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Bioshares

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Edition 180

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

In this edition...
M&A is in full swing in the Australian biotech sector. As Australian investors fail to appreciate the full value of local biotech assets, the last week has seen three biotech companies receive takeover offers from larger international players. What are other potential acquisition targets in this sector?

We also take a close look at Starpharma's microbicide program, which is steadily gaining in relevance as the need for an effective microbicide becomes more dire to stop the spread of HIV and other sexually transmitted diseases.

The editors

Companies covered: SPL

	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 (from 5 May '06)	-10.9%
Cumulative Gain	**148%**
Average Annual Gain	**22.1%**

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M&A in Australian Biotech Sector in Full Swing

Several weeks ago **Zenyth Therapeutics** announced plans to merge with CSL, a transaction that seemed logical enough on its own at the time, but lacking as a barometer for discerning the possibilities for further consolidation in the sector.

However, from Friday a week ago, three more transactions have been announced, including the merger of **Vision Systems** with the Nasdaq listed **Ventana Medical Systems**, the acquisition of **Bresagen** by **Hospira Inc** and **Novozymes A/S** acquisition of **GroPep**.

The common theme to all three deals is that the targets are all revenue generating and even profitable businesses that have arguably been trading at significant discounts to their inherent value.

While Vision Systems is a sophisticated life sciences instrumentation manufacturer, GroPep and Bresagen operate traditional fermentation-based biotech manufacturing facilities in Adelaide.

The Vision/Ventana merger values Vision at $451 million. The Novozymes offer is for $2.05 cash per GroPep share, valuing GroPep at $96 million (excluding outstanding options). The Hospira cash offer at 14 cents a Bresagen share values Bresagen at $21 million (excluding outstanding options).

Implications for biotech investors

The first implication is that companies generating revenues or with products in late stages of developments will increase in attractiveness as acquisition targets of international firms and possibly some local firms.

The readiness of the boards of Zenyth, Vision Systems, Bresagen and GroPep to recommend these bids (in the absence of superior offers) to shareholders is a sign of the deep frustration held by the proprietors of life science firms to gain fair market recognition for their efforts in wealth creation.

The second implication is that there is consolidation on the way, with companies such as **Peptech** and **Biota** in profoundly strong positions to be key players in aggregation activities. Biota for example has a very valuable share register and a stock market share profile that sets it apart from almost every other biotech. Both these features can be brought into support its future capital requirements. And Peptech anticpates receiving in the order of $100 million in the next few years, representing royalty payments from licensees of its TNF-alpha patents.

Two companies that stand out as potential takeover targets include **Optiscan Imaging**, and **Clinical Cell Culture,** if revenue begins to grow. **Acrux**, **Cytopia**, **Alchemia** and **Avexa** are another group of companies that might also appear on the radars of aggressive international buyers.

In the following pages we weigh the pros and cons of a number of potential mergers knowing full well that many will not eventuate. However, the act of listing these proposals may stimulate valuable discussion and analysis.

Bioshares

The case for a merger [BTA, CYT, SPL]

A merger between **Biota Holdings**, **Cytopia** and **Starpharma** is attractive for several reasons. The three companies are linked by a common focus on the rational drug design of synthetic small molecules, although it must be said that Starpharma's dendrimer compounds are not small. However, the potential to more effectively exploit drug design capabilities and scarce medicinal chemistry expertise in a larger company based at a single site would be attractive.

A second area of benefit could accrue in the areas of clinical development, with a larger well resourced entity able to fund and manage trials more efficiently across more disease areas. With a capitalisation of $352 million, a merged entity begins to look like a sizeable biotech company capable of attracting patient cornerstone institutional investors, who can make investments consistent with their mandates. In addition, if the merged entity, through Biota, were to be successful in its suit against **GlaxoSmithKline** it could receive compensation that could amply fund the company for some time.

The case against a merger

The merger of these companies may offer too much portfolio diversity from a disease point of view. Having a firm grasp on one or two disease areas is an important aspect of maintaining focus and commercial competitiveness for a biotech company.

