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In this edition...
Southern Cross Equities hosted a day long investment conference in Sydney this week, drawing in a healthy 230 registrations, suggesting that interest in biotech is as good as it has ever been.
Alchemia, which continues to wait patiently for approval of its generic fondaparinux, focused attention on its HA-Irontecan program and its planned Phase III trial. Prima Biomed also discussed its Phase III trial for its ovarian cancer vaccine, which it intends to commence in 2011 Q3.
And in keeping with the Phase III theme, Mesoblast expects to commence a Phase III trial in heart failure patients in 2012.
Closer to market is QRxPharma, which expects to file its NDA for MoxDuo IR mid-year.
The Editors
Companies Covered: ACL, PRR, PYC, MSB, QRX

	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	-4.0%
Cumulative Gain	**304%**
Av Annual Gain (10 yrs)	**21.2%**

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Bioshares

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

Conference Report

Southern Cross Equities Life Science Conference

There was no fancy theme or name attached to the Southern Cross Equities (SCE) life sciences/biotech conference held in Sydney this week. There were 230 delegates registered, mostly investors, who were very keen to get an update on what's hot in Australia's biotech sector. The turnout alone gave an indication of the high level of interest in the biotech sector.

SCE has returned to covering the biotech sector after deferring its interest for a number of years, when research analyst Stuart Roberts quipped "this sector can continue to languish without me", or words to that effect. However, following on from the broker's stunning success with its backing of Mesoblast, SCE is arguably a major factor in bringing in a new range of investors who are enjoying the fruits of more than 10 years of investment in biotech.

Alchemia – The Wait Goes On

The wait continues for Alchemia to get approval for its generic fondaparinux drug (fonda). It's the same story for the company, with FDA backlogs causing massive delays for generic drug makers. Around 190 overseas visits for new generic drugs will not occur this year due to backlogs, and around 380 first-to-file generics won't be have their applications assessed this year such is the increasing delay. CEO Pete Smith said the company was extremely frustrated and disappointed about the delay in getting fonda approved.

For Alchemia the good news is that it's at the tail end of its application to get fondaparinux approved. Pre-approval inspection of its partner's facility in India has been successfully completed and the company is now waiting for final approval to sell its drug into the US. That market in the US is worth $274 million, and Alchemia will receive up to a 60% profit share from sales its partner Dr Reddy's achieves. Take-up should be rapid. By way of example, when another heparin drug, Lovenox, went generic, Sandoz achieved a 45% market share in the first nine weeks!

In our view, there could likely be a good 50% gain upon approval, for those investors who are patient enough to hang on, and with greater long term gains from execution of the company's oncology pipeline. In the view of the company's new CFO, Charles Walker, fondaparinux approval is question of 'when' not 'if'.

Smith is more and more emphasizing the potential of its oncology drug pipeline, built around the addition of hyaluronic acid to existing cancer drugs to improve cancer tissue targeting. Smith showed slides of hyaluronic acid combined with another cancer drug, Doxarubicin, clearly binding to the CD44 receptor on cancer stem cells, but the same drug combination clearly not binding to non-cancerous cells. Doxarubicin was used because it's a cancer drug and it's ease to image using standard laboratory techniques. .

Smith reinforced the feedback from specialists, where in a survey of 95 oncologists, around 55% indicated they would move patients from Irinotecan to treatment including HA-Irinotecan if a 1.5 month benefit in progression-free survival was achieved in the forthcoming Phase III trial. Smith said there were no game changes on the horizon in the area of metastatic colorectal cancer.

The company will start a Phase III trial with HA-Irinotecan following fondaparinux approval and a Phase II study with the same drug will also start in small cell lung cancer to look at the impact on cancer stem cells.

Of particular interest, Smith said that if Phase III results are comparable to the Phase II study, then the FDA should grant approval for HA-Irinotecan , or conditional approval if the results are less clear, whereby a further (Phase IV) trial would be required to show survival benefit.

The comparison with the highly successful **Abraxis Bioscience** (acquired by Celgene last year for $2.9 billion) continues to be made. Abraxis was built around an improvement to the cancer drug Taxol, called Abraxane, delivering the drug in a plasma solution. Abraxane generated annual sales of around $320 million.

