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Bioshares

13 July 2007
Edition 224

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

In this edition...
This week's theme is antibodies as we cover the listing of Patrys, a human antibody company with origins in Germany and the USA, but now choosing a listing and corporate headquarters in Australia. We also examine the context and merits of the proposed Evogenix and Peptech merger.

Lastly we discuss the influence one man has had on the POC diagnostics market, Ron Zwanziger, CEO of listed diagnostic company Inverness Medical Innovations and implications for Universal Biosensors.
The editors
Companies covered: ACR, EGX, PAB, PTD, UBI

Important Message
The next edition of Bioshares will not be published until July 27.

	Bioshares Portfolio
Year 1 (May '01 - May '02)	21.2%
Year 2 (May '02 - May '03)	-9.4%
Year 3 (May '03 - May '04)	70.0%
Year 4 (May '04 - May '05)	-16.3%
Year 5 (May '05 - May '06)	77.8%
Year 6 (May '06 - May '07)	17.3%
Year 7 (from 4 May '07)	3.2%
Cumulative Gain	**237%**
Av Annual Gain (6 yrs)	**26.8%**

Bioshares is published by Blake Industry & Market Analysis Pty Ltd. The company also provides market and company analysis of the Australian pharmaceutical and biotech industries for local and international funds management institutions, venture capital funds and other related industry groups. For further details contact David Blake (see details below).

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A Stellar Listing for Patrys

Patrys (PAB: 63.5 cents) listed today at a healthy 59% premium to its 40 cent per share listing price. The company raised $25 million. Patrys is commercializing its library of human antibody therapeutics. The Patrys listing is the sixth biotech listing for the year.

Patrys is developing a suite of human monoclonal antibodies, primarily targeting cancer cells. Antibody therapies started initially with murine (mouse) monoclonal antibodies, then chimaeric (half mouse and half human) and then progressed to humanized monoclonal antibodies, which are almost 100% human protein. Patrys' core asset is its ability to manufacture human antibodies, which are normally very unstable. It has developed its own proprietary human 'hybridoma' which allows these antibodies to be manufactured in commercial quantities by fusing it with an immortalized cell line that has the ability to regenerate indefinitely. Patrys screens its antibodies from human plasma. To date about 300 have passed the screening process (from 40,000 screened) and are potential oncology drug candidates. From these there are 10 leads so far. The desired properties are the ability to target cancer cells, stop spread of cancer cells and initiate apoptosis. Six of the 10 leads have been tested in animal models and five have delivered positive results.

That Patrys now has $28 million to fund its programs places it in a very strong position. Not only has the funding risk been diminished for the next 2.5 years but it also places it in a position of better position in dealing with potential licensees of the technologies. Patrys has an aim to bring two of its leads into the clinic before the end of next year, if not sooner.

With human antibodies, Patrys will not seek to optimise the antibodies as they have been selected because of their natural cancer cell killing properties. That people on average do not fall victim to cancer until they are in their 60s, even though there is constant exposure to carcinogens in their lives, can be attributed to the natural defences within the body that keeps these cells at bay through the immune system. It is specifically this immune system reservoir that Patrys is accessing for its oncology drug candidates. Patrys has outlicensed two of its antibodies to **AstraZeneca** earlier through one of its subsidiary companies and more licensing deals could be expected over the next 18 months. Other news flow will come from progress in preclinical studies.

Patrys was formed through a merger of a German and a US company although will be based in Melbourne, with its CEO, Daniel Devine, relocating shortly with his family to Melbourne. Devine has a background in law and previously managed the international business development team for **Pfizer**. Much of the company's R&D will be conducted in Germany, where it has a team of about 15 people with one regulatory specialist based in the US. Melbourne has been chosen as the base for the company because of the proximity and access to oncology clinical trials network which includes **Austin Health**, the **Peter MacCallum Cancer Centre**, the **Ludwig Institute for Cancer Research** and the **Royal Melbourne Hospital**. Patrys is now capitalised at $95 million.

