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PRICEWATERHOUSECOOPERS 

# Introduction

The Australian life sciences sector staged a recovery in the first quarter of FY09 as the majors put in a strong performance which brought the index back to previous levels. The Life Sciences Index increased 15.8 per cent compared to a decline of 6.1 per cent in the previous quarter.

**“This performance was promising indeed in light of market conditions at the time. The unexpected result illustrates that the industry may well have been an early casualty in the market turmoil and that because of its counter cyclic nature, the long term fundamentals of the health sector are strong.”**

said PwC’s Australian Life Sciences Industry Leader Craig Lawn.

**“Due to factors including the ageing population, government spending on this sector and recent positive company news, the biotech industry weathered the storm and demonstrated resilience.”**

## Quarterly performance

Despite market volatility, the Life Sciences Index ex-majors improved slightly on the previous quarter and outperformed the All Ordinaries Index, although it significantly underperformed the NASDAQ biotechnology index. The index ex-majors fell 7.3 per cent (down 9.8 per cent in Q4FY08) while the All Ordinaries lost 13.2 per cent. However, the All Ordinaries recovered 4 per cent on 1 October while the Life Sciences Index ex-majors remained steady.

The three big players, which make up 88 per cent of the index, were responsible for the sector’s 20 per cent aggregate gain. Resmed was up 49 per cent, Cochlear up 36 per cent and CSL up 4 per cent. This movement may have represented a renewed interest in the sector as investors focused on established life sciences companies with steady revenue growth. The declining Australian dollar would have also increased the earnings of the big companies, which have major sales offshore.

## IPOs and secondary financing

No IPOs took place during the quarter, reflecting the continued lack of confidence in the financial markets stemming from the global credit crunch. One potential biotech listing was to close its offer to raise \$5 million in the quarter, but extended the closing date to early in the second quarter for FY09.

Secondary financing, once excluding CSL’s \$1.88 billion raising, increased by approximately 50 per cent to \$81 million (\$56 million in Q4FY08). Average funds

raised, excluding CSL, were \$1.8 million (for biotech sector companies \$1.4 million, and \$2.3 million for medical device companies) with a slight increase in the number of raisings.

In the biotech sub-sector, the number of secondary raisings increased by 50 per cent on the previous quarter but with smaller parcels of an average \$1.4 million being raised. This signals that companies are in need of cash to continue R&D but because of discount pricing, many are being conservative in their approach in the hope of further recovery.

The trend was the same in the US over the quarter, with no IPOs taking place. Almost twice the number of US biotech companies sought secondary funds compared to the previous quarter, but the average amount raised was down by 20 per cent compared to the same quarter last year.

## Quarterly sub-sector performance

The medical device sector outperformed the biotech sector, climbing 33.2 per cent compared to the biotech sector’s 11 per cent increase. While this trend was primarily due to the strong performance of Resmed and Cochlear, the difference was similar among the ex-majors.

## Feature articles

This edition contains two features on companies with strong prospects despite the challenging market conditions. We talked to Avantogen’s chief executive officer, Dr William Ardrey, to discover how smaller biotechnology companies can stand out in a crowded market. Avantogen has a good number of products in clinical development for a biotech of its size, and has received a grant from the Bill and Melinda Gates Foundation. We also profile Inovia, an emerging success story whose business is a natural fit with the biotechnology industry in providing innovative services in the intellectual property space. Inovia’s founder and executive director, Justin Simpson, and chief executive officer, David Nelson, explain how the company has grown from a simple idea to a business with international reach.

Also included in this issue is a thought leadership article on a recent ATO ruling which has significant ramifications for biotechnology companies that finance research and development and other services by issuing shares as consideration.



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# Quarterly key findings

Quarterly key findings		Page number
<b>Market performance</b>		
Total market cap of the life sciences industry at 30 September 08	A\$34,020m	12
Quarterly change in the life sciences industry	15.8%	12
Total market cap of the pharma/biotech sector at 30 September 08	A\$25,574m	13
Quarterly change in the pharma/biotech sector	11.0%	13
Total market cap of the medical device sector at 30 September 08	A\$8,447m	13
Quarterly change in the medical device sector	33.25%	13
<b>Individual company performance</b>		
Top individual performer	USCOM Limited	16
Change in market cap from last quarter	95%	16
Bottom individual performer	Karmelsonix Limited	17
Change in market cap from last quarter	-74%	17
<b>Financing</b>		
Number of Australian life sciences companies that IPO'ed	0	14
Total market cap injected into the Australian life sciences index through IPOs	-	14
Number of US life sciences companies that IPO'ed	0	14
Total capital raised in US life sciences IPOs	-	14
Number of Australian life sciences companies that had secondary raisings	48	15
Total capital raised in Australian life sciences in secondary raisings	A\$1,972m	15
Number of US life sciences companies that had secondary raisings	28	15
Total capital raised in US life sciences in secondary raisings	A\$1,775m	15
<b>Announcements</b>		
<b>Australian</b>		
Total number of partnerships formed this quarter	19	20
Total number of mergers & acquisitions	11	21
Total announcements for clinical trials	42	21
Pre-clinical	5	22
Phase I	/8	22
Phase II	13	22
Phase III	7	23
Total number of regulatory announcements	24	24
<b>US</b>		
Total number of partnerships formed this quarter	34	32
Total number of mergers & acquisitions	58	36
Total announcements for clinical trials	39	38
Pre-clinical	2	38
Phase I	5	38
Phase II	6	38
Phase III	17	38
Total number of regulatory announcements	77	40



A photograph of several petri dishes on a laboratory bench, overlaid with a semi-transparent orange filter. The dishes are arranged in a grid-like pattern, and some contain cultures. The text 'Feature articles' is printed in white on the left side of the image.

# Feature articles

Feature articles

# Avantogen stands out in a crowded market



**Chief executive Dr William Ardrey says good advice, a clear strategy and a smart approach to R&D and partnerships have put the company in a strong position. It has solid licensing and revenue partnerships with overseas listed counterparties, and believes maintaining its listing in Australia has its advantages in the light of recent positive regulatory developments.**

## What do you see as your competitive advantage?

Avantogen develops, commercialises and licenses drugs for the fast growing oncology and vaccines market. The company completes regulatory and clinical work extremely well, which has helped it gain a firm foothold in the United States market as a clinical stage company with one adjuvant, one vaccine, and one oncology drug in US FDA-approved human clinical trials. All Avantogen's filings with the US FDA have been accepted with minimal amendment, and the next program (via its Hawaii Biotech Inc affiliate) – a dengue vaccine launched with the support of PDVI/Gates Foundation and the Walter Reed Army Institute of Research – tackles a very large and growing market with Dengue fever incidences on the rise in both the US and Australia.

Having advisers such as Professor Ian Frazer, who discovered the cervical cancer vaccine, on our medical and scientific advisory board is a definite advantage. It vindicates our confidence in the quality of our approach and research. We are very protective of Professor Frazer's time but use his insights and network to test proposed solutions. For a small company, time is of the essence.

Avantogen has a clear focus on the specific stage of the drug development pipeline that will enable it to maintain a competitive advantage. Early licence agreements

focused on vaccines are an indicator of the quality of our research. The strategy is to involve key partners to establish clinical relevance. We then use this as a platform to establish early stage licence arrangements. We do not see Avantogen necessarily playing a role in later-stage clinical trials, as early licensing from these programs validates the technology, gives value to shareholders, and shares risks with well capitalised partners.

The FDA's acceptance of our approach to trials clearly validates our strategy, in our view. It is unusual for a small biotechnology company to have this many products in clinical development. We have the RP101 pancreatic cancer drug, which we are developing in conjunction with Sciclone Pharmaceuticals and Resprotect. We have the dengue fever and West Nile virus vaccines advancing in clinical development, and licensing agreements earning revenue now for the diagnostic applications of our proprietary vaccine production platform.

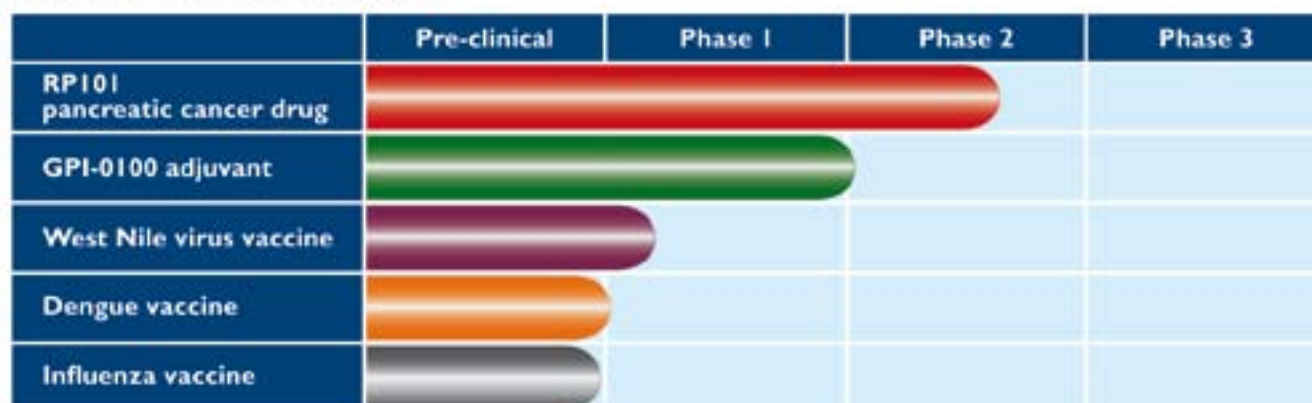
## What challenges does the Australian biotechnology industry face, and what lessons can be learned from other companies' mistakes?

Some Australian biotechnology companies try to meet the requirements of the Therapeutic Goods Administration (TGA) first, and then retrofit trials for the US FDA. I cannot understand this. We have always strived to hit the higher standard first. It is extremely frustrating to see Australian companies redo clinical trials to meet FDA standards – and it is expensive for them.

## Why does Avantogen stay listed in Australia?

It is my general view that the Australian Securities Exchange (ASX) does provide support for early stage companies.

Product pipeline and development phase



Avantogen is fortunate that many of its products are at revenue or clinical stage, whereas some other small cap companies are very early stage and more challenged by current capital markets uncertainty. Although valuations are modest, I believe that there are better facilities in Australia overall compared to the US market, where it is easy to get lost. Overhead costs are also significantly higher in the US. Even though the market may be shallower in Australia, on the ASX you have the ability to access capital and establish credibility through licence and partnership arrangements.

### **There is a large number of small Australian-listed biotech companies. Why isn't there more M&A activity?**

Egos! We have been in advanced discussion with three companies with the view to consolidate. Despite that, the clash of corporate cultures and egos has just been too significant to overcome. Too many CEOs of small listed biotech companies have their salaries tied to non-performance-based cash arrangements rather than having performance-based equity or incentive package arrangements. There is no motivation for these CEOs to do an M&A deal as they will lose their safety net of a cash salary.

In my view, this is the fundamental difference between Australia and the US market, which is much more accepting of M&A, and which has significantly more incentive obligations placed on CEOs.

### **What is Avantogen's global strategy?**

I see it as absolutely consistent with the strategy to remain as an Australian-listed company at this stage, but to have clear global licensing and partnership arrangement ambitions.

There is no barrier to undertaking global relationships from Australia. I've seen many companies struggle soon after establishing offices on the West Coast of the US as they succumb to the significant overhead burden.

### **Do any aspects of the Australian regulatory system annoy you?**

I have to be careful not to get too outspoken about this because there are some things that are extremely hard to fathom.

The obvious example is the Rudd Government's cancellation of the Commercial Ready (CommReady) program in May. This is just clearly a dumb decision. I am aware of a significant number of companies that have moved offshore since this decision, and in the current uncertain financial climate,

others are simply folding up their companies in Australia. Biotechnology is a knowledge-intensive industry which can create huge value, employment and good jobs rather than the 'McJobs' recently created offering few benefits. But biotechnology needs support at the national level.

I am also aware of recent changes to the tax system such that Australian biotech companies with tax losses won't be able to access foreign tax credits. For an early stage company with a licensing strategy, this cash withholding tax cost is a significant burden, particularly when it cannot be recouped or utilised in future.

At a policy level the Government seems lazy. It is starving a whole generation of new development companies as it focuses on services and 'digging and selling' as an economic strategy. A service and a dig-and-sell mindset is a very short-sighted view for Australia. An excellent CommReady program has been replaced with deafening silence.

I found the combined effect of the R&D tax concession and cash rebate, CommReady and Export Market Development Grants sufficient to offset the complexity of the Australian tax system. Importantly, when you were successful with these competitive grants, this was a further validation of the strength of your science, for investors and particularly for venture capitalists.

Without the CommReady grants program there is a lack of matching funds for venture capital investors, and there is a loss of selectivity and validation for venture capitalists as they seek to identify the premium investees. Also, small cap companies through these programs (and their compliance requirements) are encouraged to form relationships with recognised consulting and audit service providers early on which used to facilitate later capital raising. Now there is a gap between small companies and larger professional services organisations.

### **How do you see Avantogen's future?**

Being a small company is not easy, but I am extremely positive. We have a strong scientific foundation validated by our advisory board and by the strength of our licensing and research partnerships. Significant revenue opportunities will arise from this strong foundation within the next six to 12 months.

I have worked all over the world and I believe Australia has developed an innovative culture for doing the best biotech and medical devices development. There is strong Australian management in life science companies around the world. Let's just hope that the Australian Government will not starve a whole generation of life science and medical device companies by adopting policies with a short-term mindset.

# Lawyer saw a patently clear opportunity



Justin Simpson

David Nelson

**inovia's founder and executive director, Justin Simpson, and chief executive David Nelson explain how a simple idea led to a business with international reach.**

## Could you briefly outline inovia's history?

**Justin:** After having worked as a patent attorney in a number of firms, I realised that it was very expensive to register an Australian patent in many overseas countries. I also have a computer science background, and saw that there must be ways of simplifying the process, which was expensive and time consuming but not as complex as most of the things that a patent attorney does.

In 2000 I invented a way of automating the registration of a patent granted in one country in many other countries, and filed a patent application to protect the process. I subsequently left my job at a top-tier law firm to start up the business full-time.

Like many start-ups, the company was self-funded while I was building a prototype technology that got the service up and running. Two years into the business, we took on an 'angel' investor along with a patent attorney firm in New Zealand who both grasped the power of our concept.

The initial round of angel funding enabled us to build a robust technology and to establish the business as an operating entity. As more people saw what we were doing, they became convinced that our technology is the way of the future. In the past few years, funding has come from patent attorneys, illustrating a shift in their attitude towards this technology and that it has been understood and accepted by leading practitioners.

