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Bioshares

19 January 2022
Edition 909

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

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)	-35.8%
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 - May '18)	-7.1%
Year 18 (May '18 - May '19)	-2.3%
Year 19 (May '19 - May '20)	39.5%
Year 20 (May '20 - May '21)	86.8%
Year 21 (May '21 - Current)	13.4%
Cumulative Gain	2207%
Av. Annual gain (20 yrs)	20.7%

December Quarter – Australian Biotechs on Acquisition Path

Over 2021 there were 16 biotechs that listed on the ASX bringing the sector total to 157 companies with a combined market value of \$237 billion at the end of December.

A total of \$1.66 billion was raised last year, with this excluding the \$6.3 billion raised by CSL to fund its acquisition announced late last year of Vifor Pharma for US\$11.7 billion.

The Bioshares Index, which measures the performance of the small-mid cap biotechs in the sector, was down slightly for the quarter by 3.8%. This was similar to the Bioshares Large Cap Index which was down 2.2% for the quarter, taking a lead from US biotech stocks which were down 7% over the same period. (See summary table below).

Whilst the growth in biotech stocks has paused, investor demand in the sector continues with \$358 million raised in the quarter, including from five ASX listings. The \$1.66 billion raised last year (excluding by CSL) was similar to the \$1.7 billion raised by Australian biotechs in 2020, significantly more than the \$1.06 billion raised in 2019, and more than double the \$0.75 billion raised in 2018. And Australian biotechs are using the access to capital to fund acquisitions.

Acquisitions

CSL announced last month that it had reached an agreement to buy Swiss Pharmaceutical group Vifor Pharma for US\$11.7 billion, which is a 40% premium to Vifor's 60 day, weighted average share price. Vifor generated half year sales last year of CHF 859 million (\$1.3 billion) and a net profit of CHF 182 million (\$276 million) for the half. For CSL, other than increasing its size, it gives it entry into the iron-replacement market and expands its presence in what it refers to as a 'rapidly growing' nephrology market. "Renal disease represents a large growing opportunity and chronic kidney disease has increased steadily over the past decade....largely driven by diabetes and high blood pressure."

LBT Innovations announced it will be acquiring the remaining 50% of Clever Culture Systems from its JV partner Hettich. LBT will pay Hettich \$4 million in cash and equity.

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Index Performance

	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Change in 12 mths
Bioshares Index	7.3%	-5.5%	1.3%	-3.8%	-0.7%
Bioshares Large Cap Index	-6.1%	1.3%	5.2%	-2.2%	9.4%
Bioshares Botanicals Index	4.2%	-15.8%	0.2%	10.8%	0.8%
Nasdaq Biotech Index	-0.7%	9.0%	-1.2%	-7.0%	-0.6%
ASX 300 Index	4.6%	7.9%	0.3%	1.7%	15.1%

Top 10 Outperformers - Q4 2021

Company	Code	Cap. \$m	Change Quarter	Change Year	Price 31/12/21
Argenica Therapeutics	AGN	61	109%	318%	\$0.84
Biotron	BIT	68	87%	24%	\$0.10
Neuren Pharmaceuticals	NEU	475	80%	193%	\$3.77
Incannex	IHL	755	79%	303%	\$0.63
Bluechiip	BCT	29	63%	11%	\$0.05
Anteris Technologies	AVR	124	60%	246%	\$12.96
Resonance Health	RHT	65	56%	-42%	\$0.14
Bio-Gene Technology	BGT	35	52%	46%	\$0.21
Invion	IVX	135	50%	110%	\$0.02
Memphasys	MEM	74	41%	-7%	\$0.09

Outperformers

Argenica Therapeutics listed on the ASX in June last year raising \$7 million at a listing price of \$0.20. Its shares were up 109% for the quarter and up 318% from listing. The Company is commercialising an arginine-rich peptide developed at the University of Western Australia and the Perron Institute which has neuroprotective properties. The lead indication is for the treatment of ischemic stroke. A Phase I study is expected to start this quarter.

Biotron was up 87% with the company commencing two Phase II HIV studies with its antiviral drug candidate. The company is also seeking to start a COVID-19 study with the same candidate. Neuren Pharmaceuticals was up 80% for the quarter and almost 200% for the year following positive Phase III study results by its partner Acadia Pharmaceuticals in Rette syndrome.

Incannex Healthcare is developing medicinal cannabis products for a range of conditions and is planning a listing on the Nasdaq market next month. Last month the company announced completion of treatment of patients in a Phase II study in obstructive sleep apnea. Results are due next month. The stock was up 79% for the quarter and 300% for the year.

Bluechiip was up 63% after the company signed a two year license and development agreement with Fujifilm Irvine Scientific. One application will be to use the Bluechiip acoustic ID system to track IVF samples.

Anteris Technologies was up 60% following the successful implant of its aortic heart valve into five patients. Resonance Health filed its LiverSmart product with the FDA and gained approval last month. The new product is a combination of two of its existing tests that measure iron and fat levels in the liver. The stock was up 56%.

Bio-Gene Technology, which is developing natural-based, novel insecticides, signed a license and development agreement with Evergreen Garden Care following studies completed by Evergreen. The stock was up 52% for the quarter.

Invion was up 50% following preclinical data that showed its

photodynamic therapy achieved complete regression of breast cancer (TNBC) cells in a mouse study conducted by the Hudson Institute of Medical Research. And during the quarter Memphasys sold its first Felix device used to separate samples in IVF procedures. Its share price was up 41%.

Underperformers

Of the three top underperformers for the quarter were new listings in the second half - Tissue Repair, Clarity Pharmaceuticals and Biome Australia - suggesting a cooling of the biotech IPO market. IDT Australia shares were down 61% in the quarter, with the company being informed by the Australian Government that its ATM (Approach to Market) submission to produce mRNA vaccines would not progress to the next round.