Bioshares recommendation: **Speculative Buy Class A**

Merits of the Peptech-Evogenix Merger

Peptech (PTD: $1.46) and Evogenix (EGX:$0.87) announced a plan to merge in early May, 2007. Under the merger proposal Evogenix shareholders stand to receive 15 cents in cash for each share and 0.5055 new Peptech shares. The merger is being implemented by way of a scheme of arrangement. A scheme of arrangement requires that at least 75% of shares are voted in favour of the proposal, after which approval by an Australian court allows the merger to be completed. The Evogenix board has unanimously recommended that all Evogenix shareholders vote in favour of the merger

Context of the merger

The proposed merger is taking place at a time when protein based drugs such as antibodies and the range of technologies that are used to modify, manipulate and enhance them are increasing in commercial value.

In CY2006, 23 protein drugs generated global sales of greater than US$1 billion each, out of a total of 108 pharmaceutical products in the plus US$1 billion sales class. In 2000, there were three protein therapeutics that brought in global sales of greater than US$1 billion from a total of 36 protein pharmaceutical products.

The total value of sales of 23 global protein therapeutics was US$52 billion in 2006, up 20% from the previous year. Of those 23 protein drugs , seven were antibody drugs that generated US$18 billion in sales, a 37% increase from the previous year. (Source: *Nature Biotechnol. April 2007*)

A number of the larger pharmaceutical companies have progressively come to see the commercial merits of biologics and have initiated programs in the area, or have acquired companies with the relevant technologies and products. In a landmark deal **AstraZeneca** acquired **Cambridge Antibody Technologies** for US$1.3 billion, in May 2006, principally to gain exclusive access to CAT's phage display technology that can generate fully human antibodies. This transaction followed **Eli Lilly**'s acquisition of **Applied Molecular Evolution** for US$400 million in 2004, **Bioren**'s acquisition by **Pfizer** in 2005, **Merck**'s purchase of **Abmaxis** for US$80 million and **GlycoFi** for US$400 million in 2006, and **GlaxoSmithKline**'s acquisition of **Domantis** in 2006 for US$453 million. Peptech received $178 million from the sale of its investment in Domantis.

Merits of the merger

The merger is attractive for several reasons, with the degree of complementarity and synergism unusually high. The combined entity would possess skills, know-how and IP covering protein optimisation and antibody humanisation, including a method or methods that potentially allow humanisation to occur without in-

Cont'd over

fringing various existing patent protected methods. This asset is valuable in several ways, allowing the combined entity to generate fee income from antibody optimisation and humanisation services but also allowing the company to exploit the technologies for its own programs. A long term benefit is that if and when the merged entity is looking to partner the development of products, then a potentially lower overall royalty obligation becomes a competitive advantage, compared to the existing higher royalty stack many antibody drug developers must confront.

The royalty stack pertaining to a marketed antibody drug can include obligations payable to the owner of the drug target (eg Peptech's TNF-alpha binding patents), access to a derivation technology (eg CAT's, Dyax's or Morphosys' phage display technologies or Medarex's transgenic mouse technology), cell culture manufacturing, humanisation and optimisation technologies, and even utilisation of technologies that modify the serum life of the drug (eg PEGylation), among others.

It should be noted that the Evogenix technology platform has received commercial validition through contractual work being conducted for **GlaxoSmithKline**, **CSL** and **Vegenics**.

A company of scale

The merger is attractive for another important reason which is that a biologics company of scale is created, which would increase its attractiveness to a certain class of international investor. The merged Peptech would contain a rounded suite of drug candidates in discovery and pre-clinical development (EGX010, SC101, EGX150) and clinical development (PN0621), and a funding position to bring forward more projects further down the value creation chain. The company would be in a very strong position to generate considerable value without any need in the medium-term for external funding or partnerships.

What happens if the merger does not proceed?

If the merger does not proceed, and in the absence of a superior offer, Evogenix's cash position will be at least reduced by an estimated $550,000. Based on its most recent statement of net operational cash flows, we estimate that Evogenix cash position would be reduced to an estimated $6 million. This would probably be sufficient to support a year's worth of operations. The company may need to raise further funds, if deals and collaborations with other parties, either current or prospective, do not yield significant income. The capital growth prospects for Evogenix may be dampened in so far as the company's business model is centred on generating fee-for-service income and licensing out its products at early stages of development. There is a risk that Evogenix's cash resources could be depleted to that point that the share price weakens and the company then becomes subject to a less favourable takeover proposal.

