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Companies covered: **Quarterly Review, IXC, LBT, NTL, Atmo Biosciences**

	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)	25.7%
Cumulative Gain	2456%
Av. Annual gain (20 yrs)	20.7%

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Bioshares

6 October 2021
Edition 903

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

Australian Biotech Attracts \$1.9 Billion in Capital

Investors are continuing their interest in Australian biotech with \$488 million raised in the September quarter and \$1.9 billion raised by listed companies in the last 12 months.

The capital raises were dominated by immune-oncology companies with Imugene raising \$90 million in the quarter and Immutep following with a \$60 million raise. However, the buoyant market conditions have also attracted some large IPOs led by radiopharmaceutical company Clarity Pharmaceuticals successfully completing a \$92 million IPO, and Planet Innovation spinout Lumos Diagnostics raising \$63 million. The third IPO for the quarter was by BCAL Diagnostics which is commercialising a predictive breast cancer test to be used in conjunction with mammogram procedures.

Investment bank Bell Potter Securities is dominating the capital raising market with an involvement in 86% of the raises in the quarter.

In terms of sector performance, the Bioshares Index and the US Nasdaq Biotech Index was relatively flat over the quarter with changes of 1.3% and -1.2% respectively. The Australian Large Cap Index, which includes 10 billion dollar plus biotechs, was up 5.2% largely due to ResMed (up 13.6%) and CSL (up 3.5%). The All Ordinaries Index was flat for the quarter as was the Bioshares Botanicals Index.

In clinical trial activity, Telix Pharmaceuticals is continuing its frenetic pace with 17 trials underway and progress announced in seven of those studies. (See page 4)

Index Performance by Quarter (Change from previous Qtr)

	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021
Bioshares Index	15.3%	-0.6%	7.3%	-5.5%	1.3%
Bioshares Large Cap Index	-2.9%	2.4%	-6.1%	1.3%	5.2%
Bioshares Botanicals Index	-7.3%	40.6%	4.2%	-15.8%	0.2%
Nasdaq Biotech Index	-0.9%	11.8%	-0.7%	9.0%	-1.2%
ASX 300 Index	-1.5%	12.1%	4.6%	7.9%	0.3%

Atmo Biosciences Doubles Capital Raise to \$9.6 Million; Plans for IPO

Melbourne-based Atmo Biosciences has raised \$9.6 million in a private placement to advance the commercialisation of its smart gas sensing capsule. The company was seeking only \$5 million with the raise being heavily oversubscribed.

Atmo is a spinout from Planet Innovation. Its gas sensing capsule is ingested and pro-

vides readings of gas levels in the digestive tract to help identify abnormal levels and types of fermenting gut bacteria. The capsule has been tested in over 200 people so far.

This capital raise included Otsuka Pharmaceuticals, which was initially interested

Continued on page 5

Top 10 Sector Outperformers – Sept Qtr, 2021

Company	Code	Cap. \$m	Change Quarter	Change Year	Price 30/9/21
Hexima	HXL	63	185%	143%	\$0.49
Rhinomed	RNO	84	113%	100%	\$0.33
IDT Australia	IDT	156	100%	271%	\$0.65
Argenica Therapeutics	AGN	29	95%	100%	\$0.40
Atomo Diagnostics	AT1	202	87%	-5%	\$0.36
ResApp Health	RAP	58	63%	-36%	\$0.07
MGC Pharmaceuticals	MXC	146	61%	165%	\$0.06
Cogstate	CGS	379	58%	210%	\$2.20
Cronos	CAU	22	55%	100%	\$0.17
Pharmaxis	PXS	59	51%	53%	\$0.13

Outperformers

The best performing stock in the sector in the September quarter was Hexima (up 185%) which has a lead program for the treatment of onychomycosis. Its program is currently in Phase II studies with a Phase III trial expected to start next year under an Investigational New Drug (IND) application.

Diagnostic companies dominated many of the other leading performers. Rhinomed was up 113% following government orders in Australia for its novel nasal swab. Atomo Diagnostics was up 87% as it continues to service the COVID-19 diagnostic market and strong local sales in the quarter. Respiratory diagnostic company ResApp Health was up 63% after securing distribution of its product with Medgate in Europe and with Alodokter in Indonesia. And Cogstate increased by 58% after landing a major cognitive testing contract.

IDT Australia stock doubled in the quarter as it readies its facility to manufacture COVID-19 vaccine. Argenica Therapeutics, which listed in the June quarter, is preparing for a Phase I study with its stroke drug that helped the company's share price double from listing and up 95% in the quarter. MGC Pharmaceuticals increased by 61% with a US\$24 million, three-year deal to supply its phytocannabinoid products to the US. Cronos Australia rose by 55% in the quarter after it announced a deal to acquire Queensland medical cannabis company CDA Health.

And Pharmaxis was up 51% as it makes good progress in its Phase I clinical study in myelofibrosis and prepares for Phase II.

Top 10 Sector Underperformers – Sept Qtr, 2021

Company	Code	Cap. \$m	Change Quarter	Change Year	Price 30/9/21
Resonance Health	RHT	42	-50%	-45%	\$0.09
BARD1 Life Sciences	BD1	100	-44%	40%	\$1.09
Osprey Medical	OSP	20	-44%	-70%	\$0.79
Imricor	IMR	164	-43%	-56%	\$1.15
Osteopore	OSX	34	-38%	-46%	\$0.29
Bluechiip	BCT	18	-38%	-53%	\$0.03
Adalta	1AD	22	-37%	-27%	\$0.09
Suda Pharmaceuticals	SUD	23	-33%	9%	\$0.05
Althea Group	AGH	71	-31%	-54%	\$0.23
Dorsavi	DVL	7	-31%	-41%	\$0.02

Underperformers

Resonance Health, which provides MRI analysis for iron overload in the liver, was down by half over the quarter after falling cashflow results were announced. BARD1 Life Sciences was down 44% after raising \$18 million in the quarter, although is still up 40% for the last 12 months. Osprey Medical was down 44% with a persistently high cash burn and sales receipts still lower than for the same period two years ago.

Osteopore, which manufactures bioresorbable scaffolds for bone regeneration, continues to find trading conditions difficult during the pandemic and its stock was down 38% in the September quarter. Imricor develops products used for cardiac catheter ablation procedures. The company raised \$16.5 million in the quarter, however its stock was down 43% over the period.

Bluechiip fell by 38% even though it reached a US\$1.6 million agreement in June with its former distributor Labcon. The distribution agreement ended prematurely in 2020. I-body drug development company Adalta was down 37% after the company announced that it would need to obtain an inhaled delivery format for its lead drug candidate AD-214. Suda Pharmaceuticals was down by a third in the quarter after MTPK decided not to proceed with the license and supply agreement for ZolpiMist.