## What are inovia's lead services/products and what is the commercial case for them?

**David:** We have two products at present. One is pctfiler, which is used when you have an international

patent application called a PCT (Patent Cooperation Treaty) application. It allows you to file your patent into foreign countries.

With pctfiler, a client simply goes online and clicks a few buttons, and instantly receives an upfront, free cost estimate for the specific countries they wish to enter. Many patent attorneys find it next to impossible to provide such an instant cost estimate. The client can then proceed to lodge the application with us online and we take care of all the filings in the selected countries.

Our second product is evalidation. Once a patent has been granted in Europe, there is a final step, validation, to ensure that your rights are protected in each individual European country. Our evalidation service works in a similar way to pctfiler, whereby a client gets an online cost estimate for their selected countries, places their order, and we take care of the rest through our network of 34 associates across Europe.

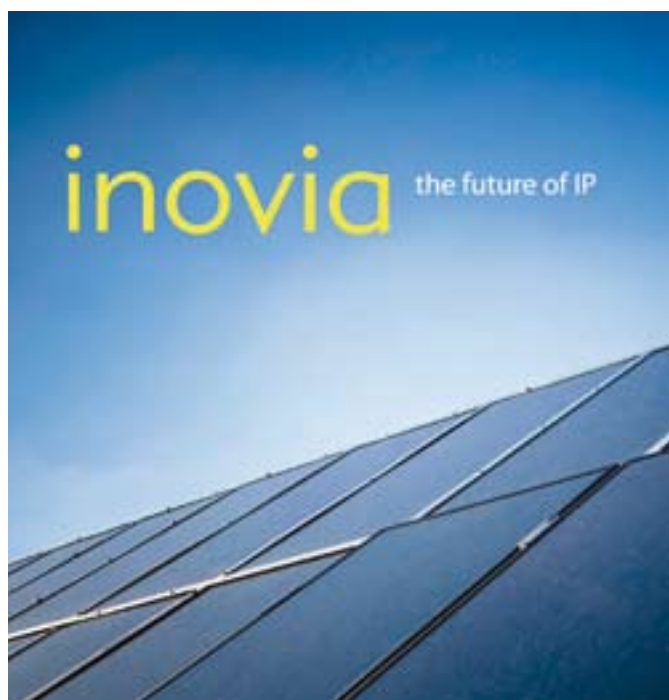
Biotech companies often think they have reached the end of the process when their European patent is granted, but then realise that there is another \$20,000 to \$50,000 they need to pay for it to be enforced in Europe. This is often an unpleasant surprise. We are able to reduce that cost by about a third, as well as saving companies time.

## What are inovia's key strategies for growth and sustainability?

**David:** Justin and inovia are a true Australian success story. He has started a company that is now, within six years, number one in its global market and is transforming the way the industry does business by pioneering electronic automated patent filing.

Nevertheless, despite being the largest filer, we have only a relatively small overall market share. Having achieved strong market validation of the concept, we are now focused on raising awareness of our brand and products through word of mouth, advertising and public relations. We recently underwent a corporate rebranding from PCTFILER to inovia as part of this strategy.

We are building our sales resources around the world to get the word out and are aiming to build market share in excess of 10 per cent in coming years. We have allocated substantial resources to the northern hemisphere – we have offices in New York and London – to service the 80 to 90 per cent of the market which is concentrated in the United States, Japan and Europe. Our operations, back office and product development functions are maintained in Sydney. This structure is flexible and best positions us for growth.



In terms of future products and services, we have identified a logical extension for the business, which is annuities, often called renewals. This is the point where, having achieved a patent in a certain jurisdiction, you then have to pay an annual fee to keep it current for the life of the patent, which is 20 years. This is another highly costly, administrative and bureaucratic step which we are well positioned to automate with our existing technology platform.

### What are inovia's key assets?

Our number one asset is our people. We have a lot of people from intellectual property (IP) backgrounds, such as patent attorneys, former patent examiners and paralegals, who understand the process intimately. In fact, one of our board advisers previously headed up the PCT system at the World Intellectual Property Organisation (WIPO). A typical patent attorney manages dozens of stages of the patent application, but we do just one part, so our expertise and resources are concentrated 'inch wide and mile deep'. Even a small patent attorney firm which applies for overseas patents five times a year can benefit from our expertise.

Our workflow technology which powers our pctfiler and evalidation services, and which is itself the subject of a family of patents, is a key element of our long-term strategy.

The technology automates the process and drives the cost savings while the IP protection provides a defensible market position from competitors. This platform technology can be readily extended for complementary products, such as annuities, as we continue to innovate and respond to customer demand into the future.

### What keeps you awake at night?

**Justin:** I'm an ideas person. I will have 50 different ideas on how to improve the business and the service offerings. In contrast, David is a solid thinker, and constantly focuses on prioritising those ideas that will take the business forward. In that respect it is a good business partnership.

**David:** The global financial crisis has not directly affected our business as the PCT national stage entry that we handle covers PCT applications filed up to 18 months prior. Early indications are that a greater focus by patent owners and patent firms on saving costs will play strongly to our value proposition and that we should gain market share during this period.

### Do you have any comments about the Australian biotechnology industry?

Our business is a natural ally to the biotech industry because IP is fundamental to the life sciences. Life sciences companies seek to protect and leverage their IP and that is what inovia enables organisations to do better.

We work with biotech companies around the world and recognise that in the current economic environment, maintaining a pipeline of research and development activities is critical. We recognise the pressures these companies are facing and our services can help.

The US is a major player in the global patent market with American companies proactive in protecting their IP. There were more than 150,000 PCT filings lodged in 2007 with the US accounting for more than a third of them. They have over 50,000 practising patent attorneys versus 400 patent attorneys in Australia with just 2,000 PCT filings annually. Failure to protect your IP overseas could allow your competitors to copy it. The Americans have been intelligent in taking advantage of the PCT system and Australia can take a lead from them.

# Tax ruling to disadvantage biotech sector

A recent ATO ruling is set to disadvantage biotech firms that finance research and development and other services by issuing shares as consideration.

The Tax Commissioner has confirmed his position on transactions in which a company issues shares in return for services or assets in a ruling that is a blow to the biotech sector.

TR 2008/5, which was delivered in late August, states that shares issued as consideration for assets and services are not losses or outgoings, or considered to be expenditure incurred, and therefore are not deductible under the general deduction provision of the taxation law.

## Severe impact for biotech companies outsourcing R&D services

This ruling promises to be particularly detrimental to the biotech sector. Cash-strapped biotech firms have often issued shares to finance the outsourcing of research and development (R&D) and other services. They will no longer be entitled to a deduction under the general deduction provision for shares issued to fund such services. To compound matters, the ruling precludes deductions under the R&D provisions, which require expenditure on R&D to be incurred.

## 'Set-off' arrangements between parties may allow a deduction

TR 2008/5 discusses the potential for deductions to be available under 'set-off' arrangements. A set-off is when two companies with mutual debts agree to settle the transaction by balancing what they owe against each other. This can be done without drawing cheques because the law considers the arrangement to be payment.

In TR 2008/5 the Commissioner has acknowledged that when two parties who owe each other mutual debts agree to set-off their obligations, the availability of deductions is not affected by setting-off one obligation in satisfaction of an independently arising obligation.

This opens up a real opportunity to structure the acquisition of services, assets, intellectual property etc. so as to still give rise to deductions. The legal strategy can also take into account GST obligations. The positive impact arising from this strategy will be particularly important for companies obtaining the R&D cash rebate.

The issue in each case will be whether the amounts to be set off are obligations that have arisen independently. The availability of deductions will depend on the nature of the transaction(s) and how the contract(s) are structured.

## Other aspects of TR 2008/5

Other important aspects of TR 2008/5 include:

- When a company issues shares to acquire depreciating assets, the cost will be the market value of the shares at the relevant time under the depreciating asset provisions of the taxation law.
- The amount at which the shares are recorded in the accounts of the company is not evidence of the market value of shares issued to acquire assets.
- For capital gains tax (CGT) purposes, the market value of shares issued to acquire a CGT asset will be a component of the CGT cost base of the asset acquired.

## What does TR 2008/5 mean for biotech companies?

TR 2008/5 will apply both before and after its date of issue, 27 August 2008. This means that biotech companies should consider the tax position adopted when they have previously issued shares for goods, R&D services, trading stock or for depreciating and CGT assets.

Care should be taken to ensure that opportunities for deductions are not missed on future share issues that resemble the set-off circumstances described above.

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# Market performance

# Performance overview

Figure 1: Q1 FY09 weekly performance of the Australian life sciences sector by market cap compared to major indices

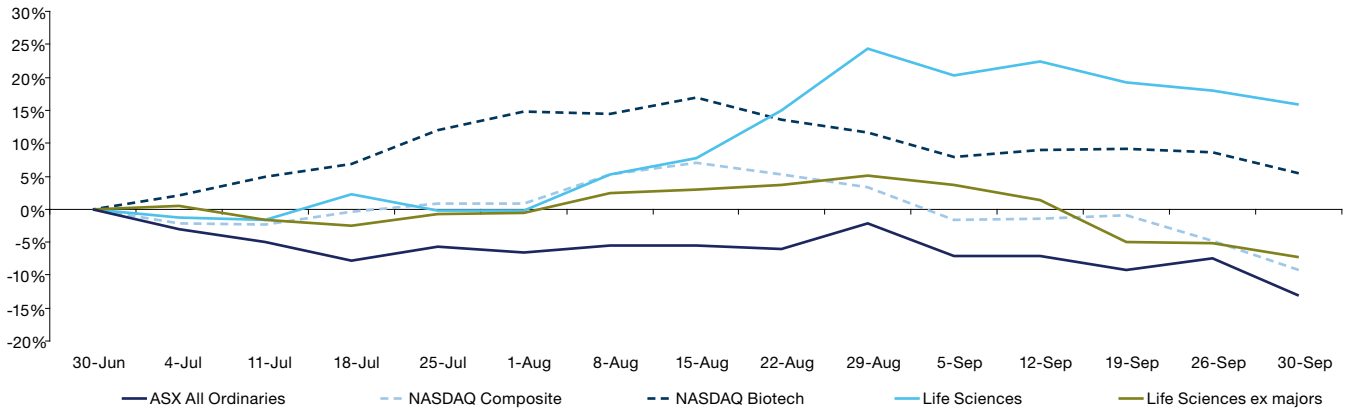


Table 1: Quarterly movements of the Australian life sciences sector by market cap compared to major indices

Index	Value		
	30-Jun-08	30-Sep-08	% Change
ASX All Ordinaries (Index)	5,333	4,631	-13.2%
NASDAQ Composite (Index)	2,293	2,082	-9.2%
NASDAQ Biotech (Index)	768	836	5.4%
Life Sciences (Market Cap A\$m)	29,376	34,020	15.8%
Life Sciences ex majors (Market Cap A\$m)	4,494	4,165	-7.3%

Figure 2: Two-year comparison of the Australian life sciences sector by market cap compared to major indices

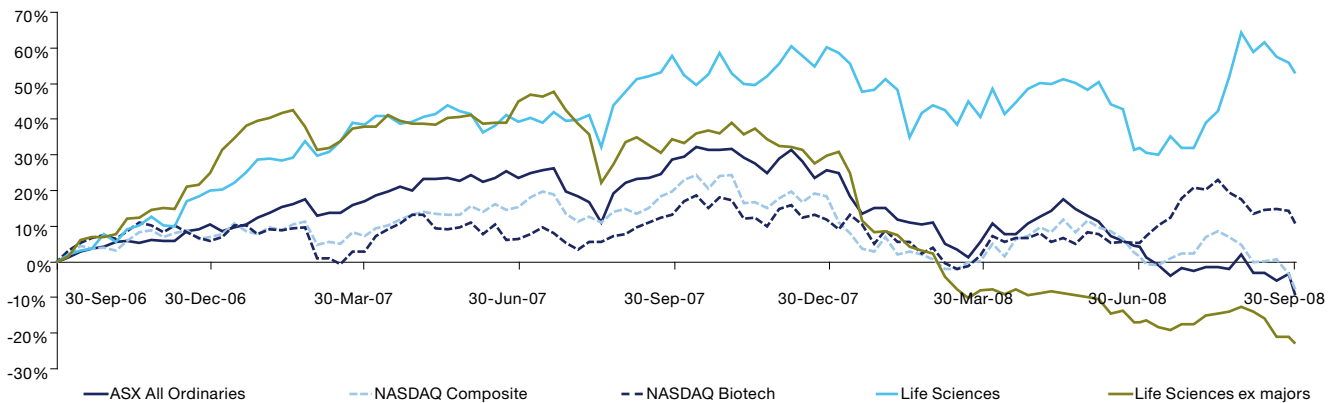


Table 2: Yearly movements of the Australian life sciences sector by market capitalisation compared to major indices

Index	Value		
	29-Sep-07	30-Sep-08	% Change
ASX All Ordinaries (Index)	6,581	4,631	-29.6%
NASDAQ Composite (Index)	2,702	2,082	-22.9%
NASDAQ Biotech (Index)	852	836	-2.1%
Life Sciences (Market Cap A\$m)	35,096	34,020	-3.1%
Life Sciences ex majors (Market Cap A\$m)	7,274	4,165	-42.7%

Figure 3: Quarterly performance of the Australian life sciences sector and subsectors

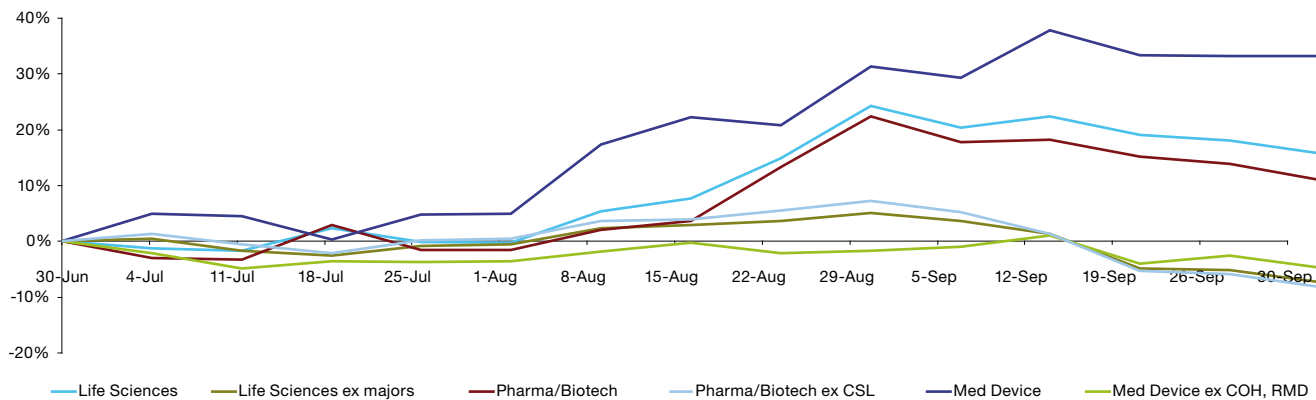


Table 3: Quarterly summary of the Australian life sciences sector's performance

	MCap (A\$m)	% of total value	Companies with share price gains	Proportion of subsector up	Companies with share price losses	Proportion of subsector down	Companies with share price flat	Proportion of subsector flat	Total number of companies
Pharma/Biotech	25,574	75%	20	26%	57	73%	1	1%	78
Pharma/Biotech ex CSL	3,111	75%	19	25%	57	74%	1	1%	77
Med Device	8,447	25%	16	32%	26	52%	8	16%	50
Med Device ex COH, RMD	1,054	25%	14	29%	26	54%	8	17%	48
Life Sciences	34,020	100%	36	28%	83	65%	9	7%	128
Life Sciences ex majors	4,165	100%	33	26%	83	66%	9	7%	125