Carlo Montagna, who was previously President of Abraxis Bioscience, is now a director of Alchemia. Alchemia has also recruited the person who conducted the Abraxane trials to run Alchemia's HA-Irinotecan trials.

Smith remains very optimistic of the company's future, which should accelerate once fonda is approved. "I think value build is going to be extremely fast after fondaparinux approval".

Prima Biomed – To Commence 800 Patient Phase III Trial in Q3

Prima Biomed CEO Martin Rogers commenced his presentation with a confident and optimistic statement. His view is that investment in biotech should continue to increase for the next two to three years.

Rogers has every reason to feel confident. His company in the last 24 hours raised $21 million from investors in a private placement (more than the anticipated $18 million) and it is seeking to raise a further $20 million through a SPP. The funds will go towards paying for the company's Phase III trial of its ovarian cancer trial.

Prima's path is made all the more easier by US biotech Dendreon which has paved the way for cancer vaccines. Its drug, Provenge for the treatment of prostate cancer, was approved last year. Its selling price is US$93,000. Dendreon currently has a market value of US$6.2 billion. The company generated only US$28 million of sales in the first quarter of this year and $76 million in sales since approval.

Rogers has a relatively concise target group of investors; the same investors who made a 20 times return from investing in Dendreon.

The path paved by Dendreon has also seen the introduction of draft guidelines from the FDA on therapeutic cancer vaccines. And other measures may be considered in the future for cancer vaccines, judging by recent results from Provenge, which showed that after 12 months 39.3% of patients were pain free compared to 18.9% of control, as reported at this year's ASCO conference.

Rogers said CVac, an autologous (patient's own) cancer vaccine, is a "no brainer", with the therapy not demonstrating toxicity and there being not much available in effective treatments for women with ovarian cancer. Most patients are diagnosed late, with Stage III or IV of disease. Over 80% of ovarian cancers over-express the MUC1 protein that the vaccine directs the immune system towards. CVac offers a "real benefit of life in a non-toxic setting," said Rogers.

The Phase III trial is due to start in the third quarter of this year and will recruit 800 women. Patients will be randomised 1:1, with the other half receiving the current standard of care. Patients will be given six injections over 12 months, one per month for the first three months and then one injection every subsequent quarter. To date, 113 sites have been set up to recruit patients, with around 70% of those sites in Europe. The Phase III trial will cost around $50 million.

The company is making automated processing systems to ensure processing of samples is standardised and the company will generate potency assays to ensure consistent quality of product is achieved.

Phase II Results Due in September

The company's Phase II trial is due to finish at the end of June with results out at the end of September.

The market size for ovarian cancer treatments was worth $3.6 billion in 2010 in the US, with 73,000 women diagnosed with the disease each year in the US, Europe, Australia and Japan. Prima's maintenance style therapy would be the first of its type for ovarian cancer, where only 20%-30% of patients survive five years. Its path to market will be fast tracked outside of the US stated Rogers. Rogers believes the addressable market for each indication for CVac could exceed $1.5 billion.

Rogers highlighted his team's experience, with Dr Neil Fraser (CMO) who has been involved with 10 FDA approvals, Dr Sharron Gargosky (SVP of CVac program), who has achieved three successful orphan drug approvals with the FDA, and Matt Lehman (COO) who has been involved with co-ordinating over 100 clinical trials.

Cont'd over

Mesoblast – Phase III Heart Failure Trial in 2012

Mesoblast CEO Silviu Itescu believes that the company's stem cell technology offers a unique risk profile at the lower (risk) end of the pharmaceutical/biotech industry. The company's stem cell therapies work by secreting around 20 agents or cytokines that restore natural cellular functions.

The company released 18 month data from its 60 person congestive heart failure trial in January and 24 month data will soon be available. Itescu said that the 24 month data is looking even more robust with final analysis due to be completed in June this year. Itescu says the risk of death from congestive heart failure is approximately that of cancer, at around 15%-20%.

The company has several preclinical and clinical milestones ahead. The company will also have more data from its 60 patient spinal fusion trial, with the only product available having caused deaths in the upper spine. Itescu said the company has a safer potential product as there are no allergic reactions to its stem cells in the body.

However pre-clinical data in non-human primates in the application of diabetes as a systemic therapy is an area that may generate more attention in coming weeks.