Althea Group, which produces and sells medicinal and recreational cannabis, was down 31% whilst raising \$10.6 million in the quarter. And physiotherapy technology company Dorsavi continues to experience difficult trading conditions during the pandemic with sales down substantially from 2019 levels.

Capital Raisings by ASX-listed Life Science Companies, Q3 2021

Company	Code	Investment Manager or Investor	Type of Raising	Funds Raised (\$M)	Share price
Imugene	IMU	Bell Potter Securities	Placement & SPP	\$90.0	\$ 0.30
Immutep	IMM	Bell Potter Securities & Jefferies (Australia)	SPP	\$60.0	\$ 0.52
Aroa Biosurgery	ARX	Bell Potter +Wilsons Advisory	Private Placement +SPP	\$52	\$ 1.17
Neuren Pharmaceuticals	NEU	Bell Potter Securities	Placement	\$20	\$ 2.05
Bard1	BD1	Bell Potter Securities	Share Purchase Plan	\$18.4	\$ 1.55
Altery Therapeutics	ATH	-	Placement	\$17.2	\$ 0.05
Imricor	IMR	MA Moelis & Bell Potter	Institutional Placement (CDI)	\$16.5	\$ 1.00
Althea Group	AGH	Canaccord Genuity	Placement	\$10.6	\$ 0.24
Dimerix	DXB	Merchant Fund Management	Private placement (tranche 1)	\$9.5	\$ 0.20
Anteris Technologies	AVR	Evolution Capital Advisors	Private placement	\$9.0	\$ 8.00
Nutritional Growth Solutions	NGS	Baker Young	Private placement	\$5.0	\$ 0.22
Total Brain	TTB	Bell Potter Securities	Placement and rights issue	\$6.5	\$ 0.26
Rhythm Biosciences	RHY	-	Placement and rights issue	\$5.6	\$ 0.85
Noxopharm	NOX	-	Converting notes	\$1.2	\$ 0.30
Memphasys	MEM	-	Converting notes	\$1.1	\$ 0.033

\$323

IPOs

Clarity Pharmaceuticals	CU6	Bell Potter Securities / Jefferies (Australia)	IPO	\$92.0	\$ 1.40
Lumos Diagnostics	LDX	Wilsons / Bell Potter Securities	IPO	\$63.0	\$ 1.25
BCAL Diagnostics	BDX	PAC Partners Securities	IPO	\$10.0	\$ 0.25

Total raised in Q3 2021

\$488

Total raised in Q2 2021

\$230

Total raised in Q1 2021

\$585

Total raised in Q4 2020

\$634

Total raised in TTM**\$1,936**

Selected Clinical Trial Developments - Q3 2021

Company	Code	Product/Application	Event
4DMedical	4DX	XV LVAS	Stage II of pilot study started with I-MED Radiology Network.
Amplia	ATX	AMP945	Positive Phase I safety trial in healthy volunteers. Possible side effects include some diarrhea, headache, taste disorder and hot flush. PK: 20 hr half-life.
Anatara Lifesciences	ANR	BONIFF	Showed improvement in weight gain over placebo in weaner piglets with an improved/revise formulation.
Clinuvel Pharmaceuticals	CUV	Scenesse	First 3 pts treated for ischemic stroke. 2/3 pts showed improvement in neurological deficit.
Dimerix	DXB	DMX-200	Phase III FSGS study - Ethics submission submitted.
Dimerix	DXB	DMX-200	167 pts recruited in COVID-19 study.
Dimerix	DXB	DMX-200	600 pts COVID study in India recommended to proceed
Immutep	IMM	Efti	First patient dosed in Phase II study in HNSCC with Keytruda in global study in 154 pts as first line therapy.
Immutep	IMM	Efti	154/183 pts recruited in Phase II TACT-002 study.
Imugene	IMU	CHECKvacc	IND approval to start Phase I study in TNBC with novel CF33 virus with checkpoint inhibitor (CF33-hNIS-antiPDL1)
Imugene	IMU	PD1-Vaxx	Third cohort started in Phase I monotherapy in NSCLC
Mesoblast	MSB	Remestemcel-L	In COVID-19 ARDS trial, 90 day data showed reduction in mortality in those aged under 65 (26% versus 44% in control) but no mortality reduction in those aged over 65. Company to move into second Phase 3 study after potency assay, requested by FDA, has been established.
Nutritional Growth Solutions	NGS	Growth Daily Boys 10+ formula	Study in 160 boys showed increased weight, BMI and muscle mass to placebo supplement.
Paradigm Biopharmaceuticals	PAR	Pentosan polysulphate sodium	First patient dosed in Brazil in Phase II trial in Maroteaux-Lamy syndrome.
Pharmaxis	PXS	PXS-5505	Final cohort in Phase I fully recruited in bone marrow cancer.
Polynovo	PNV	NovoSorb BTM	First patient in 150 pt study enrolled for treatment of full thickness burns. Study funded by BARDA US\$15M.
Prescient Therapeutics	PTX	PTX-100	Phase Ib results: Partial response in two patients with T-cell lymphoma, with one of those patients with no disease progression at 17 months and ongoing.
Race Oncology	RAC	Zantrene	First of 29 pts treated in Phase Ib/2 study in refractory AML.
Telix Pharmaceuticals	TLX	TLX250-CDx	Phase III study in imaging of kidney cancer passed 50% enrolment of 252 pt target. (zirconium-89 plus girentuximab antibody)
Telix Pharmaceuticals	TLX	TLX592	First pt enrolled in Phase I prostate cancer study using TLX592 initially (PSMA target with copper-64 radionuclide). Lead into studies with alpha emitting radionuclide actinium-225, with potentially less damage to surrounding tissue.
Telix Pharmaceuticals	TLX	TLX66	Ethics approval to start Phase II study with TLX66 (Yttrium-90 plus besilesomab antibody) in children with leukemia for bone marrow conditioning.
Telix Pharmaceuticals	TLX	TLX591-CDx	Phase I imaging study in lobular breast cancer started (Gallium-68 targeting PSMA)
Telix Pharmaceuticals	TLX	TLX250-CDx	Phase II study in TNBC opened (zirconium-89 plus girentuximab)
Telix Pharmaceuticals	TLX	TLX250-CDx	FDA approves IND to for Phase II study (lutetium-177 plus girentuximab) for kidney cancer treatment.
Telix Pharmaceuticals	TLX	Illuccix	FDA extends review period for NDA by 3 months for prostate cancer imaging product approval.