Medibio's shares fell by half with the company's cash resources low and a capital raise in placement announced in December at a 27.5% discount. Living Cell Technologies raised just \$0.36 million from its disappointing rights issue before costs of \$0.25 million. Its shares were also down by 50% over the quarter. Cann Global shares were also down by half, precipitated by a capital raise at a 25% discount.

In October Total Brain reduced its operating costs by 25%. Its share price fell by 41% over the quarter, with its CEO resigning as well due to Covid-related health reasons. Epsilon Healthcare let its cash reserves fall to low levels resulting in a capital raising at the end of the quarter. Its shares were down also by 41%. And European-based MGC Pharmaceuticals (listed also on the LSE) was down 39% for the quarter, giving up some of its earlier gains last year, with the stock still up 48% over 2021. The company develops and manufactures plant-based medicines. The company raised \$10.3 million in December which will go towards completion of its manufacturing facility in Malta for its product CimetrA, which is being developed to treat cytokine storm in patients with COVID-19.

Top 10 Underperformers - Q4 2021

Company	Code	Cap. \$m	Change Quarter	Change Year	Price 31/12/21
IDT Australia	IDT	61	-61%	38%	\$0.26
Tissue Repair	TRP	33	-53%	-53%	\$0.55
Medibio	MEB	10	-50%	-38%	\$0.01
Living Cell Technologies	LCT	5	-50%	-64%	\$0.01
Cann Global	CGB	13	-50%	-71%	\$0.00
Clarity Pharmaceuticals	CU6	127	-45%	-47%	\$0.74
Total Brain	TTB	18	-41%	-58%	\$0.14
Epsilon Healthcare (Formerly named THC Global Group)	EPN	16	-41%	-70%	\$0.07
Biome Australia	BIO	24	-40%	-40%	\$0.12
MGC Pharmaceuticals	MXC	100	-39%	48%	\$0.04

Capital Raisings by ASX-listed Life Science Companies, Q4 2021

Company	Code	Investment Manager or Investor	Type of Raising	Funds Raised (\$M)	Share price
CSL	CSL	PJT Partners, BofA Securities, Goldman Sachs, Credi Suisse	Private placement	\$6,300	\$273.00
Impedimed	IPD	Cannacord Genuity, Wilsons	Private placement	\$35.00	\$0.1525
Race Oncology	RCE		SPP	\$29.70	\$3.00
Bionomics	BNO	Evercore ISI / William Blair	US IPO	\$27.80	US\$12.35 (ADS)
Antisense Therapeutics	ANP	Wilsons / Morgans Corporate	Private placement	\$20.00	\$0.24
Actinogen Medical	ACW	Bell Potter Securities, BVF	Private placement	\$12.00	\$0.135
Invion	IVX		Private placement	\$12.00	\$0.022
Dimerix	DXB	Merchan Funds Management	Private placement	\$10.50	\$0.20
MGC Pharmaceuticals	MXC	Turner Pope Investments	Private placement	\$10.30	\$0.04
Hexima	HXL	Cannacord Genuity, Wilsons	Private placement	\$10.00	\$0.32
Cann Group	CAN		Rights issue	\$8.70	\$0.275
Impedimed	IPD		SPP	\$7.50	\$0.1525
Pharmaxis	PXS	Morgans Corporate	Private placement	\$7.20	\$0.105
Zelira Therapeutics	ZLD		Private placement	\$6.84	\$0.06
Imugene	IMU		Exercise of options	\$6.20	\$0.054
Patrys	PAB	Lazarus Corporate Finance	Rights issue	\$5.30	\$0.035
Incannex Healthcare	IHL		Options exercised	\$5.10	Various
Uscom	UCM		Rights issue	\$4.10	\$0.11
Dimerix	DXB		Rights issue	\$4.00	\$0.20
Adalta	1AD		Private placement	\$3.75	\$0.073
Living Cell Technologies	LCT	180 Markets	Private placement	\$3.50	\$0.0085
Neuren Pharmaceuticals	NEU		SPP	\$3.30	\$2.05
Bio-Gene Technology	BGT		Private placement	\$3.05	\$0.17
Invion	IVX		Rights issue	\$3.00	\$0.022
Epsilon Healthcare	EPN	CPS Capital Group	Private placement	\$2.90	\$0.09
Pharmaxis	PXS		Rights issue	\$2.60	\$0.105
Antisense Therapeutics	ANP		Rights issue	\$2.59	\$0.24
Patrys	PAB	Territory Funds Management	Private placement	\$2.50	\$0.035
Cann Global	CGB	180 Markets	Private placement	\$1.80	\$0.003
Asian American Medical Group	AJJ		Private placement	\$1.35	\$0.039
Actinogen Medical	ACW		SPP	\$1.30	\$0.135
Medibio	MEB	CPS Capital Group	Private placement	\$1.30	\$0.005
Imricor	IMR		SPP	\$1.00	\$1.00
Hexima	HXL		Rights issue	\$1.00	\$0.32
PharmAust	PAA	JP Equity Partners	Entitlement options	\$0.80	\$0.01
Race Oncology	RCE		Exercise of options	\$0.69	\$0.23
Incannex Healthcare	IHL		Private placement	\$0.55	\$0.08
Cogstate	CGS		Exercise of options	\$0.42	\$0.66
Trajan Group Holdings	TRJ		Exercise of options	\$0.36	\$1.24
Living Cell Technologies	LCT	180 Markets	Rights issue	\$0.36	\$0.0085
AnteoTech	ADO		Exercise of options	\$0.32	Various

* Excludes \$6.5 billion CSL raise

total* \$260.7

Continued over

Capital Raisings by ASX-listed Life Science Companies, Q4 2021 (Cont'd)**IPOs**

Tissue Repair	TRP	Bell Potter / Morgans	IPO	\$22	\$1.15
Radiopharm Therapeutics	RAD	Bell Potter / Baker Young	IPO	\$50	\$0.60
The Hydration Pharmaceutical Co.	HPC	BW Equities	IPO	\$17	\$0.29
Biome Australia	BIO	Canaccord Genuity	IPO	\$8	\$0.20
Pacific Edge*	PEB	(Foreign Exempt Listing)	Listed also on NSX	-	-
Total raised in Q4 2021				\$358	
Total raised in Q3 2021				\$488	
Total raised in Q2 2021				\$230	
Total raised in Q1 2021				\$585	
Total raised CY2021*				\$1,661	