The Drug Designers

Code	Company	Shares	Price 30/6/05	Current Price	Capital-isation ($M)	Cash ($M)*	Tech. Value ($M)	Board & Mgt Expense FY 2005 ($M)*	Options	Options as % of Sh. and Opt.
BTA	Biota Holdings	179.9	$0.42	$1.25	$224	$42	$182	$1.9	2.6	1%
CYT	Cytopia	73.6	$0.44	$0.73	$54	$22	$32	$1.0	27.9	27%
SPL	Starpharma Holdings	147.7	$0.49	$0.50	$74	$14.3	$60	$1.0	2.3	2%
	Aggregate				**$352**	**$78**	**$273**	**$3.8**		
Merged Pipeline		**Product**		**Stage**	**Indication/Treatment**					
		CYT997		Phase Ib	Cancer					
		Vivagel		Phase I	HIV		- ready for large scale efficacy trials			
		Vivagel		Phase I	HSV		- ready for large scale efficacy trials			
		Flunet/CS-8958		Pre-clinical	Influenza					
		BTA798		Phase Ib	Human Rhinovirus Virus					

*Biota's cash - estimated
*Cytopia (FY2006)

The case for a merger [MBP, PYC, NEU]

Peptide drugs are a common feature of the Australian listed drug development sector, and the merger proposition of Neuren Pharmacueticals, Metabolic Pharmaceuticals and Phylogica could well be strengthened through the addition of peptide drug assets from Gropep or Biodiem. Neuren and Metabolic currently jointly manage and share a project so the psychological proximity of the two companies is not that distant. Phylogica could contribute its 'phylomer' technology as a base to the combined entities pipeline. Marrying early stage and later stage pipelines is critical when compounds such as Neuren's Glypromate and Metabolic's AOD9604 are passing through critical Phase II or Phase III efficacy trials. Another advantage to this proposed merger is that the combined entity should have gathered a significant understanding of various elements manufacturing peptide drugs.

The case against a merger

A fairly obvious reason that mitigates against these three companies merging is their physical location, Metabolic is located in Melbourne, Neuren in Auckland and Phylogica is in Perth.

The Peptide Chemistry Play

Code	Company	Shares	Price 30/6/05	Current Price	Capital-isation ($M)	Cash ($M)	Tech. Value ($M)	Board & Mgt Expense FY 2005 ($M)	Options	Options as % of Sh. and Opt.
MBP	Metabolic Pharm.	284.6	$0.62	$0.42	$120	$21	$98	$1.2	11.8	4%
PYC	Phylogica	108.6	$0.16	$0.49	$53	$2.6	$51	$0.6	20.74	16%
NEU	Neuren Pharm.	112.0	$0.45	$0.45	$50	$7	$43	$1.1	21.8	16%
	Aggregate				**$223**	**$31**	**$192**	**$3.0**		
Merged Pipeline		**Product**		**Stage**	**Indication/Treatment**					
		Glypromate		Phase II	Mild Cognitive Impairment					
		NNZ-2566 (IV)		Phase II	Traumatic Brain Injury					
		ACV1		Phase I	Neuropathic Pain					
		AOD9604		Phase II	Obesity					

The case for a merger [ACL, PGL]

Alchemia and **Progen Industries** are both based in Brisbane, which is a more than relevant point in favour of this proposed merger. The key synergy springs from Progen's stronger clinical capabilities that could dovetail with Alchemia's drug discovery technology for one, but more importantly address Alchemia's need for stronger clinical management capabilities for its HyACT program, currently completing a Phase II program. A combined entity could see the emergence of powerhouse drug developer that gains investment interest because of a comprehensive well staged portfolio of carbohydrate-based drugs. The prospects for building a board that takes the best from both boards is also attractive, as is the potential for the merged entity to benefit more fulsomely from Progen's full NASDAQ listing.

The case against a merger

A merger between Progen and Alchemia might not eventuate because both companies are similarly sized (on a technology value basis) and mergers between equals are often more difficult to achieve, since neither company is clearly seen as 'dominant' or the 'leader'. A second consideration is that Alchemia's synthetic heparin asset, may give the company confidence to plot a more independent future, but a future in which it makes further acquisitions of more junior biotechs.