Table 4: Quarterly movements of the Australian life sciences sectors

Index	Market capitalisation (A\$m)		
	30-Jun-08	30-Sep-08	% Change
Pharma/Biotech	23,037	25,574	-11.0%
Pharma/Biotech ex CSL	3,388	3,111	-8.2%
Med Device	6,339	8,447	33.2%
Med Device ex COH, RMD	1,106	1,054	-4.8%
Life Sciences	29,376	34,020	15.8%
Life Sciences ex majors	4,494	4,165	-7.3%

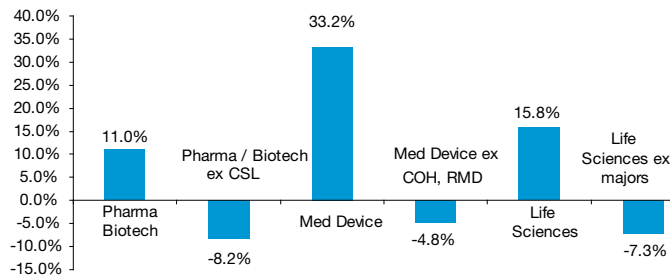
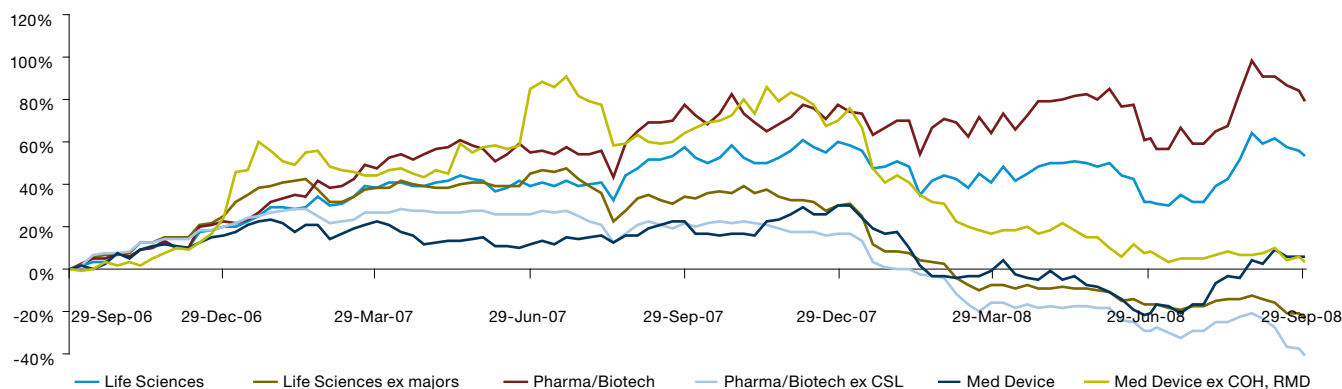


Figure 4: Two-year comparison of the Australian life sciences sector's performance by market cap

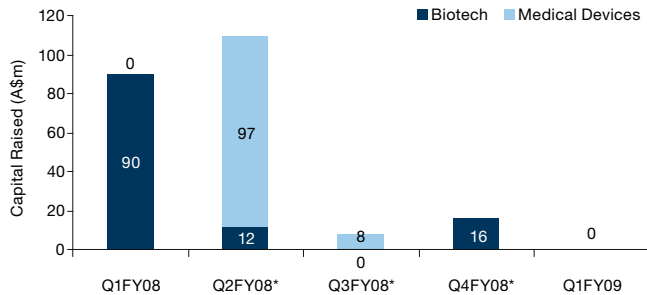


# Quarterly financing

## IPO market

Figures 5 and 6: Quarterly comparison of IPOs in Australia and the US

### Australia



\*For these quarters, amount shown is total market cap addition to the LS Index from Q2FY08 IPOs on first day of trading

Table 5: Number of Australian IPO listings

	Biotech	Med Devices	ASX total
Q1FY09	0	0	16
Q4FY08	1	0	18
Q3FY08	0	1	40
Q2FY08	1	2	86
Q1FY08	2	0	61

### US

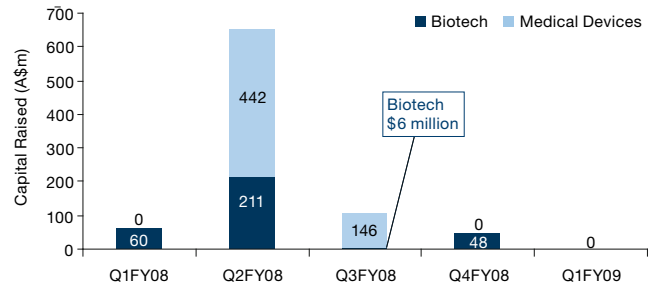


Table 6: Number of US IPO listings

	Biotech	Med Devices
Q1FY09	0	0
Q4FY08	1	0
Q3FY08	1	2
Q2FY08	4	6
Q1FY08	2	0

Table 7: Total of quarterly Australian IPO listings

Company	Issue price	Mcap (A\$m)
Nil	-	-
<b>Total</b>	-	-

Table 8: Total of quarterly US IPO listings

Breakdown of IPOs	Capital raised (A\$)
Nil	-
<b>Total</b>	-

## Secondary finance market

Figures 7 and 8: Quarterly comparison of secondary financing in Australia and the US

### Australia

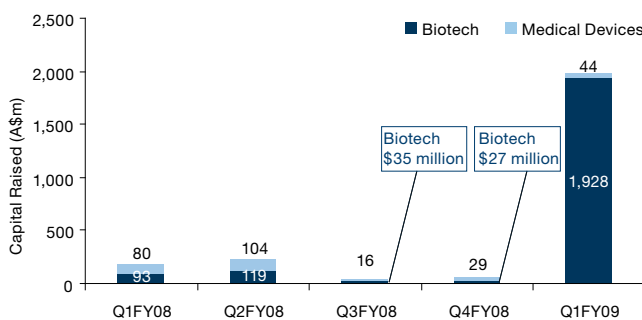


Table 9: Number of Australian secondary raisings

	Biotech	Avg. amount raised (A\$m)	Med Devices	Avg. amount raised (A\$m)
Q1FY09	29	66.5	19	2.3
Q4FY08	19	1.4	23	1.2
Q3FY08	19	1.9	6	2.7
Q2FY08	35	3.4	26	4.0
Q1FY08	26	3.6	11	7.3

### US

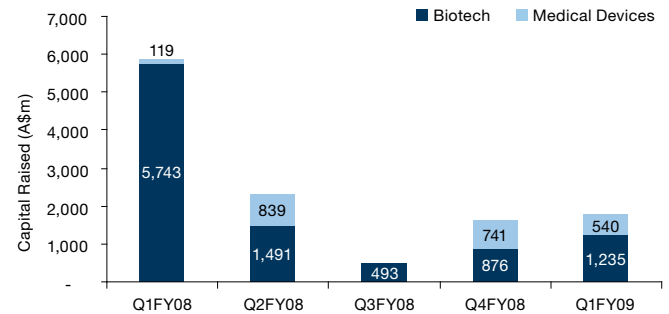


Table 10: Number of US secondary raisings

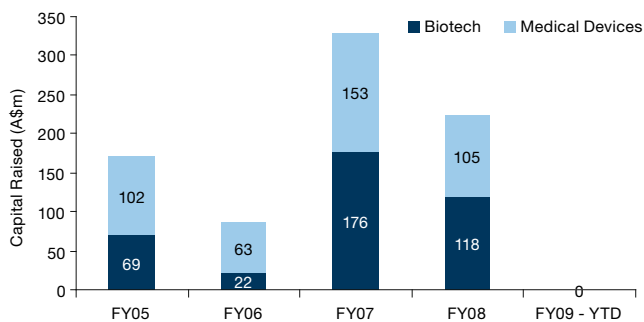
	Biotech	Med Devices
Q1FY09	18	10
Q4FY08	10	10
Q3FY08	16	0
Q2FY08	20	14
Q1FY08	34	5

# Yearly financing

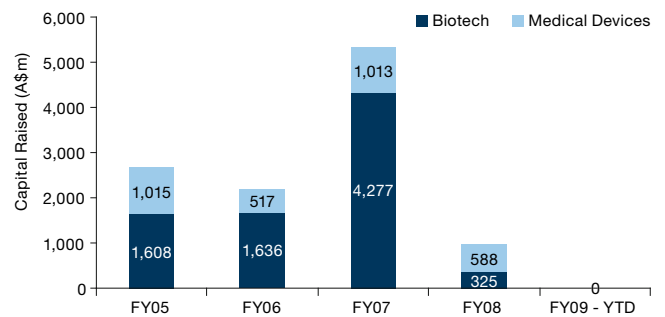
## IPO market

Figures 9 and 10: Annual comparison of IPOs in Australia and the US

### Australia



### US



\*For Q2FY08, amount shown is total market cap addition to the LS Index from Q2FY08 IPOs on first day of trading

Table 11: Number of Australian IPO listings

	Biotech	Med Devices	ASX total
FY09 – YTD	0	0	16
FY08	4	3	205
FY07	6	7	245
FY06	3	8	172
FY05	9	5	186

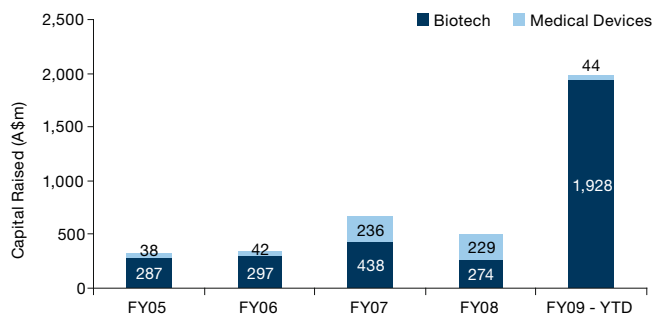
Table 12: Number of US IPO listings

	Biotech	Med Devices
FY09 – YTD	0	0
FY08	8	8
FY07	42	12
FY06	20	8
FY05	20	16

## Secondary finance market

Figures 11 and 12: Annual comparison of secondary finance in Australia and the US

### Australia



### US

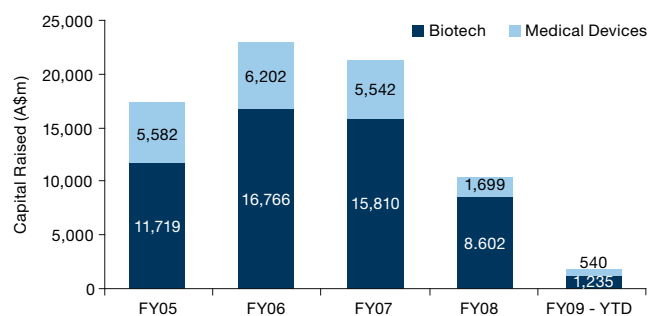


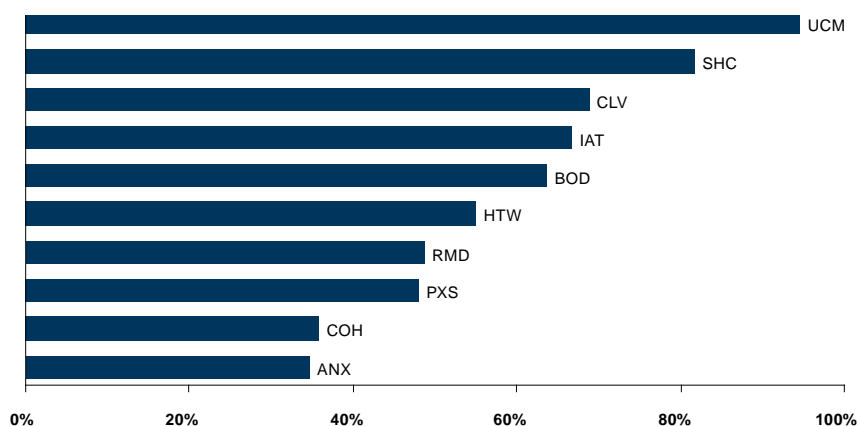
Table 13: Number of Australian secondary raisings

	Biotech	Med Devices
FY09 – YTD	29	19
FY08	99	66
FY07	98	75
FY06	56	28
FY05	63	43

Table 14: Number of US secondary raisings

	Biotech	Med Devices
FY09 – YTD	18	10
FY08	80	29
FY07	258	59
FY06	257	123
FY05	235	149

# Top 10 performers



## 1 USCOM LIMITED (UCM)

Return: 95%  
Closing Price: \$0.36  
MCap: A\$13.7m  
State: NSW

Uscom received a US patent for Oxycorn, its method for combining blood flow measurement with oximetry. The system has demonstrated a 15% improvement in outcomes.

## 2 SUNSHINE HEART INC (SHC)

Return: 82%  
Closing Price: \$0.10  
MCap: A\$29.2m  
State: NSW

The FDA approved Reimbursement Category B for the C-Pulse device clinical trial, providing reimbursement during the trial and a steady revenue stream for Sunshine Heart.

## 3 CLOVER CORPORATION LIMITED (CLV)

Return: 69%  
Closing Price: \$0.27  
MCap: A\$44.6m  
State: NSW

Clover Corporation underwent a period of restructure, due to the acquisition of the remaining 30% equity in Nu-Mega Ingredient Pty Ltd and the integration of the Nu-Mega management team.

## 4 IATIA LIMITED (IAT)

Return: 67%  
Closing Price: \$0.04  
MCap: A\$7.6m  
State: VIC

Iatia successfully completed its 'twelfth milestone' for its \$2.7 million contract with the Defence Science and Technology Organisation, receiving a \$588,000 payment.

## 5 BioMD LIMITED (BOD)

Return: 64%  
Closing Price: \$0.09  
MCap: A\$7.7m  
State: WA

A Phase II clinical trial for BioMD implant CardioCel is progressing in South Africa.

