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In this edition...
The wait is over for Alchemia and its partner Dr Reddy's, with the FDA finally approving their generic fondaparinux submission, 26 months after it was accepted for review by the FDA. Alchemia can now commence its Phase III trial of HA-Irinotecan. Impedimed has kicked a very solid goal in its task of getting US insurance companies to reimburse its lymphodema assessment tool, gaining coverage for 12 million US Federal government employees. Tissue Therapies has released very impressive interim data from its EU registration study for VitroGro, increasing confidence in the product even more. And a wrap of this year's BIO convention in Washington comes courtesy of Carrie Hillyard and team at Uniquest.
The Editors
Companies Covered: ACL, IPD, TIS, BIO Coverage

	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 (May '07 - May '08)	-36%
Year 8 (May '08 - May '09)	-7.3%
Year 9 (May '09 - May '10)	49.2%
Year 10 (May '10 - May'11)	45.4%
Year 11 now commenced	-6.9%
Cumulative Gain	**293%**
Av Annual Gain (10 yrs)	**21.2%**

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Bioshares

15 July 2011
Edition 416

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

FDA Clears Generic Fondaparinux

The FDA has approved **Dr Reddy's** Abbreviated New Drug Application (ANDA) for fondaparinux, the generic version of **GlaxoSmithKline**'s Arixtra, which is an anti-coagulant. Four different dose forms of the injectable drug were approved.

Alchemia (ACL$0.74) has developed novel and proprietary methods covering the synthesis of fondaparinux. Alchemia and Dr Reddy's signed an agreement for the manufacturing and marketing of fondaparinux in April 2007. The deal was structured as a profit share for the US, set at 60% but decreasing to 50% if a second generic competitor emerges, with a royalty arrangement applying elsewhere, including Europe.

The patents covering fondaparinux expired in the US in 2002 and US data exclusivity expired in December 2006. Data exclusivity in Europe expires in 2012. Arixtra was launched in the US in 2003. The drug was originally co-developed by **Organon** and **Sanofi-Synthelabo,** who divested the drug to GlaxoSmithKline (GSK) after Sanofi-Synthelabo acquired **Aventis** in 2004.

Sales of Arixtra have grown at a steady pace since its launch in the US in 2003, with sales for the twelve months ending May 31 of US $340 million, an increase of 16% from the previous corresponding year, and are now, according Alchemia CEO Pete Smith. Global sales greater than US$500 million on a trailing twelve months basis, he said. Global sales for calendar year 2010 were US$467 million, compared to US$396 million for the previous year.

Dr Reddy's will commence selling fondaparinux to group purchasing bodies using stock imported into the US under a pre-launch activities importation request. However, it is unlikely that Alchemia will see its share of profit income from sales occur until sometime in 2012 (possibly Q1 2012). This is because Dr Reddy's is entitled to recoup certain development costs which are measured in the single millions of dollars.

Policy of No Sales Forecasts

Alchemia and Dr Reddy's has announced that it will not be providing sales forecasts. While Alchemia/Dr Reddy's' fondaparinux can be expected to capture sales from Arixtra, the parties are unwilling to provide sales forecasts because it depends on whether GSK permits an authorized generic to enter the market, and the degree to which Dr Reddy's can access sales channels. Alchemia expects revenues to be in the order of "tens of millions of dollars", sufficient to fund all of the activities currently in the Alchemia pipeline.

Addressing competition from new oral *direct* Factor Xa inhibitors, Smith said that the future was difficult to see with any real clarity. He expects the oral Factor Xa inhibitors to generate significant sales, garnered from the treatment of atrial fibrillation, which is an area the *indirect* Factor Xa drugs such as Arixtra and Lovenox are not used. However, Xarelto (rivaroxaban) (**Bayer**), an oral *direct* Factor Xa inhibitor recently received approval for the prevention and treatment of DVT following orthopaedic surgery. While

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the newer direct Factor Xa inhibitors offer the advantage of oral administration, they are not always appropriate in the hospital setting. Smith expects oral direct Factor Xa inhibitors to eat into the injectable anti-coagulant market, but they will establish Factor Xa inhibition as the gold standard (presumably displacing anti-coagulants such as warfarin), meaning that patients in the hospital may be treated first with an *injected* Factor Xa inhibitor and followed up with *oral* Factor Xa inhibitor medication.