Bioshares Model Portfolio (6 October 2021)

Company	Code	Price (current)	Price added to portfolio	Recommendation	Cap'n (\$M)	Date added
Clinivel Pharmaceuticals	CUV	\$40.23	\$20.31	Hold	\$1,988	November 2020
Opthea	OPT	\$1.310	\$0.160	Spec Buy A	\$455	November 2014
Immutep	IMM	\$0.515	\$0.320	Spec Buy A	\$438	March 2019
Cogstate	CGS	\$2.300	\$0.24	Buy	\$393	April 2019
Micro-X	MX1	\$0.325	\$0.38	Spec Buy A	\$149	May 2017
Dimerix	DXB	\$0.295	\$0.09	Spec Buy A	\$91	December 2018
Cynata Therapeutics	CYP	\$0.625	\$0.70	Spec Buy B	\$90	December 2020
Patrys	PAB	\$0.041	\$0.013	Spec Buy B	\$74	July 2020
Pharmaxis	PXS	\$0.132	\$0.260	Spec Buy B	\$60	December 2016
AcruX	ACR	\$0.130	\$0.31	Spec Buy A	\$37	July 2017

Portfolio Changes – 6 October 2021

IN:
No changes

OUT:
No changes

Stocks Removed from Bioshares Portfolio in TTM

Date removed	Stock
September 2021	LBT
July 2021	1AD
June 2021	CYC
October 2020	RNO, SOM, VHT

Private Company Capital Raises

– *Atmo Biosciences cont'd*

in the company to trial the technology through a collaboration but moved very quickly to investment interest from the Otsuka CEO after a live ingestion of the capsule via a zoom call. Atmo CEO Malcolm Hebblewhite said that Otsuka conducted exhaustive due diligence on the company prior to investing. Otsuka has multiple interests in the technology, from assessment of nutraceuticals, pharmaceuticals, as well as the device as a standalone product.

According to the company around 40% of the population suffers from some type of gut disorder due to gut motility (movement through the digestive system) and the gut microbiome. The company's initial commercial path is to gain FDA clearance for simple motility measurement, which would see it compete directly against Medtronic's SmartPill, as well as for use in helping diagnose and manage Small Intestine Bacterial Overgrowth (SIBO) which affects around 10% of the population.

The current test for SIBO is a breath test which measures gases in parts per million. However, the Atmo capsule has a capability to measure the gas production at the source in the gut. This allows measurement at much higher concentrations, in the parts per hundred.

Atmo is now ready to start a trial in Sydney in patients with constipation with that trial expected to move into a pivotal study in Q1 next year (in 120-140 subjects) before filing for approval at the end of the year. A trial has already started in SIBO with that program also potentially moving into a pivotal phase next year.

In diagnosing SIBO, the aim is to investigate for bacterial fermentation in the small intestine from measuring hydrogen gas levels.

In healthy people bacterial fermentation should only start to occur in the large intestine.

Atmo is on its third generation device, with the current system not including any adhesives. The company has a production capacity of hundreds a year with plans to expand that to thousands per year. The company's device currently has the capacity to accurately measure hydrogen gas, which is produced from fermentation of gut bacteria, and is continuing to work on sensing oxygen, carbon dioxide and methane.

The Atmo capsule is generating strong interest from key opinion leaders in Australia (Melbourne, Brisbane and Adelaide), Sweden, the UK and the US. In the US, the capsule has been purchased for clinical studies, as well as in New Zealand.

Atmo's aim is to get its product to market rapidly to compete against the Medtronic SmartPill, which is expensive (US\$700) as well as requiring expensive computer hardware. This will then be followed up with a unique offering for indications such as SIBO and then irritable bowel disease.

The recent capital raise was conducted at just a modest increase in valuation from the previous raise, setting the company up for a pre-IPO raise next ahead of an IPO at the end of next year. The company's share register now includes seven gastroenterologists according to Hebblewhite with the company moving to a public, unlisted structure with over 50 shareholders. The company's board includes founding ResMed director and former Cochlear CEO Chris Roberts.

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LBT Innovations JV Signs Distribution Deal for US Market

LBT Innovations (LBT: \$0.105), through its joint venture, Clever Culture Systems (CCS), has signed a significant distribution deal for its APAS Independence instrument for the US market with Thermo Fisher. This follows on from the sales and marketing agreement signed last year with Beckman Coulter for Germany, France and the UK.

The deal with Thermo Fisher represents a higher commitment than the Beckman Coulter deal in Europe, with Thermo Fisher responsible not just for sales and marketing of the instrument, but also installation and after sales support.

LBT CEO Brent Barnes said that Thermo Fisher had been evaluating the instrument for 12 months as well as conducting extensive due diligence interviewing potential customers.

Thermo Fisher appears to be the ideal distribution partner. This is not only because it is the largest agar plate media supplier in the US, but that LBT's analysis module for the US market (for urine samples at this point) has been validated with Thermo Fisher media. One of the posters presented at ECCMID this year was using the Thermo Fisher media. It showed that when assessing four different strains for VRE bacteria, using the APAS Independence instrument that uses artificial intelligence, the bacteria could accurately be detected after just 13 hours, compared to the standard 48 hours set by the media manufacturer.

An attraction for Thermo Fisher is that the APAS Instrument will help retain customers that are using its media. Thermo Fisher may also seek to offer the instrument at a discount whilst generating its revenue from the ongoing sale of culture media. For CCS, the

attraction is that Thermo Fisher is the leader in the agar plate sector in the US with relationships with every hospital in the US according to Barnes.

The difference between the two deals for CCS is that in Europe, Beckman Coulter only generates the sales leads. For the US market, Thermo Fisher will sell and market the instrument, the contract will be between Thermo Fisher and the customer, and as indicated, Thermo Fisher will install and service the instrument. In Europe CCS has contracted a third party to provide after sales servicing.

Beckman Coulter has yet to deliver any sales from its leads for CCS, however Barnes said that sales opportunities identified by Beckman Coulter are progressing well.

Coming milestones for LBT include FDA approval of the MRSA module (on Thermo Fisher culture and Becton Dickinson media).

Summary

LBT is capitalised at \$30 million with \$9.6 million in cash at the end of June. The deal with one of the largest microbiology equipment groups is strong validation of the APAS instrument, which is the second deal with a major player in the sector.

Whilst it may take around two years for significant sales penetration to occur into the US market through Thermo Fisher, the distribution deal sets the APAS instrument on a path for solid adoption in the pathology industry.