The Carbohydrate Chemistry & Oncology Link

Code	Company	Shares	Price 30/6/05	Current Price	Capital-isation ($M)	Cash ($M)	Tech. Value ($M)	Board & Mgt Expense FY 2005 ($M)	Options	Options as % of Sh. and Opt.
ACL	Alchemia	141.1	$0.53	$0.90	$126	$26.2	$100	$1.3	5.2	4%
PGL	Progen Industries	40.6	$2.69	$2.75	$112	$15	$97	$1.4	0.1	0%
	Aggregate				**$238**	**$41**	**$197**	**$2.7**		

Merged Pipeline	Product	Stage	Indication/Treatment
	HYCAMP	Phase II	Metastatic Colorectal Cancer
	ACL16097	Pre-clinical	Oncology
	Unnamed	Pre-clinical	AMD/DR
	PI-88	Phase II	Resectable Liver Cancer (Post Surgery)
	PI-88	Phase II	Advanced Prostate Cancer
	PI-88	Phase II	Metastatic Melanoma (first line)
	PI-88	Phase II	Advanced Lung Cancer
	500 Series	Pre-clinical	Solid Tumours
	500 Series	Pre-clinical	Ocular
	501 Series	Pre-clinical	Inflammation

The case for a merger [AVX, BIT, NLS]

Avexa, Biotron and Narhex Life Science are united by development of drugs to treat HIV. A clear and simple attraction with this proposition is that the assets uner development by Biotron and Narhex would increase their chances of survival through accessing Avexa's far superior fundraising capabilities. From Avexa's point of view, the fleshing out of its portfolio could add value.

The case against a merger

The problem with this merger is that not a great deal of scale is created, with the combined capitalisation totalling $90 million.

The HIV and AntiVirals Play

Code	Company	Shares	Price 30/6/05	Current Price	Capital-isation ($M)	Cash ($M)	Tech. Value ($M)	Board & Mgt Expense FY 2005 ($M)	Options	Options as % of Sh. and Opt.
AVX	Avexa	214.2	$0.15	$0.23	$49	$20.2	$29	$0.8	9.1	4%
BIT	Biotron	90.2	$0.13	$0.24	$22	$4.6	$17	$0.5	4.4	5%
NLS	Narhex Life Sciences	161.3	$0.08	$0.11	$18	$5	$13	$0.2	6.2	4%
	Aggregate				**$89**	**$30**	**$59**	**$1.5**		

Merged Pipeline	Product	Stage	Indication/Treatment
	BIT225	Preclinical	HIV
	Apricitabine	Phase IIb	HIV (failing front line therapy)
	DG17	Phase I	HIV

The case for a merger [CST, PXL, PBO]

Melbourne based **Cellestis**' principle asset is its high share price, and there is a great disparity betwen its capitalisation and those of **Proteome Systems** and **PanBio**. Until revenues kick in from the sale of its Quantiferon Gold TB test, the company could contemplate the acquisition of Proteome Systems and PanBio, based in Sydney and Brisbane respectively. Proteome Systems contribution to such a merger would be its tuberculosis and cancer diagnostic programs whereas PanBio's strength is from its sales and distribution experience.

The case against a merger

For this merger to work, an exective with experience in aggregating three disparate businesses into a cohesive unit would need to be recruited. Such a person may be difficult to find. One likelihood is that if and when PanBio becomes consistently profitable it would emerge as a takeover target for a larger international profitable business seeking access to PanBio's customer base.