## 6 HEARTWARE LIMITED (HTW)

Return: 55%  
Closing Price: \$0.62  
MCap: A\$192m  
State: NSW

Heartware received full approval from the FDA to receive an Investigational Device Exemption (IDE) for its Left-Ventricular Assist system.

## 7 RESMED INC (RMD)

Return: 49%  
Closing Price: \$0.38  
MCap: A\$4081m  
State: NSW

Resmed acquired several companies, including Hoefner, Saime, PulmoMed and PolarMed. The company had a record quarter, with revenue increasing by 23% compared to the previous year as growth substantially increased in the US market.

## 8 PHARMAXIS LIMITED (PXS)

Return: 48%  
Closing Price: \$2.25  
MCap: A\$2438m  
State: NSW

Pharmaxis undertook two Phase III trials evaluating Bronchitol in cystic fibrosis sufferers. The results will be used in a US marketing application for the drug.

## 9 COCHLEAR LIMITED (COH)

Return: 36%  
Closing Price: \$59.30  
MCap: A\$3312m  
State: NSW

Cochlear had record growth in the financial year, with core earnings increasing 15% after record sales of the cochlear implants.

## 10 ANADIS LIMITED (ANX)

Return: 35%  
Closing Price: \$0.07  
MCap: A\$8.9m  
State: VIC

Over the quarter, Anadis collaborated with Tatura Milk Industries to target the milk export market, commercialised its BIOGARD therapy for HIV/AIDS and was awarded a VISTECH grant for a cancer related mucositis trial.

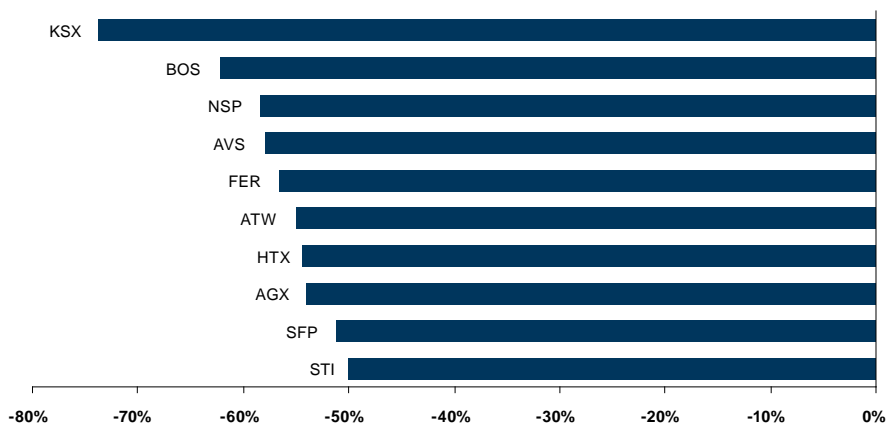
# Bottom 10 performers

1

## KARMELSONIX LIMITED (KSX)

Return: -74%  
 Closing Price: \$0.026  
 MCap: A\$8.03m  
 State: VIC

The company made several staffing changes, with Dr Henry Pinski appointed executive director, Asia Pacific and Mr Larry Murdock appointed general manager for US marketing and sales operations.



2

## BIOIGNAL LIMITED (BOS)

Return: -62%  
 Closing Price: \$0.034  
 MCap: A\$4.03m  
 State: NSW

Biosignal's collaborator Ciba ceased further testing in Biosignal's specialised anti-microbial industrial product applications. Ciba had processing issues with furanones in PVC plastic, one of Ciba's key target uses.

3

## NUSEP LIMITED (NSP)

Return: -58%  
 Closing Price: \$0.05  
 MCap: A\$72.8m  
 State: NSW

The board of Nusep resolved to license its gel technology following an unsolicited tender offer to acquire/license the gels business.

4

## AVASTRA LIMITED (AVS)

Return: -58%  
 Closing Price: \$0.016  
 MCap: A\$3.08m  
 State: QLD

Bruce Hatchem was appointed to the board of directors and Dr Steven Hull submitted his resignation as CEO and a director of the company. Dr Mitchell Rosenberg also submitted his resignation as chairman and director.

5

## FERMISCAN HOLDINGS LIMITED (FER)

Return: -57%  
 Closing Price: \$0.3  
 MCap: A\$43.05m  
 State: NSW

Fermiscan acquired the Sydney Breast Clinic for \$3.5 million. Director Ian W Holman resigned from the board of Fermiscan.

6

## ATOS WELLNESS LIMITED (ATW)

Return: -55%  
 Closing Price: \$0.04  
 MCap: A\$7.31m  
 State: WA

The company was suspended from official trading after failing to lodge its full year statutory accounts.

7

## HEALTHLINX LIMITED (HTX)

Return: -54%  
 Closing Price: \$0.032  
 MCap: A\$2.61m  
 State: VIC

The launch of Healthlinx ovarian cancer test Ovoplex was delayed in Australia following minor technical issues.

8

## AGENIX LIMITED (AGX)

Return: -54%  
 Closing Price: \$0.017  
 MCap: A\$7.24m  
 State: QLD

Legal proceedings concerning allegations of impropriety against a former director of Agenix continued, with the company alleging that Mr Neil Leggett was involved in improper transactions totalling \$3.865 million.

9

## SAFETY MEDICAL PRODUCTS LIMITED (SFP)

Return: -51%  
 Closing Price: \$0.043  
 MCap: A\$3.28m  
 State: SA

The Pen Needle Aid Device, which reduces the chance of needlestick injury, received TGA approval.

10

## STIRLING PRODUCTS LIMITED (STI)

Return: -50%  
 Closing Price: \$0.025  
 MCap: A\$4.21m  
 State: WA

Stirling commenced a consolidation of its global sales and marketing efforts into one subsidiary.

Note: All company announcements were sourced from the Australian Securities Exchange website, [www.asx.com.au](http://www.asx.com.au)



# Announcements – Australia

# Partnerships

Company	Pharma/biotech partner	Application	Value (A\$m)	Comments
Biotechnology			Total	12
Acrux (ACR)	Orion Corporation	Testosterone MD Lotion	Not disclosed	Strategic alliance to manufacture Acrux's finished products at Orion's FDA-approved facility in Finland and exclusive manufacture of the Testosterone Lotion.
Acrux (ACR)	KV Pharmaceuticals	Transdermal products	Not disclosed	Broad licence and product development agreement regarding Acrux's transdermal technology.
Anadis (ANX)	Tatura Milk Industries	Dairy-based therapeutic products	Not disclosed	Collaboration to increase exports of colostrum therapeutic products.
Avexa (AVX)	Shire plc	Apricitabine (ATC)	Not disclosed	Avexa has renegotiated the terms of its licensing partnership with Shire plc for ATC, increasing Shire's holding in Avexa to 11.1%.
Biosignal (BOS)	Undisclosed animal health company	New animal products	Not disclosed	Agreement to develop their anti-microbial technology to treat food-producing animals.
Biota Holdings (BTA)	AstraZeneca	Respiratory syncytial virus	\$3.5m and future royalties	The 2005 collaboration and license agreement to develop antivirals, previously held with MedImmune, has been assigned to AstraZeneca.
Hexima (HXL)	Pioneer	Biotech fungal disease resistance technology in corn, soybeans and other crops.	Not disclosed	Development and commercialisation agreement between Hexima and Pioneer, a unit of DuPont, relating to fungal disease resistance technology.
KarmelSonix (KSX)	Trafalgar Capital Specialised Investment Fund	Funding arrangement	Not disclosed	Three-year funding arrangement to ensure ongoing product development and commercialisation.
Neuren Pharmaceuticals (NEU)	Undisclosed	Cancer	Not disclosed	Exclusive license and collaboration agreement for an early-stage cancer program with a leading biotech company.
PharmAust (PAA)	Drugs For Neglected Diseases (DNDi)	Chagas disease	\$3m	PharmAust's wholly owned subsidiary, Epichem Pty Ltd, has signed a contract with Swiss-based DNDi to discover and develop drugs to treat Chagas disease.
Phylogica (PYC)	Medical Research Council and Cambridge University's Molecular Therapeutics Company	Novel cancer drugs	Not disclosed	Joint agreement to translate Phylogica's exclusive Phylomer peptide library into a new format, increasing identification of potential cancer drug candidates.
Starpharma Holdings (SPL)	SSL International	Vivagel coated condom	Not disclosed	Licensing agreement allowing SSL to manufacture and market the condoms using Starpharma's Vivagel product.
Medical Devices			Total	7
CogState (CGS)	UBC	Cognitive testing services	\$1.4m	Strategic alliance to align resources and build a comprehensive service for cognitive testing in clinical trials.
Norwood Abbey (NAL)	MedImmune LLC	Virasomal vaccine technology	Not disclosed	The subsidiary of Norwood Abbey, Virosome Biologicals NV, has entered into an exclusive evaluation agreement with MedImmune LLC.
Occupational & Medical Innovations (OMI)	Endomed Medical and Surgical Supplies	Auto-Retractable Safety Syringe	\$3.12m	Exclusive distribution agreement to market and distribute OMI's syringes in South Africa and Namibia.
Polartechnics (PLT)	Genera Biosystems	Cerviscreen	Not disclosed	Alliance to develop and launch the Cerviscreen, a self-sampling device for cervical cancer testing.
SomnoMed (SOM)	Intus Healthcare Limited	Mandibular Advancement Splint	Not disclosed	SomnoMed has appointed Intus Healthcare to be a distribution partner for their Mandibular Advancement Splint in the UK.
Unilife Medical Solutions (UNI)	Sanofi-Aventis	Unilife prefilled syringe	\$16.4m	Global licensing agreement with Sanofi-Aventis, the largest global purchaser of prefilled syringes.
Unilife Medical Solutions (UNI)	Shanghai Kindly Enterprise Development Group	Unilife prefilled syringe	Not disclosed	Unilife's strategic partner in China has also been appointed as a distribution partner in a number of other international regions.

# Mergers, acquisitions and divestments

Dominant company	Target company	Type of deal	Value (A\$m)	Comments
Biotechnology			Total	8
Ambri (ABI)	Xbio Systems	Acquisition	\$0.2m	Ambri has acquired an interest in XBio Systems, an unlisted technology company in the life sciences sector.
Circadian Technologies Limited (CIR)	Vegenics	Acquisition	\$650k and 5m shares	Circadian Technologies has definitively agreed to acquire the remaining 33% stake it did not already own in subsidiary Vegenics.
CSL (CSL)	Talecris Biotherapeutics Holdings	Acquisition	\$3,483m	CSL has signed an agreement to acquire Talecris Biotherapeutics, a manufacturer and marketer of plasma-derived protein therapies.
Genetic Technologies (GTG)	Frozen Puppies.com	Acquisition	Not disclosed	Genetic Technologies has acquired 100% of the share capital of Frozen Puppies.com, a provider of reproductive services for canines.
Medical Therapies (MTY)	Cell Signal	Acquisition	Not disclosed	Medical Therapies has acquired the Midkine protein-related technology (used to treat myocardial infarction) and assets of Cell Signal.
Metabolic Pharmaceuticals (MBP)	Polynovo Biomaterials	Acquisition	Not disclosed	Metabolic Pharmaceuticals has definitively agreed to acquire Polynovo Biomaterials, subject to due diligence and shareholder approval.
PharmaAust (PAA)	Venturepharm Laboratories	Divestment	\$3.5m	PharmaAust has sold its majority shareholding in Commonwealth Biotechnologies to Venturepharm.
Solbec Pharmaceuticals (SBP)	Vista	Acquisition	Not disclosed	Solbec will no longer manufacture or develop drugs after executing an option agreement to acquire Vista, an Asian eye surgery business.
Medical Devices			Total	3
BrainZ Instruments (BZI)	Auckland Uniservices	Acquisition	Not disclosed	BrainZ Instruments has acquired all assets relating to the previous technology transfer deed from Auckland Uniservices.
Medigas Italias	Compumedics (CMP)	Acquisition	Not disclosed	The Italian company has acquired a strategic stake in Compumedics.
Medivac (MDV)	Sunnywipes	Acquisition	Not disclosed	Medivac has agreed to buy the shares of all Sunnywipes shareholders.

# Clinical trials

Company	Drug	Application	Comments
Pre-clinical		Total	5
Acrux (ACR)	Organon	Contraception	Despite successful pre-clinical research by Acrux, Schering-Plough has chosen not to proceed with development of Organon and another contraceptive hormone.
Anadis (ANX)	Polyclonal nasal antibody spray	Influenza viruses	Anadis has progressed in pre-clinical research to develop a nasal antibody spray to treat a range of influenza viruses.
Antisense Therapeutics (ANP)	ATL-1101	Range of cancers	Further clinical research is being carried out on ATL-1101, a second generation drug that targets receptor blockers.
Mesoblast (MSB)	Allogeneic cells	Interbody fusion of the cervical spine	Pre-clinical research has found the cell therapy product to be both safe and highly effective.
Starpharma Holdings (SPL)	Vivagel	Vaginosis	Vivagel, currently used as a vaginal microbicide, is in clinical development as a treatment of bacterial vaginosis.
Phase I		Total	8
Anadis (ANX)	Colostrum-derived product	Inflammatory bowel disease	The company has initiated a clinical trial at the Tel Aviv Sourasky Medical Center in Israel.
Biodiem (BDM)	Live attenuated influenza vaccine	Influenza	Recent studies indicated that the vaccine significantly stimulated the main factors of influenza immunity.
Eastland Medical Systems (EMS)	ArTiMist	Children's sublingual malaria	The Phase I trial of the drug has been finalised with positive results.
Living Cell Technologies (LCT)	Diabecell	Type I diabetes	Interim results from the clinical trial have indicated superior blood glucose levels after using Diabecell.
Progen Pharmaceuticals (PGL)	PG11047	Advanced cancer	Progen has resumed patient enrolment in its Phase I trial of the drug, which was initiated by Cellgate before Progen's acquisition of the company.
NeuroDiscovery (NDL)	NSL-043	Neuropathic pain	The drug has had a successful Phase I multiple dose clinical trial.
Tissue Therapies (TIS)	VitroGro	Chronic skin ulcers	Tissue Therapies has commenced its first ever human trial of the VitroGro technology.
Viralytics (VLA)	Cavatak	Late stage melanoma	Viralytics has announced successful Phase I trial results in the second group of patients tested.
Phase II		Total	13
Antisense Therapeutics (ANP)	ATL/TV1102	Relapse-remitting multiple sclerosis	Phase II trials have shown significantly reduced disease activity and reduced brain lesions from the use of ATL/TV1102.
Arana Therapeutics (AAH)	ART621	Psoriasis	Arana has completed recruitment in its Phase II trial of the drug, and plans to submit an Investigational New Drug application.
Biota Holdings (BTA)	BTA798	Human rhinovirus	Biota Holdings has commenced dosing in Phase II trials.
Biotron (BIT)	BIT225	Hepatitis C virus	Biotron has expanded its Phase II trial in NSW to a second trial site in Brisbane.
Clinuvel Pharmaceuticals (CUV)	CUV1647	Light and UV-related skin disorders	The treatment has begun Phase II trials in Paris and at multiple centres in France.
Cytopia (CYT)	CYT997	Glioblastoma multiforme form of brain cancer	The company has begun a second Phase II trial of the drug, which acts as a vascular-disrupting anticancer agent.
Giaconda (GIA)	Hepaconda	Hepatitis C	Giaconda has been forced to halt a Phase II trial of the drug after the dosage had little effect on patients.
Mesoblast (MSB)	Mesenchymal precursor cells	Orthopaedic applications	Phase II trials of the technology are progressing in the US.