Bioshares recommendation: **Speculative Buy Class B**

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Neurotech International Phase I/II Autism Results Due this Quarter

In July last year Neurotech International (NTI: \$0.05) acquired a license from Dolce Cann Group for access to specific proprietary strains of cannabis for the potential treatment of various neurological conditions.

Studies by other groups have shown cannabinoids to have positive therapeutic properties on a range of medical conditions, including autism, epilepsy and multiple sclerosis. The strains Neurotech has licensed have a low level of THC (less than 0.3%) which seeks to prevent the euphoric, psychoactive effects of higher levels THC strains.

The strains selected, from 80 different types screened, have shown to enhance neuronal cell health, reduce inflammation and increase cell energy.

In May this year a study was started at Monash Children's Hospital in 20 children with autism spectrum disorder. That study is due to be completed next month with the company planning to launch a pivotal Phase III study next year.

Neurotech is conducting preclinical work with its proprietary

strains in a model of multiple sclerosis, and is also seeking to explore other indications, including epilepsy, migraine, pain concussion and ADHD.

The company is seeking a dual commercialisation pathway for its technology, which involves the development of pharmaceutical grade produce as well as nutraceuticals. Whilst other medicinal cannabis strains are being developed with lower THC levels by removing the THC, Neurotech's strains have a naturally low level of the psychoactive ingredient.

Neurotech is currently investing in increasing the manufacturing capacity of its lead candidate for the expected Phase III studies.

Neurotech is capitalised at \$35 million with \$4.8 million in cash at the end of June.

A table of medicinal cannabis trials in neurological conditions, either current or completed, is provided on the following pages.

Bioshares recommendation: **Speculative Buy Class B**

Selected Medicinal Cannabis Product Trials in Neurological Conditions

Sponsor/ Pharma provider	Disorder	Enrolment	Stage of Development	CBD/THC	Market Cap US\$ m
	Alzheimer (3 studies)				
Sunnybrook Health Sciences Centre (CA)	Alzheimer	112	Phase 3	Nabilone (synthetic THC)	
Radboud University (NL)	Alzheimer	50	Phase 2	Namisol (delta-9-THC)	
	Anorexia (6 studies)				
Cannabics Pharmaceuticals Inc (US)	Anorexia	24	NA	CBD	23
Instituto Nacional de Cancerologia de Mexico (MXC)	Anorexia	78	Phase 2/3	Nabilone (synthetic THC)	
	Anxiety (43 studies)				
University of Colorado (US)	Anxiety	210	NA	THC and CBD in three ratios	
Hadassah Medical Organization (US)/ GW Pharmaceuticals Ltd	Anxiety (perioperative)	200	Phase 2/3	Low/High CBD + THC	6,810
New York State Psychiatric Institute (US)	Anxiety, OCD	20	Phase 1/2	THC and CBD in two ratios	
Formula30A LLC (US)	Anxiety	30	NA	Hemp-Derived Cannabidiol	unlisted
	Autism (5 studies)				
Children's Hospital of Philadelphia (US)/ Ilera Healthcare	Autism	10	NA	Medical cannabis	Merged with Zeldia Therapeutics
Children's Hospital of Philadelphia (US)/ Zelda Therapeutics	Autism	119	NA	Medical cannabis	32
Johns Hopkins University (US)/ Canopy Growth Corporation	Autism	40	Phase 1	CBD	5,260
	Bipolar disorder (3 studies)				
University of California (US)	Bipolar	144	Phase 1	Low/ High cannabidiol and Δ9-tetrahydrocannabinol	
Yale University (US)	Bipolar	40	Phase 2	Δ9-tetrahydrocannabinol	
Hospital de Clinicas de Porto Alegre (Braz)	Bipolar	100	Phase 2/3	CBD	
	Concussion (1 study)				
Indiana University (US)	Concussion	90	NA	THC	
	Dementia & Huntington disease (4 studies)				
TO Pharmaceuticals	Dementia	60	Phase 2	THC and CBD in two ratios	unlisted
Hospital Universitario Ramon y Cajal (Sp)/ GW Pharmaceuticals Ltd	Huntington	25	Phase 2	THC and CBD (Sativex)	6,810
	Depression				
University Health Network, Toronto (CA)	Depression, Anxiety	2,000	NA	Medical cannabis	
Massachusetts General Hospital (US)	Depression	188	NA	Medical cannabis	
University of Texas at Austin (US)/ Way West Hemp Inc.	Depression	160	Phase 2/3	CBD	unlisted
	Epilepsy				
University of Colorado (US)	Epilepsy	150	NA	CBD	
University of Saskatchewan (CA)	Epilepsy	30	Phase 1	CBD/THC 20:1 ratio	
	Headache, Migraine				
University of California (US)	Acute migraine	120	Phase 2	THC and CBD in three ratios	

Continued over

Selected Medicinal Cannabis Product Trials in Neurological Conditions (Cont'd)

Sponsor/ Pharma provider	Disorder	Enrolment	Stage of Development	CBD/THC	Market Cap US\$ m
	Motor Neuron Disease, Amyotrophic Lateral				
Ospedale San Raffaele (IT)	Motor Neuron Disease, ALS	60	Phase 2	CBD/THC 1:1 ratio	
Gold Coast Hospital and Health Service (AU)	Motor Neuron Disease, ALS	30	Phase 3	CBD/THC 25:1 ratio	
	Multiple Sclerosis (18 studies)				
University of California (US)	Multiple Sclerosis	41	Phase 1/2	Inhaled cannabis, THC	
GW Pharmaceuticals Ltd.	Multiple Sclerosis	135	Phase 3	CBD/THC 1:1 ratio	6,810
	Parkinson (4studies)				
University of Colorado (US)	Parkinson	60	Phase 2	CBD	
University of Colorado (US)/ GW Pharmaceuticals	Parkinson	13	Phase 3	CBD	6,810

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Invex Therapeutics Secures Access to Sustained Release Presendin (Exenatide)

Invex Therapeutics (IXC: \$0.68) has secured a manufacturing and supply agreement for a long-acting form of its drug candidate Presendin (Exenatide). The agreement reduces the cost of product development and accelerates the product development timeline for the company.

Invex is commercialising a form of the type 2 diabetes drug Exenatide which was approved in major markets in 2005-2006. The company's scientists have found that the same drug binds to GLP-1 receptors in the brain, which reduces the level of CSF produced, making it a drug candidate for the treatment of intracranial hypertension (IIH).

In a Phase II study in 16 patients with IIH, a twice daily version of Exenatide was trialed, delivered subcutaneously. In that study, half of the recipients received a placebo. Although a small study, it showed that on the primary endpoint, an 18% -21% reduction in intracranial pressure was achieved. On the secondary endpoint of a reduction in headaches, there was a 7.7 day reduction in monthly headache days. This is a clinically meaningful result. By comparison, the migraine drug Divalproex only achieved a 0.6 day per month reduction over placebo in a study in patients with persistent migraines.