In early 2012 the company is expecting to start a Phase III trial in congestive heart failure. That trial will recruit between 800 - 1000 patients. Of particular interest, the company will approach the FDA to see whether it may be possible to gain interim results in this trial and whether an accelerated approval process may be possible.

Another Phase III trial is due to start in bone marrow transplant procedures in the third quarter of this year. Itescu said that the company's stem cells have now been safely implanted in 120 patients.

The company is looking to begin a Phase II trial in patients who have experienced a heart attack. Itescu said a clinical group in Rotterdam investigated many potential stem cell therapies and the Mesoblast technology was selected because its cells delivered the most dramatic results in sheep studies. With heart attack patients, only an off-the-shelf product is suitable because of the urgent time constraints.

Itescu believes that once the first Mesoblast stem cell product is approved, the likelihood is there will be a number of products approved in sequential order that will follow.

Patents

Mesoblast has three levels of intellectual property protection around its technology, with composition of matter patents (two further claims were granted in the US this week), patents around its manufacturing, and also indication/use patents. The core feature of the Mesoblast stem cell technology is that its cells do not activate the immune system and they can be expanded, according to Itescu.

Manufacturing

Itescu said that retaining manufacturing control continues to be a major driver that underpins growth for the company. Mesoblast will supply the product to Cephalon/Teva, and will receive a revenue split from sales of products sold by Cephalon/Teva.

Acquisition of Cephalon by Teva

Commenting on the proposed acquisition of Cephalon by **Teva Pharmaceutical Industries,** Itescu said that Cephalon will become Teva's pipeline driver. Teva's multiple sclerosis drug Capaxone, which generates $3 billion in sales a year for Teva, is coming off patent in 2015. The Mesoblast technology may have potential as a treatment for MS and that program could be fast tracked with Teva if that is shown to be the case.

In terms of what is the right future comparator style of company for Mesoblast, Itescu said that Genentech was a better comparison.

Coverage of the SCE conference will continue in next week's Bioshares.

Bioshares

QRxPharma – Will MoxDuo IR Fill The Vicodin Void?

In January 2011, the FDA set out a new rule for drug manufacturers to limit the strength of acetaminophen in prescribed (but not over the counter) drug products. The new limit imposed by the FDA is 325mg per tablet, with a three year phase out to take place.

Acetaminophen is better known in Australia as paracetamol. Acetaminophen's mechanism of action occurs through binding with cyclooxygenase (COX) receptors including the COX-2 subset of receptors.

The ruling will affect 29 out of 70 prescription drugs, which account for 200 million scripts per year in the USA. These drugs include Vicodin (a combination of acetaminophen and hydrocodone) and Percocet (a combination of acetaminophen and oxycodone), as well as Lortab, Anexsia, Co-Gesic, Roxiset, Tylox, Talasen as well as a number of products without brandnames.

Vicodin was the most prescribed drug in the US in 2010, with 131 million scripts written. Percocet was also heavily prescribed with 32 million scripts written. However, Vicodin was sold at the time of the FDA announcement in 500mg, 660mg and 750mg strengths of acetaminophen in combination hydrocodone, whereas Percocet was sold in 325mg, 500mg and 650mg strengths of acetaminophen in combination with varying doses of oxycodone.

The reason for the new limit arose from hundreds of cases of severe liver injury that were associated with over-dosing on products containing acetaminophen. According to the FDA, acetaminophen was the leading cause of acute liver failure between 2003-2009, and that in the period 1990-1998 there were 458 deaths related to acetaminophen-associated overdoses.

Overdosing has occurred in a number of ways, with drug takers sometimes taking acetaminophen from more than one drug and not being aware that the additional drug might contain that active drug substance, due in part to abbreviations such as APAP being used. The daily recommended total dose of acetaminophen is 4 grams per day.

Implication

The effect of the FDA ruling has been to nullify Vicodin (sold by **Abbott Laboratories**) as the drug of choice in the American immediate release prescription pain market and create a void in that market. QRxPharma's (QRX: $2.13) conservative view is that approximately 100 million scripts per annum are 'at risk' courtesy of this decision. However, the actual figure is probably much higher.