In short, Smith expects there will erosion in some markets and gains in other ways. And in some markets such as Acute Coronary Syndrome, he does not expect competition from the oral Factor Xa inhibitors.

Commentary

The FDA approval comes 26 months after it was accepted for review by the FDA in May 2009. At the time of the receipt of the submission by Dr Reddy's, Alchemia anticipated a market launch in the second half of 2009. Thus, the FDA approval comes at least 19 months after first anticipated approval date.

The FDA approval was delayed (in part) because of very large numbers of international manufacturing sites requiring FDA inspection, with the FDA having the capacity to complete about 60 per year. In *Bioshares* 402 we noted that there were 192 generic products requiring FDA site inspections.

The fondaparinux program is four years behind, if Alchemia's prospectus is a guide. Alchemia had initially signed a 10 year manufacturing agreement with the Dow Chemical Company in 2000 and a research and distribution agreement with American Pharmaceutical Partners in 2003, with a US market launch anticipated in 2007 (following the expiration of US data exclusivity).

Implications

A positive implication for the business from the fondaparinux approval is that the company's funding position will become clearer, opening the way for Alchemia to commence recruitment in its Phase III trial of HA-Irinotecan in metastatic colorectal cancer. HA (hyaluronic acid) is a naturally occurring carbohydrate molecule found in connective tissue that also has a number of medically approved uses. Irinotecan is a now off-patent topo-isomerase inhibitor. The logic of the formulation of combining irinotecan with hyaluronic acid is that side-effects of stand-alone irinotecan can be reduced and efficacy improved (relative to the stand alone dose.)

Recruitment in the forthcoming 390 patient trial is expected to commence in the US from September but possibly sooner in Australia. The company will develop the drug under a 505(b)2 pathway, which means that it only needs to complete one Phase III trial. Recruitment is expected to take 12 months. The primary endpoint of the trial is progression free survival, which could be determined six to seven months after recruitment.

Alchemia also plans to initiate a Phase II trial in small cell lung cancer. In this trial, HA-Irinotecan will be evaluated for its effect on cancer stem cells.

CEO Peter Smith has hinted that rather than looking to shareholders to fill the funding gap that exists from now until the receipt of profit share payments from Dr Reddy's, the company *may* use some form of US debt finance in light of the fact that interest rates in the US are at low levels and that it expects to receive income in US currency and have clinical trial costs expensed in US dollars.

Summary

Investors now have several choices available in respect of Alchemia shares. For investors who have looked for returns based on the progress of generic fondaparinux, an opportunity now exists to take some profits. For investors looking for returns from the development of the HA platform, the stock offers prospects of returns as HA-Irinotecan progresses through its single pivotal Phase III trial, with the opportunity of price appreciation leading the release of progression free survival data expected to be available in 2013.

The three key risks are ahead for Alchemia relate to securing bridging funding, commencing and maintaining recruitment for the Phase III trial and a sustained and successful launch for fondaparinux in the US.

Alchemia is capitalised at $142 million and retained cash of $8.2 million at March 31, 2011.

Bioshares recommendation:
Long term – Speculative Buy Class A
Short term – Take (Some) Profits

Bioshares

A Walk Around BIO 2011

by Carrie Hillyard, Mark Ashton and Dean Moss, UniQuest

Although total numbers were down on pre-GFC years, BIO 2011 held in Washington, was a busy conference. The BIO Business Partnering Forum, which hosted a record breaking 21,183 partnering meetings between 2,410 companies, was frantic with both pharmaceutical companies looking for clinical stage opportunities and platform technologies and companies looking for partners.