Earlier this year Invex was seeking to access a longer acting formulation of Exenatide that could be delivered just once a day as a subcutaneous injection. However, it has now secured a supply agreement with Peptron in South Korea for a sustained release version that needs to be delivered just once a week, also subcutaneously.

Peptron has particular expertise in developing sustained release peptides and has a Phase II program underway, also with Exenatide, for the treatment of Parkinson's disease. Under the agreement, Peptron will provide supply of its sustained release Exenatide for clinical studies to Invex as well as commercial supply for 10 years after approval. Invex will also gain access to preclinical and clinical data packages available for the compound from Peptron.

In return, Peptron will receive a fee for each dose supplied, as well as South Korean rights to the drug for the treatment of IIH.

Invex intends to start a Phase III study in IIH in the first half of next year. The first batches of the sustained release drug are expected to be received from Peptron this year.

Invex is still seeking to harmonise its European and US clinical study for IIH with the aim being to conduct just one Phase III trial for both regions. The main items that need to be agreed to relate to endpoints for the study (i.e. a reduction in intracranial pressure, improvement in headaches or improvement in vision.) If the endpoints cannot be harmonised then the company may need to pursue a European approval pathway first.

Invex has received orphan drug designation for its treatment in Europe and the US.

Summary

For Invex, access to a clinically advanced, sustained release version of Exenatide provides significant cost and time advantages. It also reduces development risk with Invex able to access the data package Peptron has developed (around manufacturing and safety) for its own regulatory submissions. And the new version allows the company to move to a more patient-friendly dosing system of weekly rather than daily injections.

The company has a strong position in the IIH field with its CSO, Professor Alexandra Sinclair having completed three of the four randomised studies in the field. Invex Therapeutics is capitalised at just \$51 million. The company is funded to conduct the Phase III study with \$33 million in cash at the end of June.

Bioshares recommendation: **Speculative Buy Class A**

Bioshares

The ASX-Listed Life Sciences Sec

30 September, 2021: Capitalisation \$234 billion, 152 companies

Bioshares Large Cap. Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/9/21
CSL	CSL	133,702	Manufactures pharmaceutical products including vaccines and human plasma fractions	3.5%	2.2%	\$293.40
Resmed Inc.	RMD	54,013	Manufactures diagnostic and treatment equipment for sleeping disordered breathing	13.6%	55.9%	\$37.25
Cochlear	COH	14,502	Manufactures cochlear hearing implants	-10.2%	11.3%	\$220.40
Imugene	IMU	2,622	Developing two B-Cell cancer vaccines, HER-Vaxx and PD1-Vaxx, and an oncolytic virus technology, CF33	37.1%	921%	\$0.48
Clinuvel Pharmaceuticals	CUV	2,118	Markets an analogue of the alpha-MSH protein, named Scenesse, as a photo-protective agent	41.9%	83.9%	\$42.86
Nanosonics	NAN	1,903	Developing a novel disinfection technology. The first product, on the market, is a point of care ultrasound probe disinfection unit, branded Trophon EPR	9.0%	11.1%	\$6.31
Blackmores	BKL	1,843	Manufactures vitamin, mineral and herbal supplements and skin & hair products in Australia and N.Z.	30.6%	50.8%	\$95.08
Telix Pharmaceuticals	TLX	1,719	Development of molecularly-targeted radiation (MTR) therapies and diagnostics	2.0%	263.3%	\$6.03
Polynovo	PNV	1,273	Developing and selling novel polymer-based products for treating wounds and burns	-30.5%	-12.9%	\$1.93
Mesoblast	MSB	1,090	Developing cellular medicines to treat advanced heart failure, chronic low back pain and acute graft versus host disease	-15.8%	-66.9%	\$1.68
Capitalisation Total		214,785				

Bioshares Index

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/9/21
API	API	726	Pharmaceutical wholesaler	33.5%	40.5%	\$1.48
Sigma Pharmaceuticals	SIG	657	Pharmaceutical manufacturing and wholesaling	3.3%	5.1%	\$0.62
Avita Medical	AVH	614	Markets ReCell, a skin repair product. Redomiciled to the US. Now Nasdaq listed and trades as CDIs. (20:1 share consolidation)	-8.4%	-28.6%	\$4.93
Starpharma Holdings	SPL	542	Developer of pharmaceutical chemical scaffolds known has 'dendrimers'	-13.1%	-11.3%	\$1.33
AnteoTech	ADO	522	Developer of a biological coatings technology that can be applied to immunoassays, bio-separations, drug delivery and other medical devices	3.9%	231.3%	\$0.27
Race Oncology	RAC	513	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.	-5.1%	345.9%	\$3.50
Paradigm Biopharm.	PAR	500	Developing pentosan polysulphate sodium to treat bone marrow oedema, joint pain and mucopolysaccharidosis type I	5.3%	-17.0%	\$2.20
Immutep	IMM	468	Developing immuno-oncology drug candidates IMP761 and IMP321 (eftilagimod alpha)	2.8%	120.0%	\$0.55