This may mean that a significant opportunity has emerged for QRxPharma's MoxDuo, which combines two opioid drugs (morphine and oxycodone in a 12mg/8mg ratio). An advantage that MoxDuo has from being an opioid-class drug is that it does not cause liver damage, or organ damage generally, according to the company. However, opioids can have side effects that include nausea, respiratory depression and dizziness, as well as tolerance. Nevertheless, QRxPharma's particular combination of morphine and oxycodone have been shown to reduce nausea, vomiting and dizziness by 50-75%, compared to equivalent doses of morphine or oxycodone.

A parallel opportunity for QRxPharma that it has with MoxDuo is the potential to move the immediate release pain market from being dominated by generics medicines to one in which a patented drug could command a reasonable share. A patented drug with a favourable side effect profile could command stronger pricing and revenues, making the drug an attractive asset for partnering.

Milestones for QRxPharma

QRxPharma is heading towards a major milestone with the submission of its New Drug Application for MoxDuo at mid-year. The company is using the 505(b)2 pathway, which means that QRxPharma, as the drug sponsor, can rely on reference product data, even if it does not have permission to use that data, which typically relates to certain pre-clinical and early stage clinical studies.

QRxPharma also expects to announce the results of Study 022 in June. This is a Phase III labelling claim study in 400 patients in which the side effects of MoxDuo are compared to equivalent analgesic effects of morphine (24 mg) and oxycodone (16mg).

A third key action ahead for QRxPharma are decisions on the commercial direction for MoxDuo, with partnering one of the issues to be decided.

QRxPharma is capitalised at $268 million and held cash of $14.9 million at March 31, 2011.

Bioshares recommendation: **Speculative Hold Class A**

Bioshares

Bioshares Model Portfolio (27 May 2011)

Company	Price (current)	Price added to portfolio	Date added
Psivida	$3.89	$3.95	May 2011
Bioniche	$0.97	$1.35	March 2011
Somnomed	$1.35	$0.94	January 2011
Phylogica	$0.074	$0.053	September 2010
Sunshine Heart	$0.053	$0.036	June 2010
Biota Holdings	$1.18	$1.09	May 2010
Tissue Therapies	$0.50	$0.21	January 2010
Hexima	$0.36	$0.60	October 2008
Atcor Medical	$0.13	$0.10	October 2008
Impedimed	$0.58	$0.70	August 2008
Patrys	$0.14	$0.50	December 2007
Bionomics	$0.72	$0.42	December 2007
Cogstate	$0.20	$0.13	November 2007
Sirtex Medical	$5.20	$3.90	October 2007
Clinuvel Pharmaceuticals	$1.83	$6.60	September 2007
Starpharma Holdings	$1.62	$0.37	August 2007
Pharmaxis	$0.92	$3.15	August 2007
Universal Biosensors	$1.04	$1.23	June 2007
Alchemia	$0.62	$0.67	May 2004

Portfolio Changes – 27 May 2011

IN:
No changes.

OUT:
No changes.

Phylogica Hits A Key Milestone for 2011

Phylogica (PYC: 7.4 cents) has achieved one its most important milestones for the year. It has extended its collaboration with **Roche** to investigate using a Phylogica peptide as a drug delivery vehicle to deliver drugs across the blood-brain barrier. Through the company's earlier collaboration, it had shown that this peptide could successfully penetrate cells.

Roche has taken an option to license the peptide. Presumably this will include an option fee, which is undisclosed, however a cumulative total will show up in the company's cash flow statement in July.

Phylogica's aim is to move to a cash flow positive business. In the first quarter of this year the company generated receipts from customers of just under $1 million with a net cash out flow of $179,000. The Roche deal extension should see another strong quarter for the company.

Other milestones to look out for this year are new pharmaceutical company collaborations and progress on its existing collaborations with **Pfizer** and **MedImmune** (AstraZeneca).

Phylogica is capitalised at $30 million with $3 million in the bank at the end of March.

Bioshares recommendation: **Speculative Buy Class A**

Bioshares

Clarifications and Corrections
The share price of Pharmaxis in Bioshares 409 Special Edition should have read $0.76, not $ 0.74.

In our recent feature on Immuron (Bioshares 408), the planned Phase IIb NASH trial will take 12 months and will recruit ~120 patients.

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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