Increased Interest from Pharma

The pharmaceutical industry seems much more pro-active and accessible in recent years – probably due to the patent cliff awaiting them and their increasing reliance on external partners as their internal R&D is consolidated further. Either way there is a marked increase in pharmaceutical companies looking outside of their R&D units for innovation and new drugs.

The most promising news is that most deal-makers anticipate licensing activity to remain steady or grow in 2011. The BIO Business Forum Partnering Report indicated that there is high demand for Phase I assets and therapeutic areas in demand are CNS, immunology, and metabolic, in contrast to 2010, where cardiovascular and oncology were of greatest interest.

Several Australian companies, including ASX listed **Bionomics**, **Biotron** and **Viralytics**, presented at the forum and comments by attendees suggest an increasing interest in our maturing sector. However, translation of innovative research is still a challenge in the wake of the GFC.

Clearly though, there is an increasing focus from pharmaceutical companies towards external partners illustrated by the various outreach groups set up now within pharma and the increasing number of partnering meetings. This should be positive news for the biotech sector and in particular, the Australian biotech sector, as pharma companies broaden their search to Australasia for innovative research that can be translated in to new treatments.

Now, more so than ever before, there would seem to be an opportunity for academia, biotech companies and the venture capital (VC) sector to work more closely together to translate the innovative research into therapeutic outcomes, thus maximising the future returns from the thirsty pharma companies.

The BIO Exhibition featured more than 1,800 exhibitors with 61 state and international pavilions. Australia sent a significant delegation and its pavilion proved popular – probably because it began serving wine a lot earlier on the hospitality day than other exhibitors!

Across a number of the conference streams, there was palpable discontent and frustration with the FDA, its lack of transparency, changing goalposts and timeliness in dealing with applications.

Burrill Pan-Asia Life Sciences Meeting

At the Burrill Meeting on the Sunday, there was good discussion on how Australia was positioned as a partner to be considered for collaborative research and clinical trials by its Asian neighbours but this has been eclipsed by the need to consider the reality of China, not as an emerging market but as the fastest growing pharma market on its way to being the second largest.

China should no longer be considered as a copier of technology but as a true innovator, was a view stated in the Burrill meeting. Western companies are already investing resources into getting into the China opportunity – not as just a sales market or a low cost manufacturing base but by tapping into its Government-backed health care reform program, as China races to become a global leader in drug discovery and innovation. This reform program is aimed at achieving universal healthcare through the investment of US$124 billion over the next 3 years, improving public healthcare and managed healthcare costs.

Translational Research Forum

The Translation Forum looked at commercialising in the post GFC world. The Forum keynote speaker, Francis Collins, the director of NIH, likened new drug development to trying to cross shark-infested waters without a bridge! He contended that collaboration between the public and private sectors was essential in this capital-constrained environment. His new **National Center for Advancing Translational Science** will focus on promising targets for drug development, human cell-based models for predicting safety, investing in therapies for diseases the private sector will see as potentially unprofitable and phase Zero clinical trials, as well as working with the FDA to bring new science to regulatory reviews.

NIH has several programs to support translation. Collins is hopeful that the SBIR regulations will be relaxed, regarding firms with VC investment, to allow access by more biotechnology companies.

The first session highlighted some innovative commercialisation funding models and of particular note was a group of ex- pharma company executives, who have assembled an asset based fund with a portfolio of potential products from a number of universities.

The **BioPontis Alliance** incubates projects that could lead to drugs and has moved away from the start-up company model, which is hard to finance in the current climate. Its "development engine" team works with scientists and clinical researchers and shares economic benefits. President, Barbara Handelin, claims that this is providing a better flow rate of new leads. The fund includes strategic investors with private equity and service providers. The strategic investors gain visibility and the opportunity- but not the right- to license technology and programs. This model may be appropriate in Australia with the current shortage of venture funding for biotechnology companies and spin out projects from universities.