Conclusion

Since the merger proposal was announced, Peptech's share price has fallen by 20%. Assuming that Peptech's current share price reflects the post-merger entity, then there looks to be considerable value in the Peptech share price at present. On a post-merger basis, Peptech is capitalised at $342 million (pre-merger $240 million). The implied technology value post-merger of Peptech is $103 million or US$89 million. If Merck's acquisition of Abmaxis for US$80 million is a guide to the value of a protein engineering capability, in which Merck acquired a protein optimisation and humanisation company similar to Evogenix, then the current implied technology value of Peptech post-merger offers negligble recognition of the combined entitities' therapeutic product pipeline. We recommend Peptech as **a Strong Buy** and recommend that Evogenix shareholders accept the merger proposal.

Key Dates

August 9, 2007 – Scheme Meeting to Vote on the scheme

August 17, 2007 – Court Approval Date for approval of the scheme

August 20, 2007 – Effective Date - Court Order lodged with ASIC and announced to ASX, Evogenix shares cease trading on the ASX

Bioshares Model Portfolio (13 July 2007)

Company	Price (current)	Price added to portfolio
Acrux	$1.72	$0.83
Alchemia	$0.88	$0.67
Biodiem	$0.28	$0.29
Biota Holdings	$1.82	$1.55
Circadian Technologies	$1.28	$1.45
Cytopia	$0.67	$0.46
Chemgenex Pharma.	$1.09	$0.38
Neuren Pharmaceuticals	$0.37	$0.70
Optiscan Imaging	$0.56	$0.35
Peplin	$0.93	$0.83
Peptech	$1.46	$1.31
Phylogica	$0.32	$0.42
Probiotec	$1.25	$1.12
Starpharma Holdings	$0.38	$0.37
Sunshine Heart	$0.18	$0.19
Tissue Therapies	$0.54	$0.58
Universal Biosensors	$1.40	$1.23

Portfolio Changes – 13 July 2007

IN:

No changes

OUT:

No changes

Correction:

Neuren Pharmaceuticals remains in the portfolio. Some recent editions have incorrectly shown the stock to have been removed form the portfolio. The stock has fallen 14% since this processing error was discovered and corrected and there is no material effect to the portfolio performance from correcting this error.

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Regsitrations for the third annual **Bioshares Thredbo Biotech Summit** will be closing on Monday July 16. Almost 100 biotech sector executives, analysts and investors will be in attendence. If you still wish to register please contact us by calling 0403 850 425 or emailing us at *info@bioshares.com.au*

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Tony Featherstone, Editor, **Fairfax Online Media and former Editor, BRW**

Current Speaker List
Michael Aldridge, CEO, **Peplin Ltd**
Joseph Balagot, **Merriman Curham Ford**, San Francisco
Allen Bollands, CEO, **Genera Biosystems**
Ian Brown, Consultant
John Chiplin, CEO, **Peptech Ltd**
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Acrux in Trading Halt

Acrux ($1.76) has gone into a trading halt pending the release of data from one its clinical trials. The trial in 40 men in the US is testing its male testosterone gel in a Phase II stage pharmacokinetic trial. With this program, no efficacy measures need to be established, only that the product is absorbed into the blood stream and its clearance rate evaluated.

At the last note, Acrux planned only to take this product to the end of Phase II, complete some supplementary trials, such as interaction of the gel with deodorants (the gel is applied similar to deodorant). The company has been in commercial discussions for this product from at least March, seeking to partner the product for the final pharmacokinetic (PK) studies necessary before submitting the product for approval. The results form a 40-person PK study is peculiar to warrant a trading halt and of interest will be whether the company announces a partnering deal on Monday.

Acrux is capitalised at $246 million.