2021 Biotech IPO Performances

Quarter listed	Company	Code	Amount raised \$M	Listing price	Price 31 Dec 2021	Change	6 Mth Average
Q1	Chimeric Therapeutics	CHM	\$35.00	\$0.20	\$0.26	30%	76%
Q1	Singular Health Group	SHG	\$5.00	\$0.20	\$0.28	40%	
Q1	Truscreen	TRU	\$2.00	\$0.07	\$0.07	4%	
Q1	EZZ Life Science Holdings	EZZ	\$6.00	\$0.25	\$0.51	104%	
Q2	Trajan Group Holdings	TRJ	\$90.00	\$1.70	\$3.90	129%	
Q2	HitIQ	HIQ	\$7.70	\$0.20	\$0.16	-23%	
Q2	Island Pharmaceuticals	ILA	\$7.50	\$0.25	\$0.26	2%	
Q2	Argenica Therapeutics	AGN	\$7.00	\$0.20	\$0.84	318%	-33%
Q3	BCAL Diagnostics	BDX	\$10.00	\$0.25	\$0.13	-50%	
Q3	Lumos Diagnostics	LDX	\$63.00	\$1.25	\$1.00	-20%	
Q3	Clarity Pharmaceuticals	CU6	\$92.00	\$1.40	\$0.74	-47%	
Q4	Tissue Repair	TRP	\$22.00	\$1.15	\$0.55	-53%	
Q4	Radiopharm Therapeutics	RAD	\$50.00	\$0.60	\$0.40	-34%	
Q4	The Hydration Pharmaceutical Co.	HPC	\$17.00	\$0.29	\$0.30	3%	
Q4	Biome Australia	BIO	\$8.00	\$0.20	\$0.12	-40%	
Q4	Pacific Edge*	PEB	-	\$1.60	\$1.25	-22%	
Av (12 mths)						21%	

Selected Clinical Trial Developments & Product Launches - Q4 2021

Company	Code	Product/Application	Event
Actinogen Medical	ACW	Xanamem to improve cognition in healthy older subjects, compared to placebo.	Recruitment completed (105 participants). Treated for 4 weeks. Results in Q2 2022.
Anteris Technologies	AVR	DurAVR aortic valve replacement	First five patients safety implanted.
Chimeric Therapeutics	CHM	CAR T for glioblastoma, Phase I study.	Second dose of 88x10 ⁶ cells successfully administered to next cohort, delivered into tumour and into CSF.
Clarity Pharmaceuticals	CU6	Copper-64 SAR-Bombesin for breast cancer imaging and staging	Phase I study in 7 pts closed for recruitment. To submit IND for US trials in 2022.
Clarity Pharmaceuticals	CU7	Cu-64 SAR-Bombesin for prostate cancer imaging and Cu-67 SAR-Bombesin for treatment	Recruitment for imaging and dosimetry completed. Trial to enrol up to 44 pts in US for treatment study.
Cynata Therapeutics	CYP	CYP-006TK for treatment of diabetic foot ulcers	Phase I trial opened. Study will treat 30 patients with stem cell therapy for four weeks.
Imugene	IMU	Phase I study with CHECKvacc (CF33 incorporating anti-PDL1) in breast cancer (TNBC)	First 2 pts dosed.
Imugene	IMU	HER-Vaxx in HER2/neu overexpressing tumours, with chemotherapy or Keytruda, in pts failed on Herceptin therapy	FDA approval to start Phase II study in advanced gastric cancer.
Imugene	IMU	Vaccinia (CF33-hNIS) with and without Keytruda.	FDA approval to start Phase I study in advanced solid tumours.
Immutep	IMM	Overall survival data with HR+ metastatic breast cancer	Phase IIb results: 2.9 months benefit in overall survival (not stat sig) and 7.5 months benefit in those under 65 (p=0.017) and 19.6 month benefit in those with low monocytes (p=0.0008), both predefined subgroups.
Kasia Therapeutics	KZA	Phase II study in glioblastoma with paxalisib	Median overall survival of 15.7 months (compared to 12.7 months historical reported data available).
Neuren Pharmaceuticals	NEU	Trofinetide for Rett syndrome	Phase III study in 187 pts reached both primary endpoints. Diarrhea and vomiting a side effect which should be manageable. Partner expected to file NDA in mid 2022.
Pharmaxis	PXS	PXS-5505 in myelofibrosis	First patient dosed in Phase II study
Pharmaxis	PXS	PXS5505 in primary liver cancer	IND cleared for Phase II trial of PXS-5505 with PD-L1 inhibitor and anti-VEGF drugs as first line therapy to inhibit formation of fibrotic tissue. [Physician-sponsored study]
Proteomics Int.	PIQ	PromarkerD kidney function test	Improved predictive performance (0.88) compared to combined eGFR and ACR test (0.82).
Radiopharm Theranostics	RAD	RAD201 with Tc-99m for breast cancer imaging (targeting HER2)	Phase I, 40 pts imaging study completed. 'Outstanding images' to detect primary and metastatic lesions.
ResApp Health	RAP	Smartphone-based test for COVID-19	Recruitment of 337 subjects (including 200 positive) completed to develop algorithm for COVID-19 test.
Rhinomed	RNO	Rhinosw ab for detection of respiratory viruses in children	96% sensitivity, 99.6% specificity
Starpharma	SPL	Viralez for SARS-CoV-2	Product launch in Vietnam
Starpharma	SPL	DEP cabazitaxel for HR metastatic prostate cancer	Interim Phase II data: Significant reduction in tumour size in 64% of pts.
Telix Pharmaceuticals	TLX	Illuccix for prostate cancer imaging	Approval gained in US and Australia, authorisation for use gained in Brazil.
Telix Pharmaceuticals	TLX	TLX250 for bladder cancer (NMIBC) imaging and therapy (with astatine-211)	First imaging patient dosed with TLX250-CDx.