The Diagnostics Play

Code	Company	Shares	Price 30/6/05	Current Price	Capital-isation ($M)	Cash ($M)	Tech. Value ($M)	Board & Mgt Expense FY 2005 ($M)	Options	Options as % of Sh. and Opt.
CST	Cellestis	95.8	$2.96	$3.38	$324	$13.9	$310	$0.7	0.7	1%
PBO	Panbio	62.3	$0.29	$0.26	$16	$4.7	$11	$1.7	0.6	1%
PXL	Proteome Systems	140.8	$0.34	$0.28	$39	$6	$33	$1.1	0.0	0%
	Aggregate				**$379**	**$25**	**$354**	**$3.5**		

The case for a merger [CXS, BNO]

Bionomics and ChemGenex share a similar backgrounds as companies that initially listed on the basis of discovering and validating gene targets suitable for drug discovery and development. Both companies have transitioned into drug development, but retaining an exposure to genomics, where it can add to drug development. The case for these merging these two companies is exactly because of that genomics heritage, including that held in the heads of researchers, but also in intellectual property that simply may take some time to bear fruit. Bionomics need is to join with a partner with stronger fund raising capabilities. ChemGenex's need is to continue to build its pipeline.

The case against a merger

This proposed merger does not, similar to the HIV play mentioned above, generate a listed entity of scale. If a merger were to take place, it would make sense for a fundraising round to take place and at the same time secure both cornerstone investors and acquire privately held assets that can increase the asset base of the firm.

Two Reformed Genomics Companies

Code	Company	Shares	Price 30/6/05	Current Price	Capital-isation ($M)	Cash ($M)	Tech. Value ($M)	Board & Mgt Expense FY 2005 ($M)	Options	Options as % of Sh. and Opt.
CXS	ChemGenex	151.4	$0.72	$0.48	$73	$15	$58	$1.8	29.1	
BNO	Bionomics	154.9	$0.11	$0.15	$23	$4.7	$19	$1.0	52.6	
	Aggregate				**$96**	**$20**	**$76**	**$2.9**		

Merged Pipeline	Product	Stage	Indication/Treatment	
	Ceflatonin	Phase II	Chronic Myeloid Leukemia	- ready for registration trial
	Ceflatonin	Phase II	Myelodysplastic Syn.	
	Ceflatonin	Phase II	Acute Myeloid Leukemia	
	Quinamed	Phase II	Prostate Cancer	
	Quinamed	Phase II	Breast Cancer	
	Quinamed	Phase II	Ovarian Cancer	
	CXS299	Pre-clinical	Solid Tumours	
	BNO105	Pre-clinical	Solid Tumours	

Correction

In last week's article on Acrux, we mentioned that VIVUS would file an IND for Testosterone MDTS in the next week or so with a Phase III study to begin in early September. This is incorrect. Acrux already has an IND for this product and details of a Special Assessment Protocol from the FDA for the Phase III study are expected shortly. A Phase III trial is scheduled to begin with this product in the first half of 2007.

Starpharma's Vivagel & the Microbicide Landscape

At the 16th International AIDS conference held this week in Toronto, Bill Gates, who through the **Bill and Melinda Gates Foundation,** has donated US$1.9 billion to the fight against AIDS, announced that the next big breakthrough required against this disease is the discovery of a microbicide or an oral preventative drug. This will have been welcome news to Starpharma Holdings, whose lead project is the development of a microbicide for the prevention of HIV transmission, called Vivagel. In this analysis, we look at the competitive landscape for topical microbicides to understand how Starpharma's product will compete against the leading microbicides in later stages of clinical development.

Next wave of microbicides in development

Currently there are 40 microbicide products being evaluated with five products (including a latex diaphragm) in advanced stages of clinical development (see table). Of these five, one or more are expected to reach the market over the next one to five years.

However, as detailed at the Microbicides 2006 conference in South Africa earlier this year, these compounds that have moved into late stage clinical trials have a relatively low potency against HIV and it's uncertain whether these compounds will be effective microbicides against HIV and other sexually transmitted infectious diseases.

Starpharma's Vivagel product is an important part of this wave of new treatments under development, and the company has ambitious plans to get the product on the market in the next two or three years.