Bioshares Index (cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/9/21
Opthea	OPT	462	Developing OPT-302 to treat wet AMD (an eye disease)	3.5%	-53.2%	\$1.33
Mayne Pharma Group	MYX	454	Manufactures, develops and markets generic drugs, with operations in Australia and the USA	-12%	-27%	\$0.29
PYC Therapeutics	PYC	444	Developing VP-001 to treat retinitis pigmentosa	-6.7%	-12.5%	\$0.14
4D Medical	4DX	431	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	21.1%	-13.8%	\$1.47
AFT Pharmaceuticals	AFP	428	Development and sale of pharmaceuticals in Australasia and Rest-of-World	-2.6%	-11.7%	\$4.09
Trajan Group Holdings	TRJ	401	Develops and manufactures scientific instruments for life sciences sector (Listed Q2 2021)	33.0%	126.3%	\$3.10
Cogstate	CGS	379	Markets cognitive performance diagnostic products	58.3%	209.9%	\$2.20
Alcidion	ALC	372	Specialist health IT solution provider	-6.6%	153.6%	\$0.36
Medical Developments	MVP	369	Commercialising the Pentrox inhaler for temporary pain relief. Used widely in ambulances across Australia.	12.4%	-1.9%	\$5.18
Aroa Biosurgery	ARX	356	Manufacture and sale of wound healing and soft tissue reconstruction products	-5.5%	-22.7%	\$1.04
Clarity Pharmaceuticals	CU6	343	A clinical stage radiopharmaceutical company focusing on the use of targeted copper theranostics. (Listed Q3 2021)	-4%	-4%	\$1.34
Volpara Health Technologies	VHT	298	Markets breast density assessment tools and analytics, for use with breast x-ray screening programs	-0.4%	-9.2%	\$1.19
Rhythm Biosciences	RHY	268	Developing Colostat, a blood test for the early detection of colorectal cancer	42.8%	435.4%	\$1.29
Neuren Pharmaceuticals	NEU	267	Developing neuroprotective therapeutics	28.0%	90.0%	\$2.10
Next Science	NXS	265	Commercialisation of anti-biofilm products	-9.8%	6.8%	\$1.34
Clovercorp	CLV	258	Development and production of omega-3 food additives from tuna oil	-13.6%	-24.0%	\$1.55
Mach 7 Technologies	M7T	249	Development and sales of an enterprise imaging management platform	-1.9%	-5.4%	\$1.05
Emvision Medical Devices	EMV	230	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	4.3%	15.4%	\$3.15
Lumos Diagnostics	LDX	224	Develops and sells POC diagnostics for inflammatory diseases and infections. Lead product, FebriDx, is a finger prick test to differentiate between bacterial & viral infection.	-28%	-28%	\$0.90
Actinogen Medical	ACW	209	Developing Xanamem for the treatment of dementia in Alzheimer's disease patients	0.0%	363.0%	\$0.13
Kazia Therapeutics	KZA	207	Developing GDC-084 for the treatment of glioblastoma multiform (a brain cancer)	18.6%	63.0%	\$1.57
Genetic Signatures	GSS	207	Development and sale of molecular diagnostics (MDx) kits and products.	30.2%	-15.5%	\$1.45
Atomo Diagnostics	AT1	202	Manufactures rapid diagnostic test devices for OEM customers	86.8%	-5.3%	\$0.36
Somnomed	SOM	194	Markets oral devices for the treatment of sleep apnea and snoring	2.2%	3.1%	\$2.35
Impedimed	IPD	187	Markets products that aid the diagnosis of secondary lymphoedema, muscle wasting and other disorders	13.6%	83.8%	\$0.13
Probiotec	PBP	173	Manufacturer, marketer and distributor of a range of over the counter (OTC) pharmaceuticals, complementary medicines and speciality ingredients	1.4%	23.6%	\$2.20

Bioshares Index (cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/9/21
Bionomics	BNO	172	Discovery and development of drugs to treat CNS diseases	-10.5%	21.4%	\$0.17
Recce	RCE	170	Development of broad spectrum antibiotics	2.6%	-14.4%	\$0.98
Prescient Therapeutics	PTX	168	Developing compounds to treat various cancers	13.0%	282.4%	\$0.26
Imricor	IMR	164	Design, manufacture and sales of MRI-compatible products for cardiac ablation procedures to treat arrhythmias	-42.8%	-55.8%	\$1.15
Noxopharm	NOX	162	Developing a cancer treatment, NOX66, a formulation of idronoxil, which targets NADH oxidase 2.	-15.9%	42.3%	\$0.56
IDT Australia	IDT	156	Manufacturer of pharmaceutical ingredients to international standards for major pharmaceutical groups.	100.0%	271.4%	\$0.65
Cyclopharm	CYC	155	A nuclear medicine company that markets the Technegas lung imaging system	1.2%	-30.7%	\$1.67
Micro-X	MX1	152	Development of a mobile medical x-ray imager for hospitals, a version for deployed military use and a mobile security back-scatter imager	-1.5%	40.4%	\$0.33
Optiscan Imaging	OIL	139	Manufactures confocal microscopes for clinical diagnosis	2.3%	132.0%	\$0.23
Universal Biosensors	UBI	137	Development, manufacture and commercialisation of a range of in vitro diagnostic tests for point-of-care use	-14.4%	180.0%	\$0.77
Immuron	IMC	125	Sales and development of hyper-immune bovine colostrum products for therapeutic use	2.8%	120.0%	\$0.55
SDI	SDI	121	Manufacture & distribution of amalgam (fillings) & other dental materials and product R&D	15.3%	29.1%	\$1.02
Antisense Therapeutics	ANP	118	Developing antisense compounds to treat multiple sclerosis and Duchenne Muscular Dystrophy	-2.4%	41.4%	\$0.21
Medadvisor	MDR	113	Medication adherence software platform company	-1.6%	-30.2%	\$0.30
Chimeric Therapeutics	CHM	105	Developing CART T therapy for solid cancers licensed from the City of Hope Cancer Center (Listed Q1 2021)	-3.1%	57.5%	\$0.32
BARD1 Life Sciences	BD1	100	Developing cancer diagnostics and therapies. (30 for 1 share consolidation conducted)	-43.7%	39.7%	\$1.09
Orthocell	OCC	98	Developing and marketing regenerative medicine products	-17.1%	27.5%	\$0.51
Proteomics International	PIQ	94	Provider of protein chemistry analytical services. Seeking to commercialise a diabetic kidney disease diagnostic.	-3.8%	71.2%	\$0.89
Exopharm	EX1	92	Development of technology for improving the purification of exosomes, which are extra-cellular vesicles which transport bioactive molecules through out the body.	-2.5%	85.7%	\$0.59
Rhinomed	RNO	84	Developing nasal stent technologies with applications for sport performance, sleep and drug delivery	112.9%	100.0%	\$0.33
Cynata Therapeutics	CYP	83	Stem cell technology company aiming to produce unlimited uniform, pharmaceutical grade MSCs from a single donor.	11.5%	-43.7%	\$0.58
Vita Life Sciences	VLS	79	Development, manufacture and distribution of prescription and OTC medicines as well as complementary and	28.0%	65.5%	\$1.44
Patrys	PAB	79	Developing novel antibody therapies for a range of oncology indications. Focussed on 3E10, a cell penetrating antibody.	-21.8%	186.7%	\$0.04
Invion	IVX	78	Development of Photosoft, a photosensitiser derived from chlorophyll, which it is believed can accumulate selectively in tumours and be manipulated for therapeutic purposes.	7.7%	40.0%	\$0.01