Bioshares Model Portfolio (19 January 2022)

Company	Code	Price (current)	Price added to portfolio	Recommendation	Cap'n (\$M)	Date added
Telix Pharmaceuticals	TLX	\$8.09	\$7.85	Spec Buy A	\$2,306	December 2021
Clinuvel Pharmaceuticals	CLV	\$25.10	\$20.31	Buy	\$1,240	November 2020
Neuren Pharmaceuticals	NEU	\$3.75	\$3.25	Spec Buy A	\$473	December 2021
Opthea	OPT	\$1.27	\$0.16	Spec Buy A	\$440	November 2014
Cogstate	CGS	\$2.32	\$0.24	Accumulate	\$397	April 2019
Immutep	IMM	\$0.45	\$0.32	Spec Buy A	\$383	March 2019
Aroa Biosurgery	ARX	\$0.96	\$1.11	Spec Buy A	\$328	November 2021
Anteris Technologies	AVR	\$17.50	\$8.70	Spec Buy B	\$289	December 2021
Antisense Therapeutics	ANP	\$0.19	\$0.22	Spec Buy A	\$134	November 2021
Micro-X	MX1	\$0.260	\$0.38	Spec Buy A	\$120	May 2017
Chimeric Therapeutics	CHM	\$0.26	\$0.27	Spec Buy A	\$85	December 2021
Dimerix	DXB	\$0.26	\$0.09	Spec Buy A	\$83	December 2018
Patrys	PAB	\$0.037	\$0.013	Spec Buy B	\$76	July 2020
Rhinomed	RNO	\$0.28	\$0.27	Spec Buy A	\$73	December 2021
Pharmaxis	PXS	\$0.11	\$0.26	Spec Buy A	\$50	December 2016
AcruX	ACR	\$0.10	\$0.31	Spec Buy A	\$28	July 2017

Portfolio Changes**IN:**
None**OUT:**
None

– Cont'd from page 1

And Trajan Group Holdings has continued its acquisition spree with three businesses acquired in the December quarter. It has acquired German laboratory automation company Axel Semrau (and Semrau Immobilien) for €17 million (50 staff), LEAPPAL Parts and Consumables in the US for US\$7.7 million (nine staff), and blood micro sampling company Neoteryx in the US for 4.7 million Trajan shares and US\$5.1 million in cash. Trajan listed in June raising \$90 million to fund its aggressive growth plans, which includes acquisitions.

New Listings

The 16 new biotech listings on the ASX raised a total of \$422 million with the average gain over the year being 21% (see page 4). An indicator that interest in new listings may be waning is that the stocks that listed in the second half fell by an average 33% compared to an average 76% gain in stocks that listed in the first half.

Two companies that are expected to list include Firebrick Pharma (developing a nasal spray for the common cold) and Dragonfly Biosciences (a retailer of cannabidiol oils).

Name Changes

There were several biotech company name changes during the quarter as companies seek to rebrand. These are summarised below.

Name Changes

Previous name	New name	New Code
Bard1 Life Sciences	Inoviq	IIQ
Suda Pharmaceuticals	Arodella Therapeutics	ALA
LifeSpot Health	InhaleRx	IRX
Cellmid	Anagenics	AN1

Bioshares

The ASX-Listed Life Sciences Sector
31 December, 2021: Capitalisation \$237 billion, 157 companies

Bioshares Large Cap. Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/21
CSL	CSL	139,182	Manufactures pharmaceutical products including vaccines and human plasma fractions	-0.9%	2.7%	\$290.72
Resmed Inc.	RMD	51,881	Manufactures diagnostic and treatment equipment for sleeping disordered breathing	-3.9%	31.4%	\$35.78
Cochlear	COH	14,221	Manufactures cochlear hearing implants	-1.9%	14.3%	\$216.12
Imugene	IMU	2,306	Developing two B-Cell cancer vaccines, HER-Vaxx and PD1-Vaxx, and an oncolytic virus technology, CF33	-16.7%	300%	\$0.40
Telix Pharmaceuticals	TLX	2,209	Development of molecularly-targeted radiation (MTR) therapies and diagnostics	28.5%	105.0%	\$7.75
Nanosonics	NAN	1,904	Developing a novel disinfection technology. The first product, on the market, is a point of care ultrasound probe disinfection unit, branded Trophon EPR	0.0%	-21.4%	\$6.31
Blackmores	BKL	1,769	Manufactures vitamin, mineral and herbal supplements and skin & hair products in Australia and N.Z.	-4.0%	20.8%	\$91.28
Clinuvel Pharmaceuticals	CUV	1,344	Markets an analogue of the alpha-MSH protein, named Scenesse, as a photo-protective agent	-36.5%	21.9%	\$27.21
Polynovo	PNV	1,008	Developing and selling novel polymer-based products for treating wounds and burns	-20.8%	-60.7%	\$1.53
Mesoblast	MSB	915	Developing cellular medicines to treat advanced heart failure, chronic low back pain and acute graft versus host disease	-16.1%	-37.3%	\$1.41
Capitalisation Total		216,740				