There is still a considerable challenge in bridging the gap between innovative early stage biology and clinical stage assets. More so than at any other time it would appear that pharmaceutical companies are looking at academic groups for innovative early stage

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– BIO cont'd

research, as illustrated by BioPontis' announcement at BIO of its collaborations with **Pfizer** and **Janssen Biotech** (www.biopontisalliance.com/news.html) and the emergence of new buzz words such as "outreach strategies". This is BioPontis' third such agreement with a large Pharmaceutical company, following a similar deal with **Merck**. It clearly demonstrates pharma companies' thirst for early stage, innovative research probably prompted by a need to reduce their internal "R" footprint fuelled by consolidation of research sites (e.g. Pfizer's UK site in Sandwich) and the patent cliff.

In a surprising extension of these pharma/academia deals the agreements are structured to move from bench to clinic with the academic group remaining involved throughout in return for success based milestones. This "de-risking" of research by pharma companies, back-loading deals and paying only on success, is another increasing trend as cash becomes king in the wake of the GFC. What impact this will have on the biotech industry is yet to be seen

Effective Strategies for Sustainably Positioning University Technologies Session

Ian Frazer spoke in the session "Effective Strategies for Sustainably Positioning University Technologies". Ian begins his new role as Director of the **Translational Research Institute** in Brisbane this month. He commented that 98% of research is not commercialised and that he plans to filter the programs accepted into the TRI to ensure better translation into products. These filters will include technical capabilities and early testing of clinical feasibility. He sees a need for better preclinical models of disease and problem-solving funding models for development, such as venture philanthropy.

Elias Caro from the **Coulter Foundation** is supporting the development of medical devices. Industry processes are put into academia, using executives, entrepreneurs and venture capitalists from the medical device industry. Coulter provides $1million per annum to each group and expects a commercialisation analysis and business plan, including the potential market, FDA and regulatory issues and IP, at the outset. Funding depends on progress against quarterly milestones and projects that do not meet milestones are halted. The Foundation has already had 60 successes.

Risk Sharing and Clinical Research Session

We gained some new insights about the FDA in the "Risk Sharing and Clinical Research" session led by Steve Usdin from *BioCentury*. Christopher Austin of NIH said that NIH had instigated a forum with FDA with the aim of preventing problems later in the drug approval process and that FDA recognises there are issues but apparently has no R&D or mechanisms to research them.

A failure of political leadership in drug development has left the agency with a focus on safety and not on risks. Patients have not been asked what risks they are prepared to accept, even though there are some cases where patient advocacy has resulted in reversals of decisions – in particular HIV patients who demanded early access to trial medicines and multiple sclerosis patients taking Tysabri, who were able to influence the FDA to reinstate the drug's approval, accepting the serious risks in return for quality of life.

There was agreement on the panel that patients often want to take more responsibility for risks and that social networks should be used to understand what is important to them, by bringing in consumer organisations and patient advocacy groups early in the drug approval and development processes.

Finance

The finance stream focussed heavily on ways to fund early commercialisation, although the session on international access to US venture funding provided the same old story with a focus on quality of patents and increased risks owing to distance from the investors.

"Crossing the Valley of Death" Session

The "Crossing the Valley of Death" session included patient advocacy groups and CIRM, the **California Institute for Regenerative Medicine**, which has an opportunity fund. This fund is intended to foster engagement with industry and brings in innovation to link with CIRM funded scientists. It accepts applications for funding early translation, disease modelling and early phase clinical trials.

It was clear from the discussion that the patient groups are looking at ways to get new molecules for their particular diseases developed and approved quickly. They can provide access to patient samples, funding for trials (including internationally), and patient access. The **CF Foundation** finds that collaboration between a company and the CFF creates energy and urgency in the company and the CFF is able to manage patient expectations, creating a culture of trial participation.

A number of problems were identified by these patient advocacy groups.