Bioshares recommendation: **Speculative Buy Class A**

Universal Biosensors – Lessons from an Industry Pioneer

Universal Biosensors (UBI: $1.40) was covered in depth recently in *Bioshares*. The company listed on the ASX in December last year and its share price has soared almost 200% from its listing price. However the global interest in point-of-care (POC) diagnostics is rapidly accelerating. There is push to decentralization of *in vitro* diagnostic testing to the POC setting i.e. tests conducted at home or in a doctor's office.

Zwanziger pioneers the way, again

Leading this charge is an incredibly successful entrepreneur in the diagnostic space, Ron Zwanziger, CEO of listed diagnostic company **Inverness Medical Innovations**.

Background

Zwanziger formed the diagnostic company **Medisense** in 1981 with three Harvard Business School students. That company developed the first electrochemical glucose monitoring device, released in 1986. He left Medisense in 1991 to form **SelfCare** which later became **Inverness Medical Technology** (IMT). Medisense was subsequently sold to **Abbott Laboratories** in 1996 for US$890 million.

Zwanziger cashed out big time when he sold the IMT diabetes diagnostic business to **Johnson & Johnson** for US$1.3 billion in 2001. Like Medisense, IMT had developed rapid POC glucose diagnostic tests. That technology now underpins J&J's subsidiary **LifeScan**, which has about 25% of the glucose diagnostic market (2005) which is worth around US$8 billion a year, with 10 billion tests strips sold annually.

Zwanziger was left with the non diabetes diagnostic assets and the company was renamed **Inverness Medical Innovation**s, which is now capitalized at US$2.4 billion.

Zwanziger is placing big bets on the decentralisation of diagnostic testing, which is backing a trend towards more immediate diagnostic procedures in the POC setting. This year alone Inverness Medical Innovations has announced six acquisitions in the diagnostic space, including the aggressive bidding war over Biosite for US$1.6 billion (see table below for summary). In May this year it also formed a joint venture with **Proctor & Gamble** to manufacture and sell diagnostics outside of Inverness Medical Innovation's core area of cardiology, diabetes and oral care. P&G's entry price was US$325 million.

Implications for UBI

Inverness Medical Innovation is one of the groups leading the charge for the global trend to more POC diagnostics at home or in the doctor's suite. Universal Biosensors has been commercialising a diagnostic platform for POC testing that looks like it will deliver substantial manufacturing efficiencies and improvements in accuracy and reliability. Given the current dynamics of this industry, we believe there is a high probability this technology will be acquired for a significant premium to its current value over the next three years, if Universal Biosensors can deliver on its technology.

Similarities with UBI

Over the last 26 years since Medisense was first formed, Zwanziger has maintained the original management team with him from Medisense through to Inverness Medical Technology and now Inverness Medical Innovations, comprising of David Scott, Jerry McAleer and John Yonkin. There are some similarities here to Universal Biosensors, which although the technology has moved corporate ownership several times, the core research team at Universal Biosensors have stayed with the technology over the last 11 years since the team left Medisense in 1996 and started work on its opposing electrode technology that now is the core of the Universal Biosensors platform.

Summary

Universal Biosensors is capitalised at $179 million. Its first product, a glucose level monitor, is likely to be marketed by J&J's Lifescan (no commercial agreement has been signed) and made by Universal Biosensors. Universal Biosensors' production plant should be on line this year and the first product should be on the market next year.

Bioshares recommendation: **Speculative Buy Class A**

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Inverness Medical Innovations - Acquisitionsin 2007 (completed or in process)

Date announced	Company acquired	Assets acquired	Price
June 2007	Cholestech Corp.	Cholesterol, diabetes, heart disease diagnostics	US$326 m
May 2007	Biosite	Cardiovascular disease, drug testing	US$1.6 b
May 2007	Orange Medical (Benelux)	POC distributor	US$5.7 m
Feb 2007	First Check Diagnostics	Illicit drug diagnostics	US$25 m
Feb 2007	Promesan (Italy)	POC distributor	Euro 3.5 m
January 2007	Med-Ox Chemicals (Canada)	Distributor	US$6 million

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.

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

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