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/21
Pacific Edge	PEB	1,008	Commercialising a suite of bladder cancer test, to diagnose, triage and monitor patients. (Listed Q3 2021, primary listing in NZ)	-22.2%	-22.2%	\$1.25
API	API	852	Pharmaceutical wholesaler	17.3%	40.7%	\$1.73
Race Oncology	RAC	626	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.	2.9%	105.7%	\$3.60
AnteoTech	ADO	602	Developer of a biological coatings technology that can be applied to immunoassays, bio-separations, drug delivery and other medical devices	15.1%	190.5%	\$0.31
Starpharma Holdings	SPL	545	Developer of pharmaceutical chemical scaffolds known as 'dendrimers'	0.8%	-14.4%	\$1.34
Trajan Group Holdings	TRJ	525	Develops and manufactures scientific instruments for life sciences sector (Listed Q2 2021)	25.8%	129.4%	\$3.90
Sigma Pharmaceuticals	SIG	509	Pharmaceutical manufacturing and wholesaling	-22.6%	-22.0%	\$0.48
Neuren Pharmaceuticals	NEU	475	Developing neuroprotective therapeutics	79.5%	193.4%	\$3.77
Mayne Pharma Group	MYX	470	Manufactures, develops and markets generic drugs, with operations in Australia and the USA	4%	-14%	\$0.30

Bioshares Index (Cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/21
Opthea	OPT	450	Developing OPT-302 to treat wet AMD (an eye disease)	-2.6%	-32.6%	\$1.30
PYC Therapeutics	PYC	429	Developing VP-001 to treat retinitis pigmentosa	-3.6%	-8.2%	\$0.14
Paradigm Biopharm.	PAR	429	Developing pentosan polysulphate sodium to treat bone marrow oedema, joint pain and mucopolysaccharidosis type I	-14.3%	-26.1%	\$1.89
Avita Medical	AVH	426	Markets ReCell, a skin repair product. Redomiciled to the US. Now Nasdaq listed and trades as CDIs. (20:1 share consolidation)	-30.6%	-30.8%	\$3.42
Immutep	IMM	419	Developing immuno-oncology drug candidates IMP761 and IMP321 (eftilagimod alpha)	-10.9%	18.1%	\$0.49
Cogstate	CGS	418	Markets cognitive performance diagnostic products	10.0%	120.0%	\$2.42
AFT Pharmaceuticals	AFP	411	Development and sale of pharmaceuticals in Australasia and Rest-of-World	-3.9%	-22.8%	\$3.93
Medical Developments	MVP	356	Commercialising the Pentrox inhaler for temporary pain relief. Used widely in ambulances across Australia.	-3.5%	-25.1%	\$5.00
Aroa Biosurgery	ARX	349	Manufacture and sale of wound healing and soft tissue reconstruction products	-1.9%	-11.3%	\$1.02
Alcidion	ALC	336	Specialist health IT solution provider	-22.5%	48.6%	\$0.28
Rhythm Biosciences	RHY	324	Developing Colostat, a blood test for the early detection of colorectal cancer	20.6%	77.1%	\$1.55
Impedimed	IPD	311	Markets products that aid the diagnosis of secondary lymphoedema, muscle wasting and other disorders	40.0%	40.0%	\$0.18
Clovercorp	CLV	285	Development and production of omega-3 food additives from tuna oil	10.6%	3.0%	\$1.72
Actinogen Medical	ACW	284	Developing Xanamem for the treatment of dementia in Alzheimer's disease patients	28.0%	661.9%	\$0.16
4D Medical	4DX	282	Commercialising a lung function imaging technology (XV) which uses existing x-ray imaging systems combined with image processing methods to image the lung in motion	-7.8%	-44.4%	\$1.35
Volpara Health Technologies	VHT	262	Markets breast density assessment tools and analytics, for use with breast x-ray screening programs	-12.2%	-27.5%	\$1.04
Genetic Signatures	GSS	256	Development and sale of molecular diagnostics (MDx) kits and products.	23.9%	-10.9%	\$1.79
Next Science	NXS	246	Commercialisation of anti-biofilm products	-7.1%	-0.4%	\$1.25
Emvision Medical Devices	EMV	207	Exploiting low energy non-ionising microwave radiation to create 3D images, with the goal of developing a device to support the diagnosis of the two main types of stroke	-14.9%	-14.1%	\$2.68
Mach 7 Technologies	M7T	195	Development and sales of an enterprise imaging management platform	-21.9%	-34.4%	\$0.82
Somnomed	SOM	194	Markets oral devices for the treatment of sleep apnea and snoring	0.0%	11.9%	\$2.35
Recce	RCE	179	Development of broad spectrum antibiotics	5.1%	-2.4%	\$1.03
Probiotec	PBP	179	Manufacturer, marketer and distributor of a range of over the counter (OTC) pharmaceuticals, complementary medicines and speciality ingredients	0.0%	-8.3%	\$2.20
Universal Biosensors	UBI	176	Development, manufacture and commercialisation of a range of in vitro diagnostic tests for point-of-care use	28.6%	127.6%	\$0.99
Atomo Diagnostics	AT1	171	Manufactures rapid diagnostic test devices for OEM customers	-15.5%	-1.6%	\$0.30