Bioshares Index (cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/9/21
Imagion Biosystems	IBX	77	Developing MagSense, a diagnostic technology which exploits the principles of superparamagnetic relaxometry	-25.3%	-5.1%	\$0.07
Dimerix	DXB	74	Developing a combination therapy, DMX200, to treat chronic kidney disease.	50.0%	-1.6%	\$0.30
Compumedics	CMP	74	Develops, manufactures and markets sleep diagnostic and monitoring equipment.	6.4%	-3.5%	\$0.42
Alterity Therapeutics	ATH	72	Developing PBT434 for synucleinopathies	0.0%	-40.0%	\$0.03
Botanix Pharmaceuticals	BOT	68	Developing BTX1503 for the treatment of acne. BTX1503 combines synthetic cannabidiol with a transdermal drug delivery system, Permetrex.	-23.9%	-26.3%	\$0.07
Anteris Technologies	AVR	65	Application of proprietary ADAPT technology to treat tissue used in the manufacture of cardiovascular prostheses	15.5%	105.6%	\$8.12
Neuroscientific Biopharm.	NSB	65	Developing EmtinB, an LRP-1 receptor agonist for the treatment of Alzheimer's disease	40.0%	71.7%	\$0.46
Hexima	HXL	63	Developing HXP124 to treat fungal infection of toenails (Re-listed Q4 2020)	185.3%	142.5%	\$0.49
Genetic Technologies	GTG	63	Markets cancer risk tests	-22.2%	-12.5%	\$0.01
Pharmaxis	PXS	59	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.	51.2%	52.9%	\$0.13
ResApp Health	RAP	58	Developing digital healthcare solutions to diagnose and manage respiratory conditions	63.4%	-36.2%	\$0.07
Nova Eye Medical	EYE	57	Developing devices to treat glaucoma	21.5%	19.7%	\$0.40
CardieX	CDX	56	Development of wearable blood pressure measurement devices	-20.0%	22.4%	\$0.06
Control Bionics	CBL	56	Design, manufacture and sale of wireless wearable electromyography (EMG) based augmentative and alternative communication (AAC) technology (Listed Dec 2020)	-4.3%	10.8%	\$0.67
Painchek	PCK	54	Commercialising a smartphone app which uses facial recognition technology to detect indications of pain. TGA cleared and CE Marked.	-20.0%	-44.8%	\$0.05
Memphasys	MEM	52	Developing a sperm separation technology, SpermSep	-2.9%	-34.0%	\$0.07
Respiri	RSH	50	Respiratory and pulmonary devices company. Markets Airsona, an ehealth product	-2.8%	-67.1%	\$0.07
Vectus Biosystems	VBS	47	Developing an anti-fibrotic compound, VB0004, with applications in heart and kidney disease	15.4%	51.5%	\$1.50
Invex Therapeutics	IXC	47	Developing a formulation of the diabetes drug exanatide to treat idiopathic intracranial pressure and other indications	11.1%	-27.1%	\$0.70
Star Combo Pharma	S66	43	Develops, manufactures and markets nutritional and OTC products	23.5%	-6.0%	\$0.32
IMEXHS	IME	42	Markets a radiology and imaging platform, in Latin and South America, and uses SaaS and PaaS revenue models. (Completed 50:1 consolidation)	-13.4%	-23.1%	\$1.39
Resonance Health	RHT	42	Markets FerriScan, a non-invasive tool for measuring liver iron levels	-50.0%	-45.5%	\$0.09
BCAL Diagnostics	BDX	38	Developing an in vitro diagnostic for breast cancer using fingerprints of lipid biomarkers. (Listed Q3 2021)	-26%	-26%	\$0.19
Oncosil Medical	OSL	38	Developing Oncosil, a brachytherapy for pancreatic cancer and liver cancer	-23.8%	-63.1%	\$0.05

Bioshares Index (cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/9/21
Nyrada	NYR	37	Developing drugs to treat cardiovascular, neurological and chronic inflammatory diseases	-25.0%	23.1%	\$0.24
Avecho Biotechnology	AVE	37	Commercialising a drug delivery system	11.1%	150.0%	\$0.02
Biotron	BIT	37	Developing a drug to treat HIV. Testing drug library against SARS-CoV-2	0.0%	-42.9%	\$0.05
Acrux	ACR	35	Developer of topical generic drugs	-10.7%	-32.4%	\$0.13
LBT Innovations	LBT	35	Developer of innovative products which deliver productivity benefits across a range of life science settings	50.0%	-7.7%	\$0.12
Heramed	HMD	35	Commercialising a home pregnancy monitoring technology	-29.1%	39.3%	\$0.20
Adherium	ADR	34	Commercialising personal digital medication monitoring systems to improve patient compliance and medication efficacy	-5.9%	-46.7%	\$0.02
Osteopore	OSX	34	Manufacture of 3D bioresorbable implants. Three products are FDA cleared and CE Marked for cranio-facial indications	-37.6%	-46.3%	\$0.29
Oventus	OVN	31	Developing an oral appliance to treat sleep apnea and snoring	35.4%	-42.7%	\$0.13
Total Brain	TTB	31	Development and commercialisation of functional brain analysis techniques.	-25.8%	-44.6%	\$0.23
TALI Digital	TD1	30	Software company developing tools for assessment and improvement of attention in children. Formerly Novita Healthcare.	6.7%	23.1%	\$0.03
Argenica Therapeutics	AGN	29	Developing therapeutics to reduce brain damage following stroke (Listed Q2 2021)	95.1%	100.0%	\$0.40
PharmAust	PAA	29	Developing a veterinary anti-parasitic compound (PPL-1) as a human and animal cancer therapy	-3.2%	-30.8%	\$0.09
Island Pharmaceuticals	ILA	28	A drug repurposing company that focuses on the development of antivirals for infectious diseases (Listed Q2 2021)	11.5%	36.0%	\$0.34
Amplia Therapeutics	ATX	26	Developing drug candidates to treat fibrotic cancers and fibrosis. Formerly Innate Immunotherapeutics.	-12.5%	16.7%	\$0.21
Singular Health Group	SHG	24	Developing medical imaging software (Listed Q1 2021)	-26.6%	17.5%	\$0.24
Allegra Orthopeadics	AMT	24	A developer and manufacturer of prosthetic implants and medical devices.	15.0%	53.3%	\$0.23
Visioneering Technologies	VTI	23	Markets a next-generation contact lens (100:1 share consolidation)	-27.0%	-69.2%	\$0.99
Regeneus	RGS	23	Commercialisation of autologous adipose derived stem cells and factors. Markets HiQCell for human use and CryoShot for veterinary use.	1.4%	-51.6%	\$0.08
Suda Pharmaceuticals	SUD	23	Developing drugs for oro-mucosal administration. Recently acquired IP for anagrelide, with intent to develop it as an anti-cancer therapy	-32.9%	9.3%	\$0.05
Nutritional Growth Solutions	NGS	22	Development and sale of nutritional supplements for children. (Listed Q4 2020)	-25.5%	-5.0%	\$0.19
Adalta	1AD	22	Developing AD-214 for the treatment of idiopathic pulmonary fibrosis (IPF) and other human fibrotic diseases	-37.2%	-27.2%	\$0.09
EZZ Life Science Holdings	EZZ	21	Distributor of skin care products (EAORON brand) and develops consumer health products for Au, NZ and China. (Listed Q2 2021)	15%	2%	\$0.51