Company	Drug	Application	Comments
Neurodiscovery (NDL)	NSL-101	Dental surgery pain	Phase II trials of the drug have found it to be effective in treating pain from periodontitis surgery, although its effect in treating pain during wisdom teeth extraction could not be determined.
Prana Biotechnology (PBT)	PBT2	Alzheimer's disease	Phase II results for the drug show that it improved clinical function and reduced the level of Abeta in the spinal fluid of patients.
pSivida Corp (PVA)	Brachysil	Pancreatic cancer	Phase IIb trials of the drug have commenced in the UK, with six patients enrolled.
pSivida Corp (PVA)	Medidur	Diabetic macular edema	Phase II results for the drug have been positive, with the company receiving funding for the trial from Alimera Sciences.
Virax Holdings (VHL)	TG4010	Therapeutic cancer vaccine	Phase IIb clinical trial results of the vaccine have been positive.
Phase III		Total	7
Acrux (ACR)	Testosterone MD Lotion	Hypogandism	The lotion, which is currently in Phase III trials, has received positive feedback from market research conducted in the US and Australia.
Analytica (ALT)	Automatic Retractable Needle	Multiple applications	Analytica hopes to have its Automatic Retractable Needle ready for regulatory approval and manufacturing by the 2009 calendar year.
Biota Holdings (BTA)	CS-8958	Influenza	The drug has successfully completed Phase II trials and is scheduled to commence Phase III trials.
Pharmaxis (PXS)	Bronchitol	Cystic fibrosis	The first Phase III clinical trial has concluded with positive results, and patient enrolment has begun for a second trial.
Progen Pharmaceuticals (PGL)	PI-88	Liver cancer	Phase III trials of the drug have been discontinued, as the trial was unlikely to meet the forecast patient recruitment table.
QRxPharma (QRX)	Q8003IR	Management of moderate to severe pain	The company has received fast-tracked FDA approval to begin a Phase III trial of the drug.
Starpharma Holdings (SPL)	VivaGel	HIV and HSV-2	Ahead of Phase III trials, Starpharma is conducting a short trial to determine the level of antiviral activity retained by the gel following vaginal application.
Other		Total	9
BioProspect (BPO)	Bioeffectives	Equine gastric ulcer syndrome and potential feed supplement for chickens	Separate screening trial testing Bioeffectives on Arabian horses and on chickens have had positive results.
Anadis (ANX)	Biogard	HIV & AIDS	Anadis is in discussion with a major AIDS research institution to conduct a controlled study of Biogard, which has been recently commercialised.
BioProspect (BPO)	Termlone	Acute inhalation toxicity	A study has resulted in a 'no toxicity' outcome for the drug.
Clinuvel Pharmaceuticals (CUV)	Afamelanotide	Erythropoietic porphyrias	The drug has been granted orphan drug designation by the FDA.
Genetic Technologies (GTG)	BITSA	Breed specific genetic testing	The test has been launched at the Royal Melbourne Easter show.
Halcyon Pharmaceuticals (HGN)	SUBA-Itraconazole	Blood stabiliser and improved bioavailability	The drug has been approved by the USA for an IND application and is completing pharmacokinetic studies.
Imugene (IMU)	PRRS Vaccine	Porcine Reproductive and Respiratory Syndrome	The company has announced successful preliminary results from a recent trial of the drug on pigs.
Medigard (MGZ)	BCDs (Blood Collection Devices)	Safety blood collection devices	Medigard is undertaking clinical trials of the device at Griffith University in Queensland, which has been granted an Australian patent until 2025.
Phylogica (PYC)	Not disclosed	Chronic autoimmune disease	Phylogica has generated technical data that demonstrates the ability of its lead molecules to work as effective drugs to treat chronic diseases such as arthritis.

# Regulatory

Company	Product	Application	Comments
Biotechnology		Total	11
Agenix (AGX)	ThromboView	Pulmonary embolism	The antibody application has been granted a patent in New Zealand.
Alchemia (ACL)	HA-Irinotecan Solution for Infusion	Anti-cancer agent	The company has submitted an IND application to the FDA for the solution.
Arana Therapeutics (AAH)	ART621	Anti-inflammatory agent	Arana has submitted an IND application to the FDA for the product.
Benitec (BLT)	Double-stranded nucleic acid constructs	RNA interference	The company has received a New Zealand patent for the technology, which has already been licensed for the clinical development of a Hepatitis C therapeutic construct.
Circadian Technologies (CIR)	VEGF-D	Cancer	Vegenics, a subsidiary of Circadian Technologies, has been granted a US patent covering all therapeutic and diagnostic uses for VEGF-D.
Genetic Technologies (GTG)	BRCA1 and BRCA2	Hereditary breast and ovarian cancer testing	Genetic Technologies has announced plans to enforce its exclusive property rights in relation to BRCA1 and BRCA2.
Medical Therapies (MTY)	Midkine	Inflammatory diseases	The company has been granted a therapeutic patent for Midkine in the US.
Prima Biomed (PRR)	CVac	Ovarian cancer	Prima has submitted a formal request to the FDA for a pre-Investigational New Drug application.
Solagran (SLA)	Bioeffectives	Alternative therapies	Solagran has been granted approval to build an improved Bioeffectives production facility in the Tomsk Free Economic Zone in Russia.
Stem Cell Sciences plc (STC)	Culticell iSTEM	Stem cell culture media using inhibitor-based technology	The company has received a patent from the UL Patent Office covering the use of the entire range of products for culturing stem cells.
Stirling Products (STI)	R-salbutamol	Equine respiratory treatment	The company has been granted an Australian patent for the drug, with regulatory trials under way in the US.
Medical Devices		Total	13
Cyclopharm (CYC)	Positron Emission Tomography (PET)	Cancer staging	The Federal Government has expanded PET-approved indications to include ovarian cancer, colorectal cancer and recurrent melanoma, giving Australian cancer sufferers greater access to the technology.
Heartware (HTW)	Left Ventricular Assist System	Advanced heart failure	The company has filed for approval to CE mark the device in Europe and has gained FDA approval for an IDE.
Labtech Systems (LBT)	MicroStreak	Disease detection	Labtech has been granted a design patent in China for MicroStreak.
Medigard (MGZ)	BCDs (Blood Collection Devices)	Safety blood collection devices	Medigard has appointed Smith Associates as an FDA consultant and agent to assist in gaining FDA approval for its blood collection devices.
Mesoblast (MSB)	Adult stem cell technology	Bone marrow transplant	The technology has been granted an orphan drug designation by the FDA.
Nanosonics (NAN)	Ultrasound probe disinfectant	Ultrasound infection control	Nanosonics has received approval to market and sell the product in Canada.
Norwood Abbey (NAL)	Eyecare products	Eye care	The company has been granted a further eyecare patent from the Russian federation.
Occupational and Medical Innovations (OMI)	N/A	N/A	The company has successfully completed an FDA audit.
Portland Orthopaedics (PLD)	Equator + Acetabular Cup System	Hip joint replacement	Portland Orthopaedics has denied claims that it has infringed two of Advanced Surgical Design & Manufacture's (AMT's) patents.
Safety Medical Products (SFP)	Pen Needle Aid Device	Insulin injection for diabetics	The device, which reduces the chance of needlestick injury, has received TGA approval.

Company	Product	Application	Comments
Sunshine Heart (SHC)	C-Pulse	Moderate heart failure	Sunshine has received conditional approval to begin the first US trial of the device, which has also received reimbursement approval.
Unilife Medical Solutions (UNI)	1ml syringes	Insulin delivery	The FDA has requested further information from UniLife before approving its application for 501k clearance.
Uscom (UCM)	Oxycom	Blood flow measurement	Uscom has received a US patent for Oxycom, a method for combining blood flow measurement with oximetry.

## Other news

Company	Product	Application	Comments
Biotechnology		Total	52
Agenix (AGX)			The company has not yet become the legal owner of Shanghai Yi Sheng Yuan Pharmaceutical in China, which it recently acquired. Agenix is considering legal action.
Agenix (AGX)			Ravindran Govindan has resigned as a director and chairman of Agenix and has been replaced by Nicholas Weston. Directors James Liu and Gordon Crosbie-Walsh have also resigned.
Agenix (AGX)			Legal proceedings concerning allegations of impropriety against a former director of Agenix have resulted in a stay of proceedings.
Ambri (ABI)			Brett Heading and Ian Nesbit have resigned as board members of Ambri. Matthew Morgan and Gregory Baynton have been subsequently appointed as non-executive directors, with Mr Morgan also appointed chairman.
Anadis (ANX)	Nasal antibody spray	Influenza viruses	Anadis has progressed in research to develop a nasal antibody spray against a range of influenza viruses.
Analytica (ALT)			Analytica has adopted a new corporate governance charter, following a recent review.
AtCor Medical (ACG)	SphygmoCor system	Measures central blood pressure and arterial stiffness	The company has signed two agreements, worth \$1.6m, to supply SphygmoCor systems in the US and Europe.
Avastra (AVS)			Bruce Hatchem has been appointed to the board of directors and Dr Steven Hull has submitted his resignation as CEO and director. Dr Mitchell Rosenberg has also resigned as chairman and director.
Biodiem (BDM)	BDM-E	Blindness	Biodiem and Genzyme Pharmaceuticals have developed a solution phase/recrystallisation protocol for the commercial scale manufacture of BDM-E.
Biopharmica (BPH)			Dr Peter King has been appointed chief executive of Biopharmica.
BioProspect (BPO)			ANZ has sold all BioProspect securities in which it claimed equity following the collapse of Opes Prime Stockbrokers.
BioProspect (BPO)			Peter May has been appointed the new CEO of Biopropect. Peter Adrian Stedwell and Peter Charles Pellegrino have been appointed as non-executive directors.
Biosignal (BOS)			The board of Biosignal has decided that it will continue with oil and gas developments after an anti-biofilm licensing deal with entrepreneur Paul Hawken collapsed.
Biota Holdings (BTA)			Biota Holdings has ended its litigation against GlaxoSmithKline, which has offered Biota \$20m in compensation.
Chemgenex Pharmaceutical (CXS)			Jean-Luc Tétard, president of the Stragen group of companies, has joined Chemgenex's board.
Circadian Technologies (CIR)			James McKenzie has resigned as a director of the board.
Clinuvel Pharmaceuticals (CUV)			Jack Wood has been appointed as a non-executive director.
Cryosite (CTE)			Graeme Moore has been appointed as an executive director of Cryosite.
CSL (CSL)			David Anstice has been appointed a director of CSL.

Company	Product	Application	Comments
Cytopia (CYT)			Dr Devron Averett has been appointed chief scientific adviser to the company.
Cytopia (CYT)	CYT387	Myelofibrosis	Dr Ayalew Tefferi has been appointed clinical study chair of the Phase I/II trial for CYT387.
Genesis Biomedical (GBL)			Roger Smith has been appointed non-executive chairman following the resignation of Rodger Johnston. Gordon Sinclair Hatch has been appointed non-executive director.
Giaconda (GIA)			Giaconda has granted Australian Medical Therapy Investments an extension to submit a proposal for shares in Giaconda.
Healthlinx (HTX)			Dominic Autelitano has been appointed chief scientific officer of Healthlinx.
Life Therapeutics (LFE)			Life Therapeutics has won an appeal against a court judgement barring Bell Potter Nominees from voting in matters relating to LFE shares.
Life Therapeutics (LFE)			The Federal Court has scheduled a shareholder meeting to vote upon the removal all current LFE directors due to suspected fraud.
Living Cell Technologies (LCT)			Dr Robert Caspari, a former director of Living Cell Technologies, has been appointed chief executive of the company.
Medical Therapies (MTY)			Koichiro Koike was appointed as a non-executive director following the resignation of Dr Stephanie Williams.
Nusep (NSP)			Nicholas Care and Dr Choon Lee have resigned as directors of Nusep.
Occupational & Medical Innovations (OMI)	Auto-retractable syringe	Range of uses	The Australian Federal Court has judged that OMI's auto-retractable syringe does not infringe upon the patent rights of US company Retractable Technologies.
Pharmaxis (PXS)			Senior pharmaceutical executive Will Delaat has joined the Pharmaxis board of directors.
Phosphagenics (POH)			Michael Ashton has been appointed as a non-executive director, and will also consult to the company on commercialisation strategies.
Probiomics (PCC)	Lactobacillus fermentium product		Probiomics has signed a letter of intent with Chr. Hansen in Denmark to distribute lactobacillus fermentium over the counter. The agreement is conditional upon a successful six-month trial.
Probiomics (PCC)			Patrick Ford has been appointed chairman of Probiomics, and Simon O'Loughlin and Simon Taylor have been appointed as non-executive directors.
Probiomics (PCC)			Professor Ron Penny and Dr Bradley Walsh have resigned from the board of directors of Probiomics.
Progen Pharmaceuticals (PGL)			Professor John Zalcborg resigned as non-executive director of Progen Pharmaceuticals.
pSivida Corp (PVA)			Peter Savas and Paul Hopper have been appointed to pSivida as non-executive directors.
QrxPharma (QRX)			The company's Level 1 Depository Receipt (ADR) program has been listed on the OTCQX electronic exchange in the US.
Rockeby Biomed (RBY)	Bird flu tests	Avian influenza	Rockeby has received orders for its bird flu tests from several South East Asian, European and North African countries worth a total of \$242,000.
Select Vaccines (SLT)			Dr Martin Soust has resigned as CEO and managing director of Select Vaccines.