– It is hard to do placebo trials in diseases affecting a small number of patients

– FDA needs to be involved earlier to ensure faster approvals

– Government funding in rounds is often too slow and funding decision times need to be collapsed – "every day matters to patients"

"Wait, Our Model Isn't Dead! We Just Need to Evolve" Session

The aptly-named panel session "Wait, Our Model Isn't Dead! We Just Need to Evolve" included life science companies and investors who debated the viability of the startup model for life science inventions and looked at the lean times for biotech in what the US is calling "The Great Recession" to try to explain the dramatic decline of startup generation and flow of available investment funding since the peak of the GFC in 2008.

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In a sobering forecast, the panelists agreed that there has been a permanent loss of venture capital funds available to the biotechnology industry for the next few years, pointing the blame at new and competing market interests from other industries, particularly those involved with social and online media technology. Brent Ahrens from **Canaan Partners** noted that the recession has changed entrepreneur confidence levels, leading to more realistic exit expectations. The panel cautiously agreed that the model is still viable but entrepreneurs were warned not to ignore historical investment mistakes and to investigate creative, mixed-funding sources in combination with cost-reduction practices, a streamlined pipeline and strong management teams.

Doping

An interesting session on doping featured some indignant inventors who found that their new medicines were being used by athletes illegally - the first of these was EPO. This has led to collaborations between pharmaceutical and biotechnology companies and the **World Anti Doping Agency** to provide it with access to NCEs early enough to allow the agency to develop a test by the time the drug is marketed.

Biosimilars

Panellists from academia, regulation and industry backgrounds discussed biosimilars. They all agreed that the issues were different to generic small molecules and that it was the science that was important. Biosimilars are large, complex drugs and the regulation of this class of treatments will not be a one-size fits all approach. Each biosimilar must be held to the highest scientific standards and then evaluated further clinically, based on the specific molecule.

Panellists agreed that the FDA is critical both as a regulatory body and a communicator between the scientific community and the general public. Clinical trials must include patients from diverse populations to ensure that minorities or at-risk groups do not have adverse reactions to biosimilars, if they switch over from an innovator biologic or vice versa. Good communication to doctors and their patients will be needed if biosimilar companies are to convince people to switch over from an innovator product and buy their products.

Biosimilars are not a generic version of a therapy – they are a new class of drugs and the public must be educated on what this means, to understand and eventually to use these treatments. The FDA will need conduct an ongoing review of biosimilar safety and efficacy and the panel thought that a regulatory pathway should be expected near the end of 2011.

Worldview 2011

This was a lively session introduced and moderated by author and journalist, Fareed Zakaria, a CNN host with speakers from Malaysia, India and George Baeder, author of "Life Sciences Leader 2020" which focuses on China.

(see http://www.monitor.com/Portals/0/MonitorContent/imported/MonitorUnitedStates/Articles/PDFs/Monitor_China_The_Life_Sciences_Leader_of_2020_17_Nov.pdf)

Zakaria launched the debate with the comment that the rest of the world is catching up with the West, which has long had "the killer apps that cause prosperity – rule of law, science and technology and IP protection – the rest of the world is now realising that this is open source".

– Innovation is not just R&D but marketing and positioning- he contrasted Apple and Microsoft, where Apple has 80% less R&D spend but spends more on design and marketing

– Innovations need a "chain" to make them happen - from government support both for basic R&D and as a purchaser

– A major part of success in the US is how failure is treated- people who fail efficiently are attractive to VCs

– China is demanding a level of pricing that will force change

– Companies looking at affordable biologics for the emerging markets

– India's innovation is in manufacturing less expensive devices and chemical processes for affordable generics

– Malaysia is focussing on patient needs to solve urgent problems

– The Indian government is playing a role in early stage companies, as the PE investors there will only take business, not technical risks.

The FDA came under criticism by this panel too - the risk aversion was traced back to the Vioxx recall.

– The US needs a societal discussion on risk tolerance - the current expectation that the FDA takes all the risk out of a drug is leading to lower approval rates.

– Many US companies are now looking at EU approvals first- particularly for devices.