Bioshares Index (Cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/21
Kazia Therapeutics	KZA	166	Developing GDC-084 for the treatment of glioblastoma multiform (a brain cancer)	-19.8%	8.2%	\$1.26
Cyclopharm	CYC	152	A nuclear medicine company that markets the Technegas lung imaging system	-1.8%	-34.4%	\$1.64
Lumos Diagnostics	LDX	150	Develops and sells POC diagnostics for inflammatory diseases and infections. Lead product, FebriDx, is a finger prick test to differentiate between bacterial & viral infection.	11%	-20%	\$1.00
Prescient Therapeutics	PTX	150	Developing compounds to treat various cancers	-11.5%	243.3%	\$0.23
Medadvisor	MDR	149	Medication adherence software platform company	31.7%	11.3%	\$0.40
Bionomics	BNO	144	Discovery and development of drugs to treat CNS diseases	-35.3%	-24.1%	\$0.11
Imricor	IMR	144	Design, manufacture and sales of MRI-compatible products for cardiac ablation procedures to treat arrhythmias	-12.6%	-55.5%	\$1.01
Invion	IVX	135	Development of Photosoft, a photosensitiser derived from chlorophyll, which it is believed can accumulate selectively in tumours and be manipulated for therapeutic purposes.	50.0%	110.0%	\$0.02
Antisense Therapeutics	ANP	130	Developing antisense compounds to treat multiple sclerosis and Duchenne Muscular Dystrophy	-4.9%	50.0%	\$0.20
Proteomics International	PIQ	128	Provider of protein chemistry analytical services. Seeking to commercialise a diabetic kidney disease diagnostic.	36.5%	52.8%	\$1.22
Clarity Pharmaceuticals	CU6	127	A clinical stage radiopharmaceutical company focusing on the use of targeted copper theranostics. (Listed Q3 2021)	-45%	-47%	\$0.74
Anteris Technologies	AVR	124	Application of proprietary ADAPT technology to treat tissue used in the manufacture of cardiovascular prostheses	59.6%	245.6%	\$12.96
SDI	SDI	121	Manufacture & distribution of amalgam (fillings) & other dental materials and product R&D	-0.5%	29.3%	\$1.02
Micro-X	MX1	117	Development of a mobile medical x-ray imager for hospitals, a version for deployed military use and a mobile security back-scatter imager	-22.7%	-28.2%	\$0.26
Noxopharm	NOX	114	Developing a cancer treatment, NOX66, a formulation of idronoxil, which targets NADH oxidase 2.	-29.7%	-20.4%	\$0.39
Immuron	IMC	112	Sales and development of hyper-immune bovine colostrum products for therapeutic use	-10.9%	18.1%	\$0.49
Optiscan Imaging	OIL	111	Manufactures confocal microscopes for clinical diagnosis	-20.0%	71.4%	\$0.18
INOVIQ	IIQ	110	Developing cancer diagnostics and therapies. (30 for 1 share consolidation conducted). Formerly Bard1. Acquired Sienna Cancer Diagnostics in 2020.	9.6%	75.7%	\$1.20
Vita Life Sciences	VLS	105	Development, manufacture and distribution of prescription and OTC medicines as well as complementary and alternative medicines, dietary supplements and health foods	31.9%	90.0%	\$1.90
Orthocell	OCC	101	Developing and marketing regenerative medicine products	0.0%	13.3%	\$0.51
Radiopharm Theranostics	RAD	100	Developing radiopharmaceutical products for diagnosis and treatment of disease. (Listed Q4 2021)	-34.2%	-34.2%	\$0.40
Imagion Biosystems	IBX	85	Developing MagSense, a diagnostic technology which exploits the principles of superparamagnetic relaxometry	2.7%	-47.6%	\$0.08
Exopharm	EX1	82	Development of technology for improving the purification of exosomes, which are extra-cellular vesicles which transport bioactive molecules through out the body.	-11.1%	-8.8%	\$0.52

Bioshares Index (Cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/21
Rhinomed	RNO	81	Developing nasal stent technologies with applications for sport performance, sleep and drug delivery	-6.1%	93.8%	\$0.31
Dimerix	DXB	79	Developing a combination therapy, DMX200, to treat chronic kidney disease.	-18.3%	4.3%	\$0.25
Cynata Therapeutics	CYP	78	Stem cell technology company aiming to produce unlimited uniform, pharmaceutical grade MSCs from a single donor.	-6.0%	-20.4%	\$0.55
Patrys	PAB	76	Developing novel antibody therapies for a range of oncology indications. Focussed on 3E10, a cell penetrating antibody.	-14.0%	54.2%	\$0.04
Memphasys	MEM	74	Developing a sperm separation technology, SpermSep	40.9%	-7.0%	\$0.09
Biotron	BIT	68	Developing a drug to treat HIV. Testing drug library against SARS-CoV-2	86.5%	24.4%	\$0.10
CardieX	CDX	67	Development of wearable blood pressure measurement devices	15.0%	23.2%	\$0.07
Hexima	HXL	66	Developing HXP124 to treat fungal infection of toenails (Re-listed Q4 2020)	-14.4%	124.3%	\$0.42
Compumedics	CMP	66	Develops, manufactures and markets sleep diagnostic and monitoring equipment.	-10.8%	-26.0%	\$0.37
Resonance Health	RHT	65	Markets FerriScan, a non-invasive tool for measuring liver iron levels	55.6%	-41.7%	\$0.14
Pharmaxis	PXS	63	Developer of Bronchitol, which is approved in Europe and the USA for the management of cystic fibrosis. Developing a suite of compounds from amine oxidase platform.	-7.7%	29.0%	\$0.12
IDT Australia	IDT	61	Manufacturer of pharmaceutical ingredients to international standards for major pharmaceutical groups.	-60.8%	37.8%	\$0.26
Argenica Therapeutics	AGN	61	Developing therapeutics to reduce brain damage following stroke (Listed Q2 2021)	108.8%	317.5%	\$0.84
Painchek	PCK	60	Commercialising a smartphone app which uses facial recognition technology to detect indications of pain. TGA cleared and CE Marked.	10.4%	-31.2%	\$0.05
Chimeric Therapeutics	CHM	57	Developing CART T therapy for solid cancers licensed from the City of Hope Cancer Center (Listed Q1 2021)	-17.5%	30.0%	\$0.26
ResApp Health	RAP	56	Developing digital healthcare solutions to diagnose and manage respiratory conditions	-3.0%	-23.5%	\$0.07
Botanix Pharmaceuticals	BOT	54	Developing BTX1503 for the treatment of acne. BTX1503 combines synthetic cannabidiol with a transdermal drug delivery system, Permetrex.	-20.0%	-55.2%	\$0.06
Alterity Therapeutics	ATH	51	Developing PBT434 for synucleinopathies	-30.0%	-32.3%	\$0.02
Nova Eye Medical	EYE	49	Developing devices to treat glaucoma	-13.9%	-4.2%	\$0.34
The Hydration Pharmaceutical Co.	HPC	48	Sells hydration liquids, powders and tablets in North America. Sold ANZ rights to Hydralyte in 2014 to Care Pharmaceuticals. (Listed Q4 2021)	3.4%	3.4%	\$0.30
Neuroscientific Biopharm.	NSB	48	Developing EmtinB, an LRP-1 receptor agonist for the treatment of Alzheimer's disease	-26.4%	34.0%	\$0.34
Invex Therapeutics	IXC	48	Developing a formulation of the diabetes drug exanatide to treat idiopathic intracranial pressure and other indications	0.7%	-1.4%	\$0.71
Respiri	RSH	46	Respiratory and pulmonary devices company. Markets Airsona, an ehealth product	-7.2%	-50.8%	\$0.06