At present, microbicides in development are tested against placebo treatment arms, which raises some ethical concerns. Once a microbicide is on the market, future trials will likely need to be tested against active control arms that include the available microbicide product. The hurdle for the emerging products will likely be higher as they will need to show improved efficacy or other advantages, including a better safety profile or more favourable delivery system. The new products may also be trialed in conjunction with approved products if there is no conflict of action. The ultimate goal however is to provide a range of microbicide products that can prevent the transmission of sexually transmitted diseases.

Five categories of microbicides in development

Fusion Inhibitors

The leading and most common microbicides in development are simple fusion inhibitors. This includes PRO 2000, Carraguard and cellulose sulphate. It's expected these compounds will only have a moderate effect in preventing HIV transmission (by 30% - 40%) and will end up as secondary actives for combination products. These fusion inhibitors are quite non-specific. Being negatively charged, they prevent HIV and other viruses, such as HSV2 (herpes simplex) from binding to cell receptors. These compounds do, however, appear to have a good safety profile.

gp120 binders

Starpharma's microbicide, Vivagel, falls into this category. These are more sophisticated fusion inhibitors, specifically blocking fusion by binding to gp120 glycoprotein on the HIV molecule, which inhibits virus binding to the CD4+ T cells. Other gp120 binders in development include Cyanovirin-N discovered in 1997 and two compounds developed by **Bristol Myers Squibb** (BMS78806 and BMS599,793) licensed to the **International Partnership for Microbicides**.

These gels must be used shortly before sexual activity but future development would likely to include once a day formulations and in sustained release delivery rings.

CCR5 antagonists

These are a class of anti-retroviral drugs that are being considered for use as topical microbicides. **GlaxoSmithKline** (with Aplaviroc), **Schering-Plough** (with Vicriviroc),) and **Pfizer** (with Maraviroc) are in the clinic as therapeutics for patients with HIV. These compounds have the potential advantage of being active for several days. The compounds work by binding to the CCR5 receptors on T cells (and other) and preventing virus binding.

There are no CCR5 antagonists in the clinic at this stage as microbicides. Some toxicity issues have arisen with the GSK compound. The leading CCR5 antagonist is PSC-RANTES which has completed positive preclinical studies and is now being evaluated for clinical studies as a topical microbicide. Merck has licensed its CCR5 antagonist, Merck-167, to the International Partnership for Microbicides. One issue with these compounds is the potential high cost of manufacture. These compounds are expected to have a low resistance profile.

Surface active agents

Surface active agents, sometimes called membrane disruptive agents, form a protective layer that prevents viral transmission. Nonoxynol-9 was an early surface active agent which was found to be abrasive to tissue and in fact promote infection. One such compound, called Savvy, is currently in a large clinical trial (see table) in Ghana and Nigeria, although results from the Ghana trial were not optimistic and inconclusive.

Acid/Buffering agents

Buffering agents seek to reduce the pH of the vagina. Microbes such as HIV survive better in more alkaline environments. Semen, which is alkaline, raises the pH and helps promote HIV infection. Acidic washes such as lemon and lime juice are toxic and do not provide an adequate buffer although compounds such as Buffergel (ReProtect) and Acidform are promising.

A clinical trial is underway (see table) comparing PRO 2000 with Buffergel in Africa and the US in 3200 people with results expected in early 2009. Starpharma and Reprotect are also trialing a combination microbicide of Vivagel with Buffergel for prevention of pregnancy and STD transmission and this program is supported by an NIH grant.

Cont'd over

Anti-retrovirals

Antiretrovirals that are currently used as therapeutics are being explored for use as microbicides as topical applications. The International Partnership for Microbicides, which is funded by the Bill and Melinda Gates Foundation and other organizations, is planning a 10,000 plus person study in 2007 using daprivine from **Johnson & Johnson**. Many of the current antiretrovirals have been licensed to the IPM for development as microbicides. A tenofovir gel is expected to move into Phase II studies as a topical microbicide.

The downside of using existing antiretroviral drugs is the development of resistance to these drugs which can result in fewer treatment options if the person becomes HIV positive. The fact that these drugs do not function as contraceptives may also limit their use in developing countries as stand alone microbicides.

