tali Health, a company focused on the diagnosis and treatment of children with intellectual disabilities (ex Monash Uni).	-22%	-3%	\$0.029
BARD1 Life Sciences	BD1	5.5	Developing cancer diagnostics and therapies. Lead program is the BARD1 lung cancer test. Acquired Swiss company BARD1AG.	-73%		\$0.010
Antisense Therapeutics	ANP	5.3	Developing antisense compounds to treat multiple sclerosis and Duchenne Muscular Dystrophy	-13%	6%	\$0.033
Unilife Corporation	UNS	5.1	Developer of retractable syringes. Under bankruptcy proceedings in the USA.	-87%	-93%	\$0.005
Patrys	PAB	3.7	Currently evaluating strategic collaborations and other complementary assets. Recently inlicensed two nucleus-penetrating antibodies, Deoxymabs 3E10 and 5C6	-29%	0%	\$0.005
Jayex Healthcare	JHL	3.5	Commercialisation of the Enlighten patient workflow platform	-23%	-84%	\$0.023
Invion	IVX	2.9	Seeking to partner assets including INV102, INV103 and INV104	-33%	-50%	\$0.002
Medigard	MGZ	1.0	Developed retractable syringe technology and other safety medical products.	-63%	-71%	\$0.011
Memphasys	MEM	0.7	Developing a sperm separation technology, SpermSep. Formerly NuSep.	-80%	-83%	\$0.001

Capitalisation Total 9,668

Listed Biotech Investment Funds or Companies

Biotech Capital	BTC	20	Provides capital and management expertise to high-growth Australian biotech, medtech and pharmaceutical companies	28%	11%	\$0.160
-----------------	-----	----	---	-----	-----	---------

Capitalisation Total 20

Capitalisation Total - All Indices 100,677

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, Impedimed, Viralytics, Opthea, RHS, Innate Immunotherapeutics, Anantara Life Sciences, ResApp, Pharmaxis, Starpharma, Dimerix, Cyclopharm, Adalta, Immuron, Medibio, Phylogica

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: Analyst DB: ACR,CGS,COH,CSL, CYC,FTT,IPD,PNV,NAN,OSP,SOM,UCM,VTI; Analyst MP: ADR, AXP, CGS,CIR,CUV,FTT,IDT, IPD,PXS,RNO,SOM,SPL,VLA,. 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): **\$470**

[For multiple email distributions within \$750 2-3 email addresses
 the same business cost centre, our \$1010 4-5 email addresses
 pricing structure is as follows: \$1280 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 _____