Bioshares Index (Cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/21
Genetic Technologies	GTG	46	Markets cancer risk tests	-28.6%	-28.6%	\$0.01
Heramed	HMD	45	Commercialising a home pregnancy monitoring technology	23.1%	118.2%	\$0.24
Vectus Biosystems	VBS	45	Developing an anti-fibrotic compound, VB0004, with applications in heart and kidney disease	-6.0%	17.5%	\$1.41
Nyrada	NYR	37	Developing drugs to treat cardiovascular, neurological and chronic inflammatory diseases	0.0%	0.0%	\$0.24
Oncosil Medical	OSL	36	Developing Oncosil, a brachytherapy for pancreatic cancer and liver cancer	-6.3%	-62.5%	\$0.05
Control Bionics	CBL	36	Design, manufacture and sale of wireless wearable electromyography (EMG) based augmentative and alternative communication (AAC) technology (Listed Dec 2020)	-36.1%	-54.8%	\$0.43
Bio-Gene Technology	BGT	35	Commercialisation of the insecticides Flavocide (synthetic) and Qcide (plant-derived), in the fields of human health and crop protection.	51.9%	46.4%	\$0.21
Star Combo Pharma	S66	34	Develops, manufactures and markets nutritional and OTC products	-19.0%	-22.7%	\$0.26
IMEXHS	IME	34	Markets a radiology and imaging platform, in Latin and South America, and uses SaaS and PaaS revenue models. (Completed 50:1 consolidation)	-25.3%	-35.7%	\$1.04
LBT Innovations	LBT	33	Developer of innovative products which deliver productivity benefits across a range of life science settings	-4.2%	-5.7%	\$0.12
Tissue Repair	TRP	33	Developing a biologically active pharmaceutical to stimulate wound repair pathways. Phase III trials to start in 2022. (Listed Q4 2021)	-52.6%	-52.6%	\$0.55
Amplia Therapeutics	ATX	32	Developing drug candidates to treat fibrotic cancers and fibrosis. Formerly Innate Immunotherapeutics.	-21.4%	-31.3%	\$0.17
PharmAust	PAA	32	Developing a veterinary anti-parasitic compound (PPL-1) as a human and animal cancer therapy	11.1%	-4.8%	\$0.10
Bluechiip	BCT	29	Development, manufacture and commercialisation of a tracking system for biological samples	63.3%	11.4%	\$0.05
Singular Health Group	SHG	29	Developing medical imaging software (Listed Q1 2021)	19.1%	40.0%	\$0.28
Acrux	ACR	28	Developer of topical generic drugs	-20.0%	-39.4%	\$0.10
Avecho Biotechnology	AVE	28	Commercialising a drug delivery system	-25.0%	-48.3%	\$0.02
Truscreen	TRU	26	Commercialising cervical cancer screening device for real time detection of cancerous and pre-cancerous tissue (Listed Q1 2021)	32.7%	4.3%	\$0.07
Osteopore	OSX	26	Manufacture of 3D bioresorbable implants. Three products are FDA cleared and CE Marked for cranio-facial indications	-22.4%	-56.7%	\$0.23
Regeneus	RGS	25	Commercialisation of autologous adipose derived stem cells and factors. Markets HiQCell for human use and CryoShot for veterinary use.	6.7%	-36.0%	\$0.08
Biome Australia	BIO	24	Develops and sells evidence-based complementary medicines, including probiotics, 10 at listing. (Listed Q4 2021)	-40.0%	-40.0%	\$0.12
Adalta	1AD	24	Developing AD-214 for the treatment of idiopathic pulmonary fibrosis (IPF) and other human fibrotic diseases	-12.1%	-36.0%	\$0.08

Bioshares Index (Cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/21
Adherium	ADR	23	Commercialising personal digital medication monitoring systems to improve patient compliance and medication efficacy	-31.3%	-60.7%	\$0.01
Cryosite	CTE	23	Provides specialised storage services, especially for umbilical cord blood	16.3%	17.7%	\$0.47
USCOM	UCM	23	Markets Uscom, a non-invasive heart output function monitor, BP+ non-invasive central blood pressure product and digital ultrasonic spirometry products	-14.8%	-28.1%	\$0.12
Nutritional Growth Solutions	NGS	22	Development and sale of nutritional supplements for children. (Listed Q4 2020)	-2.6%	-28.8%	\$0.19
EZZ Life Science Holdings	EZZ	22	Distributor of skin care products (EAORON brand) and develops consumer health products for Au, NZ and China. (Listed Q2 2021)	0%	2%	\$0.51
Island Pharmaceuticals	ILA	22	A drug repurposing company that focuses on the development of antivirals for infectious diseases (Listed Q2 2021)	-25.0%	2.0%	\$0.26
Oventus	OVN	21	Developing an oral appliance to treat sleep apnea and snoring	-33.1%	-63.0%	\$0.09
Visioneering Technologies	VTI	21	Markets a next-generation contact lens (100:1 share consolidation)	-11.2%	-65.0%	\$0.88
TALI Digital	TD1	21	Software company developing tools for assessment and improvement of attention in children. Formerly Novita Healthcare.	-31.3%	-53.2%	\$0.02
Arovella Therapeutics (Formerly Suda Pharm.)	ALA	19	Developing drugs for oro-mucosal administration. Recently acquired IP for anagrelide, with intent to develop it as an anti-cancer therapy	-17.0%	-2.5%	\$0.04
Bioxyne	BXN	19	Sale and distribution of probiotics	26.1%	141.7%	\$0.03
Total Brain	TTB	18	Development and commercialisation of functional brain analysis techniques.	-41.3%	-57.8%	\$0.14
HitIQ	HIQ	18	Develops and sells head impact mouthguards to assist in assessment of sport related concussion injuries (Listed Q2 2021)	3.3%	-22.5%	\$0.16
BCAL Diagnostics	BDX	16	Developing an in vitro diagnostic for breast cancer using fingerprints of lipid biomarkers. (Listed Q3 2021)	-32%	-50%	\$0.13
Osprey Medical	OSP	16	Markets DYEVERT, a device which reduces the amount of dye needed in imaging procedures. (100:1 consolidation)	-21.5%	-71.8%	\$0.62
Allegra Orthopaedics	AMT	16	A developer and manufacturer of prosthetic implants and medical devices.	-34.8%	-57.1%	\$0.15
IhaleRx (formerly Lifespot Health)	IRX	15	Commercialising the Bodytel diagnostic software, which is deployed with its Medihale medical cannabis vaporiser system, as well as with patients with metabolic syndrome	-3.2%	16.9%	\$0.09
StemCell United	SCU	15	Applies a proprietary stem cell technology to culture and grow plant extracts for use in Traditional Chinese Medicine.	0.0%	-26.3%	\$0.01
Asian American Medical Group	AJJ	15	Manages liver treatment centres in Asia; expanding into radiation oncology	0.0%	-41.5%	\$0.04
Anagenics (formerly Cellmid)	AN1	13	Health and beauty business focusing on sale of anti-aging and wellness products.	-1.6%	-45.5%	\$0.06
Holista Colltech	HCT	13	Markets dietary supplements and disinfectant products	-20.3%	-34.7%	\$0.05
Medibio	MEB	10	Commercialising a test for depression and anxiety	-50.0%	-37.5%	\$0.01