At this session, the "Worldview: a Global Biotechnology Perspective" was released by *Scientific American*. This includes a scorecard, which listed the top 5 biotech countries to watch: Brazil, Italy, Canada, India and Malaysia. It is sobering to see that Australia did not make this list.

Overall, the sentiment was positive, big pharma is on the prowl for pipeline and there is a growing feeling that some Americans have become too reliant on the FDA to de-risk new drugs completely and that this is leading to congestion in the system and fewer approvals.

Bioshares sincerely thanks the Uniquest team of Carrie Hillyard, Mark Ashton and Dean Moss for providing this comprehensive wrap of BIO 2011.

Bioshares

Bioshares Model Portfolio (15 July 2011)

Company	Price (current)	Price added to portfolio	Date added
Acrux	$3.78	$3.37	June 2011
Psivida	$4.60	$3.95	May 2011
Bioniche	$0.90	$1.35	March 2011
Somnomed	$1.29	$0.94	January 2011
Phylogica	$0.076	$0.053	September 2010
Sunshine Heart	$0.055	$0.036	June 2010
Biota Holdings	$0.96	$1.09	May 2010
Tissue Therapies	$0.58	$0.21	January 2010
Atcor Medical	$0.13	$0.10	October 2008
Impedimed	$0.63	$0.70	August 2008
Patrys	$0.09	$0.50	December 2007
Bionomics	$0.60	$0.42	December 2007
Cogstate	$0.17	$0.13	November 2007
Sirtex Medical	$4.94	$3.90	October 2007
Clinuvel Pharmaceuticals	$1.82	$6.60	September 2007
Starpharma Holdings	$1.54	$0.37	August 2007
Pharmaxis	$0.92	$3.15	August 2007
Universal Biosensors	$1.17	$1.23	June 2007
Alchemia	$0.74	$0.67	May 2004

Portfolio Changes – 15 July 2011

IN:
No changes.

OUT:
No changes.

Impedimed Gains 12 Million Covered Lives

Impedimed sells a bioimpedance spectroscopy device, the L-Dex U400 that aids in the clinical assessment of lymphodema.

Impedimed (IPD: $0.63) has made progress towards gaining wider medical policy support from US health insurers with its announcement that EOBs (Explanation of Benefits) have been written where 300 local medical providers and insurers treating nine million US federal employees are covered by a Federal employees health plan.

An Explanation of Benefits links coverage of the Impedimed device to a specific Common Procedural Terminology (CPT) code written by the **American Medical Association** which describes the use of Impedimed's device. The wording of the coding has important ramifications for sales and marketing.

Another three million covered lives were written under an insurance program that provides workers compensation to federal and postal workers.

The company's objective is to achieve 20 million covered lives in the US by year's end.

Re-cap on the Impedimed Strategy

Commercialisation of medical products in the US is dependent on a company securing three things: coding, payment and coverage. Impedimed is now tackling the third element of coverage.

Obtaining coverage by Impedimed is a painstaking insurer by insurer process, requiring the company to approach 800 separate healthcare payors. Impedimed's strategy involves first reaching agreements with the largest of these (e.g. Aetna, Humana), with expectations that smaller groups will follow. Impedimed is in close negotiations with Humana and the University of Pennsylvania Medical School.

Coverage customarily flows more rapidly if the AMA sets a CPT Category 1 code. However, Impedimed's CPT code is a Category 3 code, which are temporary codes used to support new or emerging technologies.

Impedimed went down the Category 3 path because it wanted to ensure that it obtained specific wording that covered bioimpedance spectroscopy and covered limbs (i.e. arms and legs), to include lymphodema and venous insufficiency emanating from the treatment of cancer in the lower part of parts of the body. These specifics become barriers to entry for competitors.

If the company had gone down the Category 1 path it ran the risk of having a much lower reimbursement price set by a determinations group called the Relative Value Scale Update Committee (known as the RUC). Impedimed believed that it ran a risk of having a payment set as low as $35-$45 if it went through the RUC (with the support at the time of the society that governs breast cancer patients), following a cap being placed on each surgeon/physician groups' 'professional units of time'.