Bioshares Index (cont'd)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/9/21
USCOM	UCM	21	Markets Uscom, a non-invasive heart output function monitor, BP+ non-invasive central blood pressure product and digital ultrasonic spirometry products	-20.6%	-25.0%	\$0.14
Osprey Medical	OSP	20	Markets DYEVERT, a device which reduces the amount of dye needed in imaging procedures. (100:1 consolidation)	-43.6%	-69.6%	\$0.79
Truscreen	TRU	20	Commercialising cervical cancer screening device for real time detection of cancerous and pre-cancerous tissue (Listed Q1 2021)	-20.3%	-15.4%	\$0.06
Bio-Gene Technology	BGT	20	Commercialisation of the insecticides Flavocide (synthetic) and Qcide (plant-derived), in the fields of human health and crop protection.	-20.6%	-25.0%	\$0.14
HitIQ	HIQ	20	Develops and sells head impact mouthguards to assist in assessment of sport related concussion injuries (Listed Q2 2021)	-21.1%	-25.0%	\$0.15
Cryosite	CTE	20	Provides specialised storage services, especially for umbilical cord blood	2.6%	77.8%	\$0.40
Medibio	MEB	18	Commercialising a test for depression and anxiety	42.9%	-16.7%	\$0.01
Bluechiip	BCT	18	Development, manufacture and commercialisation of a tracking system for biological samples	-37.5%	-53.1%	\$0.03
Holista Colltech	HCT	16	Markets dietary supplements and disinfectant products	0.0%	1.7%	\$0.06
Lifespot Health	LSH	16	Commercialising the Bodytel diagnostic software, which is deployed with its Medihale medical cannabis vaporiser system, as well as with patients with metabolic syndrome	-15.5%	89.8%	\$0.09
Bioxyne	BXN	15	Sale and distribution of probiotics	-17.9%	109.1%	\$0.02
StemCell United	SCU	15	Applies a proprietary stem cell technology to culture and grow plant extracts for use in Traditional Chinese Medicine.	-17.6%	27.3%	\$0.01
Asian American Medical Group	AJJ	13	Manages liver treatment centres in Asia; expanding into radiation oncology	15.2%	26.7%	\$0.04
Cellmid	CDY	11	Develops and markets therapies and diagnostic tests for fibrotic diseases, cancer, ischemic diseases of the heart and hair loss.	1.7%	-47.0%	\$0.06
Anatara Life Sciences	ANR	10	Developing a gastrointestinal dietary supplement	-6.5%	-31.0%	\$0.15
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	-31.0%	-41.2%	\$0.02
Living Cell Technologies	LCT	6	Development of NTCELL for the treatment of Parkinson's Disease, and potentially for eye and ear diseases	-23.1%	-33.3%	\$0.01
Jayex Healthcare	JTL	5	Commercialisation of the Enlighten patient workflow platform	-8%	-43%	\$0.02

Capitalisation Total

17,675

Botanical Product Companies (Cultivated Production)

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/9/21
Incansex	IHL	421	Developing medical cannabis products to treat OSA, TBI and ARDS and TMD	34.6%	366.7%	\$0.35
Little Green Pharna	LGP	165	Sale and distribution of medicinal cannabis products	-24.7%	154.5%	\$0.70
MGC Pharmaceuticals	MXC	146	A medical and cosmetic cannabis company with growing operations in Slovenia. Acquired Czech company Panax Pharma.	60.5%	165.2%	\$0.06
Creso Pharma	CPH	132	Development of cannabis and hemp derived therapeutic, nutraceutical, and life style products with wide patient and consumer reach for human and animal health.	-18.5%	189.5%	\$0.11
Elixinol Global	EXL	125	A supplier of hemp and medicinal cannabis products. To Acquire CansaCare Health GmbH	21.5%	19.7%	\$0.40
Cans Group	CAN	85	Medicinal cannabis company focused on the breeding, cultivation and production stages. Holds Australian ODC cultivation (MC) and research license (CR). Acquired	-27.6%	-34.5%	\$0.28
Althea Group	AGH	71	Supply of branded medicinal cannabis products in Australia. To cultivate, extract and manufacture medicinal cannabis. Holds ODC manufacturing license.	-31.3%	-53.5%	\$0.23
Palla Pharma	PAL	57	Vertically integrated opiate manufacturer	-9.1%	-53.3%	\$0.35
Medlab Clinical	MDC	51	Development, production and marketing of nutraceuticals cannabis product to treat cancer patients with intractable pain	-3.2%	-16.7%	\$0.15
Zelira Therapeutics	ZLD	46	Developer of medicinal cannabis therapeutic products	-15.2%	-41.8%	\$0.04
Auscans Group Holdings	AC8	41	Developing medical cannabis products for the Australian market. (Acquired CansPal Animal Therapeutics in 2021)	-14.5%	-37.3%	\$0.09
Neurotech International	NTI	34	Has acquired proprietary cannabis strains for treating autism, epilepsy and ADHD	-9.3%	276.9%	\$0.05
Bod Australia	BDA	33	Developer and distributor of natural, evidence-based cosmetics and natural medicines. Holds medicinal cannabis import license. Overseas partner is Linsea SA.	-11.3%	-17.1%	\$0.32
Cans Global	CGB	23	Operates a hemp seeds business and conducts medical cannabis research	-20.0%	0.0%	\$0.00
Epsilon Healthcare (Formerly named THC Global Group)	EPN	23	A diversified global cannabis company with operations in Australia and Canada	-7.7%	-48.9%	\$0.12
Cronos	CAU	22	Medicinal cannabis health and wellness business	54.5%	100.0%	\$0.17
Fiji Kava	FIJ	13	Cultivation and development of kava (piper methysticum) as an alternative treatment for anxiety, pain and insomnia.	-16.2%	-53.7%	\$0.09

Capitalisation Total 1,488

Listed Biotech Investment Funds or Companies

Company	Code	Cap. \$m	Principal Activities	Change - Quarter	Change - Year	Price 30/9/21
BTC Health	BTC	24	Provides capital and management expertise to high-growth Australian biotech, medtech and pharmaceutical companies	15%	-7%	\$0.09

Capitalisation Total 24

Capitalisation Total - All Indices 233,971

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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