Company	Product	Application	Comments
Select Vaccines (SLT)			Julie Nutting has been appointed interim chief executive of Select Vaccines.
Sirtex Medical (SRX)			A former employee Dr Gray has commenced legal proceedings against Sirtex in the Supreme Court over subscription and shareholder agreements he signed.
Sirtex Medical (SRX)			Legal proceedings brought against Sirtex by the University of Western Australia have ended, with the court finding in the company's favour.
Sirtex Medical (SRX)			Darren Smith has been appointed as company secretary of Sirtex while Angela Axisa is on maternity leave.
Solagran (SLA)			ANZ has sold all Solagran securities in which it claimed equity following the collapse of Opes Prime Stockbrokers.
Stirling Products (STI)			Gary Waters has resigned as a director of Stirling Products.
Stirling Products	Provale	Loma infection	Clinical research has found Provale to be effective in treating Loma infection in trout, enabling Stirling Products to possibly enter the piscine market.
Viralytics (VLA)			Peter Molloy has been appointed a non-executive director of Viralytics. Paul Hopper has been appointed to the board.
Virax Holdings (VHL)			ANZ has sold all Virax securities in which it claimed equity following the collapse of Opes Prime Stockbrokers.
Virax Holdings (VHL)			The company has received a query letter from the ASX regarding delays in declaring on-market selling by Virax director Albert Ting.
Xceed Capital (XCD)			Stephen Belben has resigned as alternative director of Xceed and has been replaced by George Cameron-Dow.
Nusep (NSP)			The board has resolved to license its gel technology following an unsolicited tender offer.
Medical Devices		Total	20
Brain Resource Company, The (BRC)	Optum Health	Behavioural health technology	Optum Health has signed a three-year agreement to exclusively license BRC's technology in the US.
BrainZ Instruments (BZI)			Dr Robin Congreve has resigned as director of BrainZ Instruments.
C @ (CEO)			The company has formed an advisory board to assist in the development of a carbon sink project.
CathRx (CXD)	Modular diagnostic catheter	Cardiac arrhythmias	The company has announced the first sales of the devices in the UK.
Clover Corporation (CLV)			Merilyn Sleigh and Cheryl Hayman have been appointed non-executive directors of the board.
Cogstate (CGS)	Undisclosed international pharmaceutical company	Computerised testing technology	Contract with international pharmaceutical company to provide computerised cognitive testing technology in a Phase III schizophrenia study.
Ellex Medical Lasers (ELX)			The company has established a direct sales channel in Germany through Ellex Deutschland GmbH.
Fermiscan Holdings (FER)			Ian Holman has resigned as director of Fermiscan.
Heartware (HTW)			Agreed with Heartware International to redomicile the Heartware group from Australia to the US.
KarmelSonix (KSX)			Dr Henry Pinskiar, the director of KarmelSonix, has been appointed executive director of Asia Pacific with particular emphasis on the Australian/New Zealand and China/Taiwan markets.

Company	Product	Application	Comments
LabTech Systems (LBT)			John Glasson has been appointed the new scientific director of LabTech Systems.
Labtech Systems (LBT)			Labtech has qualified for a milestone payment of €1 m from bioMerieux after successfully delivering the first pilot production units.
Medigard (MGZ)			Grant Peterson has resigned from his position as director, and has been replaced by Dr Chris Bishop.
Medtech Global (MDG)			Richard Flory has been appointed as a director of Medtech following Neil Leggett's resignation.
Nanosonics (NAN)			Dr Ron Weinberger, the company's general manager, has been appointed an executive director and member of the board of Nanosonics.
Norwood Abbey (NAL)			Norwood has begun restructuring its eyecare assets.
Norwood Abbey (NAL)			Norwood Immunology, in which Norwood Abbey has a 21% stake, has announced a new focus on the provision of stem cell services and therapies.
Occupational & Medical Innovations (OMI)		Auto-retractable syringe	Contractual agreement granting Domrex Pharma rights to market the syringe in Canada.
Portland Orthopaedics (PLD)			Ralph Stonell has been appointed CFO and Richard Gregson has been appointed interim company secretary, while Dr Ron Sekel has resigned as a director.
Sunshine Heart (SHC)			Nicholas Callinan has been appointed as chairman of Sunshine Heart following the retirement of Dr Conrad Wong and former chairman Malcolm McComas.



# Announcements – US

# US – Partnerships

Company	Pharma/biotech partner	Application	Value (US\$m)	Comments
Biotechnology			Total	17
Access Pharmaceuticals	Milestone Biosciences	Not disclosed	\$10m	Definitive licence agreement to market Access's product Mugard in the US and Canada.
Acucela	Otsuka Pharmaceutical	Dry eyes	Not disclosed	Definitive agreement to co-develop Otsuka's drug Rebamipide.
Attitude Drinks	Nutraceutical Discoveries	Dairy beverages	Not disclosed	Strategic alliance to manufacture and develop a dairy beverage with enhanced metabolic effects.
Bioanalytical Systems	Swiftwater Group	Pharmaceutical research services	Not disclosed	Strategic alliance to provide research, development, auditing, consulting and management services for the pharmaceutical industry.
Chiltern International	EPS International	Clinical development services	Not disclosed	Strategic alliance to provide clinical development services in the Asia region.
Cipher Pharmaceuticals	Ranbaxy Pharmaceuticals	Not disclosed	Not disclosed	Development, distribution, marketing and supply agreement regarding CIP-Isotretinoin.
Generex Biotechnology	Dong-Sung Pharm	Generics	Not disclosed	Product licensing and distribution agreement for the Generex product in South Korea.
GlaxoSmithKline	Actelion	Not disclosed	\$137m	GlaxoSmithKline has signed a \$137m deal for Actelion's drug Almorexant, which is still in Phase II trials.
Iris Pharma	Institut de la Vision	Blindness research and development services	Not disclosed	Strategic alliance to provide research and development services of therapeutic molecules intended to fight blindness globally.
iZumi Bio	J David Gladstone Institute	Cardiovascular disease and stem cell science	Not disclosed	Strategic alliance to provide research and licensing services that focus on the applications for induced pluripotent stem cells.
Novartis AG	Global Alliance for Tuberculosis (TB) Drug Development	TB drug development services	Not disclosed	Strategic alliance to provide TB drug development services.
Oramed Pharmaceuticals	ETI Karle Clinical	Diabetes	Not disclosed	Strategic alliance to provide research and development services for an oral insulin capsule, ORMD 0801, for Type 2 diabetes.
Peakdale Molecular	ChemPrintCo	Compound screening software	Not disclosed	Strategic alliance to develop web-based storefront software allowing drug discovery researchers to select from a physical collection of screening compounds.
Pfizer	Medivation	Dimebon	Up to \$500m	Alliance to commercialise Medivation's drug Dimebon for Alzheimer's disease.
Taconic Farms	PhenoPro	Genetically modified models	Not disclosed	Strategic alliance to provide genetic modification services to biopharmaceutical and biomedical researchers.
Vion Pharmaceuticals	Cooperative Trial Group	Oncology	Not disclosed	Strategic alliance to provide clinical trial services of laromustine with standard remission-induction therapy.
ZyGEM Corp	Commonwealth Biotechnologies	DNA extraction products development services	Not disclosed	Strategic alliance to provide DNA extraction products development services.

Company	Pharma/biotech partner	Application	Value (US\$m)	Comments
Medical Devices			Total	17
Airstrip Technologies	Progressive Medical	Not disclosed	Not disclosed	Strategic alliance to wholesale and market Airstrip Technologies' OB software in the US.
Akorn	Undisclosed	Ophthalmic products	\$2-3m	Akorn has entered into a 10-year manufacturing contract with an undisclosed company to R&D two new ophthalmic products.
Antares Pharma	Dr Reddy's Laboratories	Topical gel for enhanced skin permeation	Not disclosed	Development agreement to produce the gel using Antares' ATD Gel platform.
Asterand	Allergan	Eye diseases	Up to \$56m	Signed a licensing agreement giving Allergan the rights to further develop and commercialise pre-clinical compounds focusing on eye diseases.
Asuragen	Focus Diagnostics	Armored RNA technology	Not disclosed	Asuragen has granted Focus the rights to incorporate their RNA technology into Focus's diagnostic products.
Baxter Healthcare	Innocoll	Gentamicin surgical implant	Not disclosed	Licensing agreement granting Baxter exclusive rights to market and distribute the company's gentamicin surgical implant.
Beckman Coulter	Nephromics	Pre-eclampsia	Not disclosed	Beckman Coulter has obtained the worldwide rights to Nephromics' diagnostic assets and pre-eclampsia testing kits.
Cardio Capacity	Agigma	Anti-ageing plaster	Not disclosed	Strategic alliance to manufacture anti-ageing plaster in the US.
Guava Technologies	Hudson Control Group	Cell analysis	Not disclosed	Strategic alliance to manufacture automated walk-away solution equipment for cell analysis.
Human Genome Technologies	Hospira	Biopharmaceutical products	Not disclosed	Exclusive agreement to manufacture and supply Hospira products.
Kinetic Concepts	3M Health Care	Skin dressings	Not disclosed	Agreement to supply 3M dressing products for use in Kinetic's VAC Therapy Systems.
Medpro Safety Products	Greiner Bio-One	Blood collection systems	Not disclosed	Strategic alliance to manufacture tube-activated and skin-activated blood collection systems and its winged butterfly safety needle system globally.
Melior Discovery	AstraZeneca	In-vivo theraTRACE	Not disclosed	Agreement to use Melior's therapy to evaluate the therapeutic activity of selected AstraZeneca compounds.
Millipore	Agilent Technologies	Genetic diagnostic kits	Not disclosed	Strategic alliance to provide research and development services for ChIP (chromatin immuno-precipitation) kits to study genetic information.
Nexsan Corp	General Electric	Image archiving systems	Not disclosed	Strategic alliance to provide storage systems services for capturing, processing, storing and archiving images in healthcare facilities.
NST NeuroSurvival Technologies	Ion Beam Applications	Molecular imaging	Not disclosed	Strategic alliance to provide radioactive marker development services for molecular imaging.
UOP	Ensyn Technologies	Green fuels R&D and Rapid Thermal Processing technology	Not disclosed	Joint venture to provide R&D services in the US, developing next-generation technology to refine bio-oil into transport fuels and marketing Ensyn's Rapid Thermal Processing technology.

# Mergers, acquisitions and divestments

Dominant company	Target company	Type of deal	Value (US\$m)	Comments
Biotechnology			Total	33
3M	Ligacon AG	Acquisition	Not disclosed	3M definitively agreed to acquire Ligacon AG, a Tagelswangen-based manufacturer of filtration machinery.
Algorithme Pharma	Bioanalytical Systems	Acquisition	\$850k	Algorithme, a unit of Kilmer Capital Partners, acquired the clinical pharmacology research unit of Bioanalytical Systems, a provider of contract research services.
Ashland	Hercules	Merger	\$3.32b	Ashland definitively agreed to merge with Hercules, a manufacturer and wholesaler of chemicals.
BioCryst Pharmaceuticals	Roche Holdings	Divestment	Not disclosed	BioCryst has terminated its licence agreement with Roche for the development and commercialisation of BCX-4208.
Bioheart	MedicAlgorithms	Acquisition	Not disclosed	Bioheart acquired MedicAlgorithms, a developer and provider of innovative signal and data processing systems.
BridgePoint Medical	Asheville Orthotic Prosthetic Center	Acquisition	Not disclosed	BridgePoint Medical acquired Asheville Orthotic, a provider of healthcare services.
Covance	Eli Lilly & Co	Acquisition	\$50m	Covance definitively agreed to acquire the Greenfield Laboratories of Eli Lilly.
Covidien	CardioDigital	Acquisition	Not disclosed	Covidien acquired the technology assets of CardioDigital, a provider of commercialisation of near-to-market technologies.
CSMG Technologies	Carbon Capture Technologies	Acquisition	Not disclosed.	CSMG acquired all the outstanding stock of Carbon Capture, a provider of research and development services, from UTEK Corp in a stock swap transaction.
Fresenius SE	APP Pharmaceuticals	Acquisition	\$5.63b	Fresenius definitively agreed to acquire all the outstanding common stock of APP Pharmaceuticals, a manufacturer, wholesaler and developer of pharmaceutical products.
Frontage Laboratories	Advanced Biomedical Research	Acquisition	Not disclosed	Frontage Laboratories acquired the 80% interest which it did not already own in Advanced Biomedical, a provider of pharmaceutical research and development services.
General Electric	Vital Signs	Acquisition	\$1.01b	GE Healthcare definitively agreed to acquire Vital Signs, a manufacturer and wholesaler of medical products.
Gryphon Investors	Synteract	Acquisition	Not disclosed	Gryphon acquired an undisclosed minority stake in Synteract, a provider of contract research services.
HealthTronics	UroPath	Acquisition	\$7.5m	HealthTronics acquired UroPath, a provider of anatomical pathology laboratory services.
InovaChem Mergerco	Trinterprise	Acquisition	Not disclosed	InovaChem Mergerco, a unit of InovaChem, acquired Trinterprise, a provider of research services, in exchange for 16.667m common shares.
Innovative Health Sciences (IH)	HealthSonix Medical	Acquisition	\$5.3m	Innovative Health Sciences acquired HealthSonix Medical, a developer and manufacturer of medical technology products. Concurrently, IH acquired AquaSonix Therapy.
Intas Biopharmaceuticals	Biologics Process Development	Acquisition	Not disclosed.	Intas Biopharmaceuticals acquired Biologics Process Development, a manufacturer of pharmaceuticals.

Dominant company	Target company	Type of deal	Value (US\$m)	Comments
Integra LifeSciences Holdings Corp	Theken	Acquisition	\$200m	Integra LifeSciences acquired Theken, a manufacturer and wholesaler of spinal implant technologies.
Investor Group	Trio Clinical Research	Acquisition	Not disclosed	A management-led investor group, backed by Halifax Group and SV Life Sciences, acquired Trio Clinical Research, a provider of clinical research services, in a leveraged buyout transaction.
Invitrogen	Applied Biosystems	Acquisition	Not disclosed	Invitrogen has received regulatory approval for its takeover bid for Applied Biosystems.
iSuppli	Telematics Research Group	Acquisition	Not disclosed	iSuppli acquired Telematics, a provider of research services.
Mylan	Somerset Pharmaceuticals	Acquisition	Not disclosed	Mylan acquired the remaining 50% interest in Somerset Pharmaceuticals, a provider of pharmaceutical research and development services, from its joint venture partner Watson Pharmaceuticals.
Nanogen	ELITech Group	Acquisition	Not disclosed	Nanogen definitively agreed to acquire all the outstanding stock of ELITech Group, a Puteaux-based wholesaler of medical diagnostic instruments, in exchange for Nanogen's common stock.
NDS Surgical Imaging	Dome Imaging Systems	Acquisition	\$34m	NDS Surgical acquired all the outstanding stock of Dome Imaging, a manufacturer of imaging display systems.
Omnicare	Local Pharmacy	Acquisition	Not disclosed	Omnicare acquired Local Pharmacy, an Edinburgh-based wholesaler and retailer of pharmaceutical products.
QuantumSphere	Energetis	Acquisition	Not disclosed	QuantumSphere acquired Energetis, a provider of research and development services.
St Jude Medical	Datascope	Acquisition	\$24m	St Jude acquired the vascular closure business and collagen operation of Datascope, a manufacturer and wholesaler of surgical and medical instruments.
Sunnylife Global	Heart Link Biomedical	Acquisition	Not disclosed	Sunnylife acquired all the outstanding stock of Heart Link, a provider of biomedical research and development services.
Symyx Technologies	Integrated Biosolutions	Acquisition	Not disclosed	Symyx acquired Integrated Biosolutions, a provider of research and development services.
Take Solutions	Applied Clinical Intelligence	Acquisition	Not disclosed	Take planned to acquire the remaining 49% stake which it did not already own in Applied Clinical Intelligence, a provider of clinical research services.
Thermage	Reliant Technologies	Merger	\$95m	Thermage definitively agreed to merge with Reliant Technologies, a developer of clinical solutions to repair and restore ageing and environmentally damaged skin.
Veeda Clinical Research	International Oncology Network	Acquisition	Not disclosed	Veeda Oncology, a unit of Veeda, acquired International Oncology Network, a unit of Amerisourcebergen Corp and a provider of medical and health services.
WellSpring Pharmaceutical	McNeil Consumer & Specialty Pharmaceuticals	Acquisition	Not disclosed	WellSpring acquired certain consumer drug products of McNeil Consumer, a pharmaceuticals wholesaler.