Impedimed's argument is that using the Category 3 pathway allows Impedimed to obtain higher payments for L-Dex assessment, albeit more slowly on a payor-by-payor basis. Impedimed's approach with individual payors to is to convince them of savings obtained from health economics studies of lymphodema assessments and treatments. Crude figures for the cost of supporting lymphodema can begin at $7,000-$8,000 a year per patient.

Bioshares attended a briefing this week with a Texas-based melanoma and breast cancer specialist Dr Peter Beitsch, an L-Dex user whose clinic follows 2000 patients and sees 400 patients a month, of which 300 could be monitored with L-Dex. In his opin-

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– Impedimed cont'd

ion, if he was able to grow coverage (i.e. get reimbursed) of his patients from 10% to 20%, he would, with legs included for reimbursement, be more than commercially satisfied. Beitsch charges an average price of US$330 per test.

Bietsch noted that education is a factor limiting uptake of L-Dex, with peer-to-peer communication also a very positive force for adoption of the L-Dex approach.

The implication of achieving higher reimbursement is that the company could achieve a break even point at a lower rate of coverage in the US market.

Summary

The latest news from Impedimed shows that it is on track, and has created a valuable beachhead in gaining coverage in the US health insurance market. The company takes its approach to creating shareholder wealth very seriously, having avoided the temptation of taking a quicker path to gaining earlier widespread coverage at the expense of lower future revenues.

We expect that the publication of health economic data later in the year will contribute to the task that Impedimed has to educate both specialists and medical directors of insurance companies.

Impedimed is capitalised at $98 million and held cash of $21 million at March 31, 2011.

Bioshares recommendation: **Speculative Buy Class A**

Bioshares

Tissue Therapies – EU Trial Interim Data

Tissue Therapies (TIS: $0.63) has released impressive data from a trial of its wound healing product in patients with venous ulcers at the University of Cardiff, led by Professor Keith Harding and Dr Girish Patel.

Tissue Therapies has released data from 24 evaluable patients, although the trial has recruited 53 patients in total (19 patients are still continuing with treatment, with 6 having withdrawn for reasons unrelated to VitroGro treatment.) VitroGro was administered once or twice weekly for 12 weeks.

Of the 24 patients evaluated, eight achieved complete healing and another two achieved close to 98% healing. Of the 24, 22 patients were partially or completely healed at 12 weeks. This is a very convincing performance in treating a chronic condition.

What should be noted about the evaluated patients in the trial is their average age of 71 years. Typically, older patients have less responsive immune systems, hence the intractable or chronic nature of ulcers in that patient group.

One astonishing result was the success in treating a 30 year old wound, reducing the depth of ulcer to 2mm and growing what appears to be a new extra-cellular matrix across the wound bed!

Tissue Therapies expects to make data available from the completed trial at the end of September. The data will support a European marketing authorisation application, which is expected to take place later this year.

However, the company is also waiting on obtaining stability data for VitroGro, which is expected in November. This data is also required for the EU submission.

The company is aiming to commence selling VitroGro in 2012 Q2. Tissue Therapies is currently looking at pricing VitroGro in the UK at £50 per single dose, to compete against animal matrix products such as Xelma, which is priced at £60 per single dose.

Summary

The more Tissue Therapies' VitroGro wound healing product is evaluated in the clinical setting, the more impressive the product becomes. The ability of the product to treat chronic venous ulcers in elderly patients is emerging as an attractive feature, given the increase in numbers of aged people in many economically developed countries and the expense of treating these wounds.

A further near term value driver for Tissue Therapies is to sign a marketing partner for VitroGro, which importantly will see Tissue Therapies retain manufacturing and product sponsor rights.

Tissue Therapies is capitalised at $80 million and held cash of $2.5 million at March 31, 2011.

Bioshares recommendation: **Speculative Buy Class A**

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 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

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