Implications for Starpharma's Vivagel

The first wave of microbicides in development are expected to provide limited efficacy for protection against sexually transmitted diseases, including HIV. Results from several major trials are expected in 2008 & 2009. Starpharma's Vivagel represents what has been described by experts in this field as a more sophisticated and potentially more potent inhibitor against HIV.

It's expected that as effective microbicides become available, combinations of products will provide the most desirable protective outcome. Products such as Vivagel and antiretroviral drugs, could be used in conjunction with less effective microbicides currently in later stage clinical trials.

Commercial development

Starpharma's Vivagel compound is expected to developed into four separate products for different applications. These are:

1. Vivagel, for prevention of HSV-2 (genital herpes) transmission in western markets primarily
2. Vivagel, for prevention of HIV transmission in developing countries
3. Combogel, incorporating Vivagel with existing microbicide Buffergel
4. Condom coating, incorporating the Vivagel active compound

Vivagel for prevention of genital herpes

The first product, for the prevention of genital herpes, will likely be partnered with a larger healthcare company. Genital herpes is a silent epidemic in progress in the US; at present 22% of the US population is infected with this virus and the prevalence is expected to increase to 39% of men and 49% of women by 2025 without intervention.

The likely partner would be a global pharmaceutical company with an over-the-counter product business. The final product would be sold in a single use dispensing unit at an approximate price of

Cont'd over

Microbicides in late stage clinical development

Product	Development Group	Type of product	Funding Assistance	Current trials	Enrollment time
SAVVY gel (C31G)	Biosyn Inc	Surface active agent	USAID	2 Phase III trials	14 - 16 months
Carraguard	Population Council	Fusion Inhibitor	-	Phase III	27 months
Cellulose Sulphate	Polydex Pharmaceuticals/ CONRAD	Fusion Inhibitor	USAID (CONRAD), Gates Foundation	Phase III	738 people in 9 months
Cellulose Sulphate	Family Health International	Fusion Inhibitor	USAID (CONRAD), Gates Foundation	Phase III	1100 in first year
PRO 2000 & BufferGel	Indevus Pharma, ReProtect	Fusion Inhibitor / Buffering agent	US NIH	Phase II/IIb	827 enrolled at April 2006
PRO 2005	Indevus Pharma/ReProtect	Fusion Inhibitor	MDP (British Gov.)	Phase III	30 months

Product	Trial numbers	Results	Location of trials	Prevention of...
SAVVY gel (C31G)	4200	Ghana result inconclusive. Nigeria trial	Ghana & Nigeria	HIV
Carraguard	5620	2H 2006 interim results, final results end 2007	South Africa	HIV, HPV, HSV-2
Cellulose Sulphate	2574	March 2009	Uganda, South Africa, Benin, Chennai & India	HIV
Cellulose Sulphate	2160 (possibly more required)	2008	Nigeria	HIV andd other STDs
PRO 2000 & BufferGel	3200	Early 2009	Africa, US	HIV, HSV-2, Pregnancy
PRO 2005	9673	2009	South Africa	HIV

between US$ 2 - US$5 each. Starpharma has recently received clearance to proceed with clinical trials under an IND (Investigational New Drug) for the prevention of genital herpes.

In April this year, Starpharma received a grant from the US **National Institutes of Health** to fund clinical trials with Vivagel in the US and Kenya for the prevention of genital herpes, at existing clinical sites. The NIH also sponsored the company's IND submission. With the NIH funding this trial, Starpharma is in a position to complete development of this product before signing a marketing and distribution partner.

Vivagel for prevention of HIV
This product is designed for use primarily in developing countries. In October last year, Starpharma received a separate grant from the NIH valued at US$20.3 million for the development of Vivagel for the prevention of HIV transmission. It's likely that the product will be distributed through organizations such as WHO and the Population Council should the product successfully make its way through clinical trials.

Condom coatings
With the lack of an effective microbicide for use as a condom coating, Starpharma believes this may represent a third market for its microbicide product. The company is currently in discussions with condom manufacturers regarding a commercial partnership arrangement.