Dominant company	Target company	Type of deal	Value (US\$m)	Comments
Medical Devices			Total	24
Agilent Technologies	Particle Sizing Systems	Acquisition	Terms not disclosed	Agilent acquired Particle Sizing Systems, a manufacturer and designer of measuring products.
Agilent Technologies	MTS Systems	Acquisition	Not disclosed	Agilent acquired MTS Nano, a manufacturer of computer-based testing and simulation systems, from MTS Systems.
Agilent Technologies	RVM Scientific	Acquisition	Not disclosed	Agilent acquired RVM Scientific, a manufacturer of gas chromatographs and related components.
Boveran Diagnostics	Sophora Diagnostics Lab	Acquisition	Not disclosed	Boveran signed a letter of intent to acquire an undisclosed majority interest in Sophora, an owner and operator of a cancer pathology laboratory.
Carilion Roanoke Memorial Hospital	Center for Advanced Imaging and Center for Surgical Excellence	Acquisition	Not disclosed	Carilion Roanoke acquired Center for Advanced Imaging, a provider of advanced imaging services and the Center for Surgical Excellence.
Charles River Laboratories International	Molecular Imaging Research	Acquisition	\$12.5m	Charles River acquired privately held Molecular Imaging Research, a provider of in vivo imaging services.
Eckert & Ziegler AG	North American Scientific	Acquisition	\$6m	Eckert & Ziegler definitively agreed to acquire the non-therapeutic product line of North American Scientific, a manufacturer and developer of radioisotopic products.
IUT Medical	Oncologix Tech	Acquisition	\$255k	IUT Medical agreed to acquire the Oncosphere product assets of Oncologix Tech, a provider of research and development of medical devices.
Medicis Pharmaceutical	LipoSonix	Acquisition	\$300m	Medicis Pharmaceutical acquired all the outstanding stock of LipoSonix, a manufacturer of body contouring technology.
Medline Industries	Chester Labs	Acquisition	Not disclosed	Medline Industries acquired Chester Labs, a manufacturer of pharmaceutical products.
Nyer Medical Group	ADCO South Medical Supplies	Divestment	Not disclosed	Nyer Medical Group divested its ADCO South Medical Supplies unit, a manufacturer and wholesaler of medical and surgical equipment, to an undisclosed buyer.
Owens & Minor	Burrows	Acquisition	\$30m	Owens & Minor definitively agreed to acquire Burrows, a wholesaler of medical and surgical supplies.
Saints Capital	Boston Scientific	Acquisition	Not disclosed	Saints Capital agreed to acquire a minority stake in 54 companies from Boston Scientific, a developer, manufacturer and marketer of medical devices.
Special Situations Fund III	World Heart	Acquisition	\$9m	Special Situations Fund III agreed to acquire an undisclosed minority stake in World Heart Corp.
Synergetics USA	Medimold	Acquisition	\$0.08m	Synergetics acquired Medimold, a manufacturer of plastic medical tools and devices.
Tacpro	Medical Engineering Resources	Acquisition	Not disclosed	Tacpro, a unit of Essel Propck Ltd, acquired a 74% interest in Medical Engineering Resources, a manufacturer and wholesaler of disposable medical devices.

Dominant company	Target company	Type of deal	Value (US\$m)	Comments
Teradyne	Eagle Test Systems	Acquisition	\$363m	Teradyne definitively agreed to acquire all the outstanding common stock of Eagle Test Systems, a manufacturer of automated test equipment.
Thermage	Reliant Technologies	Merger	\$95m	Thermage definitely agreed to merge with Reliant Technologies, a developer of clinical solutions to restore ageing and damaged skin.
Thermo Fisher Scientific	Open Biosystems	Acquisition	Not disclosed.	Thermo Fisher Scientific acquired Open Biosystems, a manufacturer of protein detection products.
Topcon	Voxis	Acquisition	Not disclosed	Topcon acquired Voxis, a resolution motion systems technology manufacturer.
Unomedical AS	ConVatec	Merger	Not disclosed	Unomedical planned to merge with ConVatec, a manufacturer and wholesaler of skincare products and a unit of Bristol-Myers Squibb.
Uluru	BioMed Sciences	Acquisition	\$10m	Uluru definitively agreed to acquire BioMed Sciences, a manufacturer and wholesaler of surgical supplies.
Venrock Partners	World Heart Corp	Acquisition	\$10m	Venrock Partners agreed to acquire an undisclosed minority stake in World Heart Corp, a manufacturer of heart assist devices.
Zimmer Holdings	Abbott Spine	Acquisition	\$360m	Zimmer Holdings agreed to acquire Abbott Spine, a provider of research and development services for spine implants, from Abbott Laboratories.

# Clinical trials

Company	Drug	Application	Comments
<b>Pre-clinical</b>		<b>Total</b>	<b>2</b>
Genmab	Ofatumumab	Chronic lymphocytic leukaemia and non-Hodgkin's lymphoma	The company has announced plans to begin four studies of the drug.
Medistem Laboratories	Endometrial Regenerative Cell therapy	Critical limb ischemia	Positive efficacy data from the pre-clinical study supports the development of the product.
<b>Phase I</b>		<b>Total</b>	<b>5</b>
Elan Corporation and Biogen Idec	Tysabri	Multiple myeloma	A joint clinical trial of the drug has been initiated.
Energex Systems	HermoModulation therapy	HIV	The FDA has granted approval for a Phase I clinical trial.
Multiple Myeloma Research Consortium	Revlimid, Velcade, Doxil and Dexamethasone	Multiple myeloma	A four-drug Phase I/Phase II trial will commence.
NuPathe	NP101	Acute migraine	Phase I trials were considered positive, with few adverse effects to the patches.
Penwest Pharmaceuticals	A0001	Mitochondrial diseases	A phase I clinical trial has begun for the drug, which aims to be the first FDA-approved treatment for mitochondrial disease.
<b>Phase II</b>		<b>Total</b>	<b>6</b>
Celgene International Sarl	Revlimid	Relapsed non-Hodgkinson's lymphoma	Phase II study results have found the drug demonstrated activity in patients with an advanced form of the disease.
Cephalon	Treanda	Non-Hodgkin's lymphoma	A Phase II trial of the drug has been promising, with 92% of subjects responding to treatment.
GlaxoSmithKline	Pazopanib	Ovarian cancer	A small Phase II trial has found it to be effective in fighting ovarian cancer.
Pipex Pharmaceuticals	Zinthionein	Dry age-related macular degeneration	Phase II trials of the drug showed significantly improved visual acuity among subjects.
Titan Pharmaceuticals	Spheramine	Parkinson's disease	The company reported a disappointing Phase II trial for the drug, which showed the injections had little effect on subjects.
Vertex	Telaprevir	Hepatitis C	Phase II trials of the drug were successful, with 52% of subjects cured.
<b>Phase III</b>		<b>Total</b>	<b>17</b>
Biodel	VIAject	Human insulin	Two Phase III trials comparing the drug to rival Humulin have been positive for Biodel.
Biogen Idec	Adentri	Acute decompensated heart failure	A Phase III clinical trial of the drug has been initiated.
Bioniche Life Sciences	Urocidin	Bladder cancer	A Phase III trial of the drug is progressing well.
Chelsea Therapeutics International	Droxidopa	Neurogenic orthostatic hypotension	The company has initiated dosing in the Phase III trial, which is evaluating up to 118 patients.
CSL Biotherapies	Afluria	Influenza vaccine	Positive results have been reported from two Phase III trials of the vaccine.
Exelixis	XL184	Thyroid cancer	The company has received a special protocol assessment from the FDA following successful Phase III trials.
Genta	Genasense	Advanced melanoma	A Phase III trial of the drug has been completed.
ImClone Systems Incorporated Bristol-Myers Squibb Company	Erbixux	Metastatic squamous cell carcinoma	Phase III results of the trial have been published and demonstrated significant survival rates.
Javelin Pharmaceuticals	Dyloject	Pain relief from abdominal and pelvic surgery	A Phase III trial of the drug had successful secondary endpoints.

Company	Drug	Application	Comments
NovaRx	Lucanix	Advanced non-small cell lung cancer	A Phase III trial of the drug has been initiated, involving more than 700 patients.
Nymox Pharmaceutical	NX-1207	BPH	The drug has entered phase III trials after successful phase II trials.
PregLem SA	PGL4001	Symptomatic uterine myoma	Phase III trials are taking place in more than 14 countries.
QRxPharma	Q8003IR	Moderate to severe pain	The FDA has approved a streamlined Phase III trial plan for the drug.
QuatRx Pharmaceuticals	Ophena	Menopause symptoms	A second Phase III trial of the drug has been initiated.
Teva Pharmaceutical Industries	Adagio	Parkinson's disease	Phase III trial results for the drug have been positive, meeting all primary and secondary endpoints.
The Medicines Company	Cleviprex	Acute hypertension	A Phase III trial of the drug, which has already been approved to treat high blood pressure, has had positive results.
Vertex Pharmaceuticals	Telaprevir	Hepatitis C	Vertex has received FDA approval to begin a Phase III trial of the drug.
<b>Other</b>		<b>Total</b>	<b>9</b>
Biogen Idec	Avonex	Relapsing multiple sclerosis	Enrolment has been completed on a long-term follow-up study of the drug.
Cell Medica	Immunoprophylactic adoptive cell therapy	Cytomegalovirus	A late stage randomised trial of the therapy has been announced.
CV Technologies	Cold-FX	Cold and flu	Preliminary clinical study results have found the drug to cut cold and flu symptoms by one-third.
Genentech & Pfizer	Avastin & Sutent	Cancer	Genentech has ended studies combining its drug Avastin and Pfizer's drug Sutent due to several subjects developing anaemia.
GlaxoSmithKline	Tykerb	Head and neck cancer	New clinical data supports the use of Tykerb as a cancer treatment, which endorses the company's plan for a final Phase III study.
Novacea	Asentar	Cancer	The company has decided not to develop the drug after a study showed an unexplained imbalance of deaths between the treatment and control groups.
Oculus Innovative Sciences	Microcyn	Antimicrobial solution	The FDA has allowed the company to commence the pivotal phase of its US clinical program for Microcyn.
Oscient Pharmaceuticals	Fluoroquinolones	Kills bacteria	The FDA has announced that the drug is associated with an increased risk of tendon rupture and a warning on the box should be added.
Pharming Group	rhC1INH	Antibody-mediated rejection in kidney transplantation	A clinical study of the treatment has been authorised by the FDA.

# Regulatory

Company	Product	Application	Comments
<b>Biotechnology</b>		<b>Total</b>	<b>40</b>
Actelion	Tracleer	Pulmonary arterial hypertension	The company has received approval from European authorities to expand the use of Tracleer.
Allergan	Trivaris	Anti-inflammatory for eye conditions	The FDA has approved the synthetic glucocorticoid corticosteroid
Amgen	Nplate	Chronic immune thrombocytopenic purpura	The drug has received FDA approval.
Aplastic Anemia & AMDS International Foundation	Vidaza	Myelodysplastic syndrome	The FDA has approved a label expansion for the drug to include data from a recent trial.
APP Pharmaceuticals	Heparin Sodium Injection	Pain management	The FDA has approved a manufacturing facility in Barcelona, Puerto Rico.
Arpida	Intravenous iclaprim	Soft skin and tissue infections	Arpida has accepted for review its Marketing Authorisation Application for the drug.
Basilea Pharmaceutica	Toctina	Eczema	The firm has been approved to sell Toctina in the UK.
Bayer Schering Pharma	Recothrom	Surgical bleeding	The company has submitted a marketing application to the European Medicines Agency for the topical aid.
Biovail Corporation	Ralivia	Moderate to severe pain	The Therapeutics Products Directorate in Canada has expanded the indication for Ralivia.
Boston Scientific Corp	NexStent carotid stent and Monorail Delivery system	Heart disease	The products have been recalled by the FDA after some operational issues with the devices.
Cambridge Laboratories Group	Xenazine	Chorea associated with Huntington's disease	The drug has received FDA approval.
Cardiome Pharma	Kynapid	Atrial fibrillation	The FDA has requested further safety information before approving the drug.
Celgene	AZA-001	Myelodysplastic syndromes	Vidaza has received expanded FDA approval following increased survival rates in clinical studies.
CV Therapeutics	Ranexa	Stable angina pectoris	The European Medicines Agency has approved the brand name Ranexa.
Dyax	EDEMA4	Hereditary angioedema	The Phase III trial has had positive top-line results, prompting Dyax to submit a biologics licence application.
Epix Pharmaceuticals	Vasovist	Novel blood pool magnetic resonance angiography agent	Bayer Schering Pharma is transferring the worldwide Vasovist rights to Epix.
Gilead Sciences	Viread	Chronic hepatitis B	The drug has been approved in the US, as well as in the UK, Turkey and Australia.
GlaxoSmithKline	Entereg	Bowel treatment	GlaxoSmithKline has handed back the rights for Entereg to Adolor Corp.
GPC Biotech AG	Satraplatin plus prednisone	Hormone-refractory prostate cancer patients	The product is being reviewed by the Committee for Medicinal Products for Human Use in Europe following a list of outstanding issues with the drug.
Helsinn Healthcare	Aloxi	Prevention of postoperative nausea	The FDA has approved the injection, which is administered as a single dose immediately before induction of anaesthesia.
Indevus Pharmaceuticals	Sanctura (XM)	Overactive bladder	The FDA has assigned a patent for the drug.
Inion Oy	Biodegradable graft containment system	Spinal fusion	The Finnish company has received FDA approval to market the device.
Introgen Therapeutics	Advexin	Recurring head and neck cancers	Introgen has become the first company to apply for FDA approval of a gene therapy drug.
Janssen-Cilag	Velcoma	Multiple myeloma	The European Commission has approved the drug.
Mylan Pharmaceuticals	Linezolid tablets	Antibiotic for infections caused by bacteria	The FDA has tentatively approved this generic version of Zydox tablets.

