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Companies covered: AVH, BCT, EX1, RNO,
VII

	Bioshares Portfolio
Year 1 (May '01 - May '02)	21.2%
Year 2 (May '02 - May '03)	-9.4%
Year 3 (May '03 - May '04)	70.6%
Year 4 (May '04 - May '05)	-16.3%
Year 5 (May '05 - May '06)	77.8%
Year 6 (May '06 - May '07)	17.4%
Year 7 (May '07 - May '08)	-36%
Year 8 (May '08 - May '09)	-7.4%
Year 9 (May '09 - May '10)	50.2%
Year 10 (May '10 - May '11)	45.4%
Year 11 (May '11 - May '12)	-18.0%
Year 12 (May '12 - May '13)	3.1%
Year 13 (May '13 - May '14)	26.6%
Year 14 (May '14 - May '15)	23.0%
Year 15 (May '15 - May '16)	33.0%
Year 16 (May '16 - May '17)	16.8%
Year 17 (May '17 - May '18)	-7.1%
Year 18 (May '18 - May '19)	-2.3%
Year 19 (May '19 - Current)	1.3%
Cumulative Gain	691%
Av. Annual gain (18 yrs)	16.0%

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

Extract from Bioshares –

Exopharm Completes Animal Studies of Exosome Products Made Using LEAP Process

Regenerative medicine company Exopharm (EX1: \$0.45) announced the successful completion of animal studies for its exosome products in its update for the March quarter.

The company has two exosome products in development; Plexaris is a product in which the exosomes are derived from platelets, and Exomeres is a product where the exosomes are derived from adult stem cells.

The objective of the study was to test these two products, as manufactured by the company's proprietary process, for safety and possible adverse events. The products demonstrated safety with no adverse events.

Exosomes are extracellular vesicles, produced in the body, that have membrane structures. They contain proteins, micro RNA and lipids and have the potential to be used in diagnosis (as biomarkers) and as therapies for a range of conditions and diseases. Their potential for use in these areas has been limited by the lack of a suitable manufacturing method for large scale commercial production.

Exopharm has developed a proprietary method for a purification step in the manufacturing process of exosomes. The company has developed a process called LEAP (Ligand-bases Exosome Affinity Purification). The argued advantages of this method are that an inexpensive ligand is used to capture or bind to exosomes, but more specifically by binding to the exosome itself and not the other molecules which sit on the outside of the exosome. The process also makes use of standard chromatography equipment.

Chromatography is a common bio-manufacturing method which involves passing liquids through columns in order to separate proteins by size, charge, or affinity to an antibody. Existing chromatography approaches are not amenable to exosome separation because the surface molecules of exosomes can vary in type and abundance.

The therapeutic potential for exosomes exists where they play a role in elevating a disease state and need to be inhibited, or alternatively, can be developed as a cargo carrier of naturally occurring, cell regenerating molecules, or engineered to carrier drugs or similar molecules.

There are very few commercial exosome-based therapies in development. Capricor is developing CAP-2003, derived from cardiosphere-derived cells, which it licensed from Cedars-Sinai Medical Center. This program has yet to enter the clinic.

Codiak Biosciences has several programs underway, three of which are planned for entering Phase I studies in 2020. Codiak states that it has "developed proprietary methods to engineer, produce, and purify exosomes at the scale and quality necessary to bring exosome therapeutics to patients."

Continued over

Evox Therapeutics was spun out of the University of Oxford in 2015. It completed a US\$45.4 million Series B funding round last year. The company has eight exosome programs underway, with an IND filing for its lead program targeting Niemann-Pick disease type C planned for 2020. Evox has a small molecule, CNS target program partnered with Boehringer Ingelheim.

Looking ahead, Exopharm is planning a study of its Plexaris autologous product in up to 20 patients. In addition to evaluating the safety of the product, the trial would also have secondary endpoints of effectiveness in its wound healing and scar formation properties.

Exopharm is capitalised at \$36 million and retained cash of \$5.1 million at March 31, 2019.

Bioshares recommendation: **Not formally covered**

Bioshares

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 commercialisation.

Speculative Buy – Class A

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

Speculative Buy – Class B

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

Speculative Buy – Class C

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

Speculative Hold – Class A or B or C

Sell

Corporate Subscribers: Cogstate, Bionomics, LBT Innovations, Opthea, ResApp Health, Pharmaxis, Dimerix, Adalta, Actinogen Medical, Patrys, Cyclopharm, Emvision, Antisense Therapeutics

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