Combogel
In September 2004, a consortium including Starpharma and Reprotect received a grant from the NIH valued at US$5.4 to test a combination microbicide using Vivagel and Bufffergel that could also function as a contraceptive agent.

Clinical trial schedule
Starpharma completed a 36 patient initial safety study with Vivagel. Before it can move on to large Phase III efficacy studies, it will need to complete a larger expanded safety study with Vivagel. This study is expected to begin this year and should involve about 100 people.

Large efficacy studies for the prevention of HIV transmission are expected to begin next year in between 3000 - 4000 people, most likely in Thailand and Africa. At the earliest, it will take up to 18 months to enroll all trial participants, and these patients will need to be followed up for 12 months. It's unlikely these studies will be completed by the end of 2009, which conflicts against Starpharma's market entry of this product in 2008.

Similarly, large efficacy studies, with 1000 - 2000 trial participants in the US and Africa, are expected to begin next year for the prevention of genital herpes transmission. It is also difficult to see this product on the market in 2008.

Starpharma has received Fast track approval from the FDA, with the most important benefit being a reduced NDA application review period, of only six months compared to the standard 13 months review.

Preclinical trial results
Vivagel has shown to provide an 85% effective level of simian HIV infection at levels 1000 times greater that what could be expected in practise. It has also shown to be very effective against HSV-2 transmission in preclinical mouse studies.

Most recently, the Vivagel compound has shown to reduce conception rates by 95% in preclinical studies. Having contraceptive properties may be important for the product for use in developing countries, where the use of a microbicide that only guards against HIV and other STD transmission can receive a negative response from partners.

Cash resources
Starpharma is well funded with $14.3 million in cash at 30 June this year and substantial funding support for clinical trials from the NIH.

Management
There has been a recent change in management at Starpharma, with Dr Jackie Fairley being appointed CEO. She takes over from Dr John Raff, one of the founders of the company. The change in management is timely for the company.

Manufacturing
Starpharma has outsourced manufacturing of the Vivagel active compound to a New Zealand company and to date that company has manufactured up to 3 kg batches of the product. Batches in order of hundreds of kilograms will be required for the market. The company believes the compound can be manufactured for a strong economic return.

Summary
Starpharma is moving to phase of rapid value creation for the company as its microbicide product moves into broad efficacy studies. There is a clear and immediate need for an effective microbicide for the prevention of HIV and other sexually transmitted diseases, as hailed by Bill Gates at this week's AIDS conference. There is no existing effective microbicide on the market and products in late stage trials are expected to provide only moderate protection against virus transmission. Starpharma's compound has been noted by independent experts as one of the more sophisticated microbicides in development and this has not gone unnoticed by health organizations such as the NIH.

The company does not have immediate funding risks, with a healthy bank balance and clinical programs supported by NIH funding. However one concern is the optimistic clinical development time frames set by the company and we would expected the company's Vivagel product would at earliest reach the market in 2010. The company will be judged over the next two years by its ability to successfully enrol patients in its clinical studies, complete these studies and achieve positive safety and efficacy outcomes. One disappointing aspect to this company in the past has been the limited leveraging of the dendrimer technology to the development of other healthcare products. Starpharma is capitalised at $74 million.

Bioshares recomendation: **Speculative Buy Class A**

Bioshares Model Portfolio (18 August 2006)

Company	Price (current)	Price added to portfolio
Acrux	$0.82	$0.83
Agenix	$0.16	$0.22
Alchemia	$0.90	$0.67
Avexa	$0.230	$0.15
Bionomics	$0.15	$0.210
Biosignal	$0.20	$0.22
Cytopia	$0.730	$0.46
Chemgenex Pharma.	$0.48	$0.38
Evogenix	$0.500	$0.47
Optiscan Imaging	$0.525	$0.35
Neuren Pharmaceuticals	$0.45	$0.70
Pharmaxis	$2.00	$1.90
Prima Biomed	$0.068	$0.09
Sirtex Medical	$2.25	$1.95

Portfolio changes

Gropep and Biolayer have been removed from the portfolio this week.

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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