Bioshares Index (Cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/21
Anatara Life Sciences	ANR	10	Developing a gastrointestinal dietary supplement	-3.4%	-17.6%	\$0.14
Analytica	ALT	9	Markets the Pericoach product to aid in the management of female urinary incontinence.	0.0%	-33.3%	\$0.00
Dorsavi	DVL	7	Commercialising a wireless sensor movement monitoring system and products for use in the Elite Sports, OH&S and medical/physiotherapy markets	0.0%	-51.2%	\$0.02
Living Cell Technologies	LCT	5	Development of NTCELL for the treatment of Parkinson's Disease, and potentially for eye and ear diseases	-50.0%	-64.3%	\$0.01
Jayex Healthcare	JTL	4	Commercialisation of the Enlighten patient workflow platform	-21%	-51%	\$0.02

Capitalisation Total **18,613**

Continued over

Botanical Product Companies (Cultivated Production)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/21
Incannex	IHL	755	Developing medical cannabis products to treat OSA, TBI and ARDS and TMD	78.6%	303.2%	\$0.63
Cronos	CAU	110	Medicinal cannabis health and wellness business	17.6%	53.8%	\$0.20
Little Green Pharna	LGP	108	Sale and distribution of medicinal cannabis products	-15.0%	5.3%	\$0.60
Elixinol Global	EXL	107	A supplier of hemp and medicinal cannabis products. To Acquire CansaCare Health GmbH	-13.9%	-4.2%	\$0.34
Cann Group	CAN	101	Medicinal cannabis company focused on the breeding, cultivation and production stages. Holds Australian ODC cultivation (MC) and research license (CR). Acquired Satipharm in 2021.	5.5%	-50.8%	\$0.29
Creso Pharma	CPH	101	Development of cannabis and hemp derived therapeutic, nutraceutical, and life style products with wide patient and consumer reach for human and animal health.	-25.5%	-54.4%	\$0.08
MGC Pharmaceuticals	MXC	100	A medical and cosmetic cannabis company with growing operations in Slovenia. Acquired Czech company Panax Pharma.	-39.3%	48.0%	\$0.04
Althea Group	AGH	70	Supply of branded medicinal cannabis products in Australia. To cultivate, extract and manufacture medicinal cannabis. Holds ODC manufacturing license.	-2.2%	-48.3%	\$0.23
Medlab Clinical	MDC	51	Development, production and marketing of nutraceuticals cannabis product to treat cancer patients with intractable pain	0.0%	-37.5%	\$0.15
Palla Pharma	PAL	48	Vertically integrated opiate manufacturer	-15.7%	-63.6%	\$0.30
Zelira Therapeutics	ZLD	42	Developer of medicinal cannabis therapeutic products	-15.4%	-64.1%	\$0.03
Neurotech International	NTI	42	Has acquired proprietary cannabis strains for treating autism, epilepsy and ADHD	22.4%	33.3%	\$0.06
Auscans Group Holdings	AC8	36	Developing medical cannabis products for the Australian market. (Acquired CansPal Animal Therapeutics in 2021)	-13.8%	-58.5%	\$0.08
Bod Australia	BOD	25	Developer and distributor of natural, evidence-based cosmetics and natural medicines. Holds medicinal cannabis import license. Overseas partner is Linsea SA.	-23.8%	-51.0%	\$0.24
Epsilon Healthcare (Formerly named THC Global Group)	EPN	16	A diversified global cannabis company with operations in Australia and Canada	-40.8%	-69.8%	\$0.07
Cann Global	CGB	13	Operates a hemp seeds business and conducts medical cannabis research	-50.0%	-71.4%	\$0.00
Fiji Kava	FIJ	11	Cultivation and development of kava (piper methysticum) as an alternative treatment for anxiety, pain and insomnia.	-11.4%	-35.0%	\$0.08

Capitalisation Total 1,736

Listed Biotech Investment Funds or Companies

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 31/12/21
BTC Health	BTC	21	Provides capital and management expertise to high-growth Australian biotech, medtech and pharmaceutical companies	-11%	-13%	\$0.08

Capitalisation Total 21

Capitalisation Total - All Indices 237,111

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 Some 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 of 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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