Company	Product	Application	Comments
Perrigo	Xyzal	Allergies	Perrigo has bought the rights to market a generic version of Xyzal.
Pfizer Animal Health	Convenia	Skin infections in cats and dogs	The FDA has approved the tablet, which is the first and only antibiotic for animals available in a single injectable dose
Pharmacia & Upjohn	NDA 021106	Supplement for subcutaneous injection	The product has received FDA approval.
Quark Pharmaceuticals	DGFi	Treatment of delayed graft function associated with renal transplantation	The FDA has approved an IND application for DGFi.
Sciele Pharma and Novo Nordisk	Prandimet tablets	Type 2 diabetes	The FDA has approved the tablets, which lower blood glucose levels in adult patients with type 2 diabetes.
Shire	Daytrana	Attention deficit hyperactivity disorder	The company voluntarily recalled the patches due to some liners being difficult to remove from the skin.
Sirion Therapeutics	Durezol	Postoperative ocular inflammation and pain	The FDA has approved the drug, which is the first approval for Sirion.
Spectrum Pharmaceuticals	Fusilev	Folate analog	The drug has been launched as an injection, and an application for an IND has been filed.
Takeda Pharmaceutical Company	Velcade	Multiple myeloma	The FDA has approved the drug, which showed a 30% remission rate during trials.
Talecris Biotherapeutics	Gamunex	Chronic inflammatory demyelinating polyneuropathy (CIDP)	The FDA has approved the therapy, which is the only approved CIDP treatment in the US.
Teva Pharmaceuticals	Copaxone	MS	Teva has sued Novartis AG and Momenta Pharmaceuticals, accusing them of infringing patents on Copaxone.
The Medicines Company	Cleviprex	Blood pressure	The drug has received FDA approval.
TopoTarget A/S	Belinostat	Peripheral T-cell lymphoma	The company has received a positive reply from the FDA on a Special Protocol Assessment of Belinostat.
Trubion Pharmaceuticals	Anti-CD20 antibody	Rheumatoid arthritis	The European patent office has revoked Anti-CD20 patents for Genentech and Biogen following legal action from Trubion and other parties.
UCB	Vimpat and Keppra	Epilepsy	The drugs have been approved for use in Europe and the US respectively in children aged 16 and under.
<b>Medical Devices</b>		<b>Total</b>	<b>37</b>
Abbott Laboratories	Xience V	Coronary artery disease	The FDA has approved the stent system following successful clinical trials.
Accuray	CyberKnife II	Robotic radiosurgery for cancer	The applications for the device have been expanded to include tumours in organs of the body trunk.
American Bio Medica	Rapid Tox	Drug test kits	The product has received a waiver from the FDA, which the company believes will improve sales growth.
AngioDynamics	Catheter cuff	Self-centering central venous catheter	The product was voluntarily recalled due to a cuff problem causing leakage and is currently undergoing an FDA review.
Anika Therapeutics	Eleveess	Injectable dermal filler	The company has signed a distributing and marketing agreement with Artes Medical for the product, which is the first FDA-approved acid dermal filler.
Arkray USA	Glucogard 01 Blood Monitoring System	Blood glucose testing and monitoring	The product has been cleared by the FDA.
BioDelivery Sciences International	Onsolis	BEMA fentanyl pain patch for cancer	The medication is close to being approved by the FDA following a successful review.

Company	Product	Application	Comments
Bioform Medical	Polidocanol	Varicose veins	A successful clinical study of the treatment has been submitted to the FDA as part of an NDA approval process.
Bioheart	Bioheart 3370 Heart Failure Monitor	Heart patients	The device, which monitors the vital signs of heart patients, has been granted FDA clearance.
BSD Medical Corporation	MicroThermX-100 Microwave Ablation System	Breast cancer	The system has been granted 510k clearance by the FDA.
Cardica	PAS-Port proximal anastomosis system	Cardiac bypass surgery	The FDA has approved the system, which creates a secure connection between a vein graft and the aorta during surgery.
Cook Medical	Undisclosed	Aortic disease repair	The devices have been approved by the FDA.
Conmed	Bio Mini-Revo	Repair of labrum in the hip joint	The suture anchor has been granted 510k clearance by the FDA.
DiagnoCure	Previstage GCC	Colorectal cancer staging test	Diagnocure has received regulatory approval to begin promoting the test.
Globus Medical	Flexus Interspinous Spacers	Spinal implant	The first of these devices have been implanted under an IDE exemption granted to Globus.
Hansen Medical	CoHesion 3D Visualisation Module	Electrophysiology mapping procedures	The system, which has already been launched in the EU, has been approved by the FDA.
HemoCue AB	HemCue Albumin 201 screening system	Microalbuminuria	The product has been granted a CLIA waiver by the FDA, allowing non-laboratory trained physicians and other healthcare professionals in CLIA waiver-certificated facilities to use the company's system for patient screening.
IntelliDOT Corporation	IntelliDOT Blood Product Administration	Assists hospitals in keeping accurate blood records	The FDA has approved the point of care Transfusion Safety Management system.
Interventional Spine	PercuDyn system	Chronic, debilitating back pain	The FDA has approved the system, which is the first subcutaneous system targeting back pain.
Invitrogen	SPOT-Light test	Whether individuals are good candidates for Herceptin (breast cancer drug)	The test, which does not require any of the biopsy analysis equipment currently used, has been approved by the FDA.
Johnson & Johnson	Concerta	Attention deficit hyperactivity disorder (ADHD)	The FDA has approved the drug for use in adult patients suffering from ADHD.
Medrad	Intego PET Infusion System	Fluorodeoxyglucose (FDG)	The product has received pre-market clearance from the FDA.
Medtronic	Infuse bone graft	Protein that causes body to regrow bone	The FDA issued a warning against the off-label practice of using the product on neck vertebrae.
Medtronic	Attain StarFix	Placement and stability of the left-heart lead in heart failure patients receiving a CRT device	The FDA has approved the device, which demonstrated a 0% dislodgement rate in clinical trials.
Noveko International	3xEz	Anti-microbial surgical mask	The FDA has granted Noveko a 510k submission number, a step towards gaining approval.
Oculus Innovative Sciences	Not disclosed	Antimicrobial formulation	The formulation can be immediately marketed without requiring FDA approval.
Ondine Biopharma	Periowave Photodisinfection system	Bacterial and fungal infections	The FDA will evaluate the system as a Class III medical device under premarket approval regulations.

Company	Product	Application	Comments
Orthofix International N.V	Pillar SA	Spine interbody device	Orthofix has received 510k approval for the device.
Pathway Medical Technologies	Jetstream	Peripheral atherectomy catheter	The device has received 510k FDA clearance.
Regen Biologics	Collagen scaffold	Reinforcement and repair of meniscus tissue	Regen has submitted a 510k application seeking FDA clearance for the product.
Robodoc	Digimatch Robodoc Surgical System	Preparing joint for hip replacement procedure	The device has received 510k FDA clearance.
Roche	CobasTaqMan HBV Test	Hepatitis B	The test has been approved by the FDA.
St Jude Medical	Epicor LP Cardiac Ablation	Diagnosis of abnormal heart rhythms	The FDA has cleared the device, which has also received the European CE Mark of approval.
St Jude Medical	Merlin.net Patient network	For heart patients requiring defibrillators	The FDA has approved the device, which uses wireless technology to monitor the patient's condition.
Stereotaxis	PowerAssert Radiofrequency guidewire	Blocked arteries	The device has received regulatory clearance from the FDA.
Synapse Biomedical	NeuRx DPS	Ventilator-dependant spinal cord injury	The minimally invasive new device has been approved by the FDA.
ThermoGenesis	MarrowXpress	Collection of stem cells from umbilical cord blood	The product has received a CE Mark in Europe and is awaiting regulatory clearance in the US from the FDA.

The first part of the document discusses the importance of maintaining accurate records in a business setting. It highlights how proper record-keeping can help in decision-making, legal compliance, and financial management. The text emphasizes that records should be organized, up-to-date, and easily accessible.

Next, the document addresses the challenges of data management in the digital age. It notes that while digital storage offers convenience, it also introduces risks such as data loss, security breaches, and information overload. Solutions like cloud storage, encryption, and regular backups are suggested to mitigate these risks.

The third section focuses on the role of technology in streamlining business processes. It describes how automation tools can reduce manual errors and save time. Examples include using software for invoicing, inventory management, and customer relationship management (CRM).

Finally, the document concludes by stressing the need for continuous learning and adaptation. As technology and market conditions evolve, businesses must stay informed and be willing to adopt new tools and practices to remain competitive.



# Appendix

# Companies in the PwC Life Sciences Index

Med Device <sup>1</sup>		Closing Mcap	Q1FY09 return
AMT	ADVANCED SURGICAL DESIGN & MANUFACTURE LIMITED	12.708	-3%
AQL	AQUACAROTENE LIMITED	3.306	8%
ACG	ATCOR MEDICAL HOLDINGS LIMITED	10	0%
ATW	ATOS WELLNESS LTD	7.311	-55%
AYX	AUSTOFIX GROUP LIMITED	12.708	-11%
BLS	BIOLAYER CORPORATION LIMITED	4.472	-38%
BOD	BIOMD LIMITED	7.732	64%
BRC	BRAIN RESOURCE COMPANY LIMITED (THE)	34.393	14%
BZI	BRAINZ INSTRUMENTS LIMITED	1.08	-18%
CBB	CORDLIFE LIMITED	32.126	9%
CEO	C @ LIMITED	2.431	0%
CXD	CATHRX LTD	31.101	-9%
CLV	CLOVER CORPORATION LIMITED	44.599	69%
COH	COCHLEAR LIMITED	3312.361	36%
CGS	COGSTATE LTD	10.503	23%
CMP	COMPUMEDICS LIMITED	21	0%
CYC	CYCLOPHARM LIMITED	18.098	-28%
EMS	EASTLAND MEDICAL SYSTEMS LTD	26.616	-21%
ELX	ELLEX MEDICAL LASERS LIMITED	17.133	-14%
FER	FERMISCAN HOLDINGS LIMITED	43.052	-57%
HTW	HEARTWARE LIMITED	192.421	55%
IAT	IATIA LIMITED	7.587	67%
BMI	BMDI INTERNATIONAL LIMITED	8.543	-6%
IPD	IMPEDIMED LIMITED	62.775	-8%
ITD	ITL LIMITED	13.165	0%
KSX	KARMEISONIX LIMITED	8.031	-74%
LBT	LABTECH SYSTEMS LIMITED	15.403	-23%
MDG	MEDTECH GLOBAL LIMITED	7.017	0%
MOD	MEDICAL CORPORATION AUSTRALASIA LIMITED	5.231	0%
MGZ	MEDIGARD LIMITED	4.729	27%
MDV	MEDIVAC LIMITED	5.359	0%
NDL	NEURODISCOVERY LIMITED	5.174	0%
NAN	NANOSONICS LIMITED	37.066	-5%
NAL	NORWOOD ABBEY LIMITED	3.445	-41%
OBJ <sup>2</sup>	OBJ LIMITED	5.257	-29%
OMI	OCCUPATIONAL & MEDICAL INNOVATIONS LIMITED	9.984	32%
OIL	OPTISCAN IMAGING LIMITED	21.102	-23%
PLT	POLARTECHNICS LIMITED	22.842	-24%
PLD	PORTLAND ORTHOPAEDICS LIMITED	4.349	12%
MVH	MEDIC VISION LIMITED	6.994	15%
PXL	PROTEOME SYSTEMS LIMITED	17.363	-42%
RMD	RESMED INC	4080.467	49%
SFP	SAFETY MEDICAL PRODUCTS LIMITED	3.281	-51%
SOM	SOMNOMED LIMITED	16.121	-34%
SHC	SUNSHINE HEART, INC.	29.172	82%
SVC	SHELL VILLAGES AND RESORTS LIMITED	3.781	-44%
UBI	UNIVERSAL BIOSENSORS, INC.	109.884	-18%
UNI	UNILIFE MEDICAL SOLUTIONS LIMITED	59.769	-37%
UCM	USCOM LIMITED	13.68	95%
VCR	VENTRACOR LIMITED	54.052	-28%

Pharma and Biotech		Mcap	
AAH	ARANA THERAPEUTICS LIMITED	192.689	-26%
ABI	AMBRI LIMITED	3.088	-7%
ACL	ALCHEMIA LIMITED	35.300	-27%
ACR	ACRUX LIMITED	149.836	-23%
ACW	ACTINOGEN LIMITED	2.990	25%
AGX	AGENIX LIMITED	7.239	-54%
ALT	ANALYTICA LIMITED	5.576	-13%
ANP	ANTISENSE THERAPEUTICS LIMITED	30.255	-28%
ANX	ANADIS LIMITED	8.867	35%
AOS	ADVANCED OCULAR SYSTEMS LIMITED	1.590	-50%
APH <sup>3</sup>	ASCENT PHARMAHEALTH LTD	27.705	18%
AVH	AVITA MEDICAL LTD	5.141	-44%
AVS	AVASTRA LTD	3.079	-58%
AVX	AVEXA LIMITED	67.948	-48%
BLT	BENITEC LIMITED	13.722	-37%

Pharma and Biotech		Mcap	
BDM	BIODIEM LIMITED	7.503	10%
BNO	BIONOMICS LIMITED	75.299	-6%
BPH	BIOPHARMICA LIMITED	2.597	-20%
BPO	BIOPROSPECT LIMITED	9.254	6%
BOS	BIO SIGNAL LIMITED	4.026	-62%
BTA	BIOTA HOLDINGS LIMITED	124.118	-11%
BIT	BIOTRON LIMITED	14.622	-7%
BNE	BONE MEDICAL LIMITED	23.781	19%
CST	CELLESTIS LIMITED	206.404	-12%
CXS	CHEMGENEX PHARMACEUTICALS LTD	170.090	-37%
CIR	CIRCADIAN TECHNOLOGIES LIMITED	36.194	-9%
CUV	CLINUVEL PHARMACEUTICALS LIMITED	69.724	-26%
CAU	COLLTECH AUSTRALIA LIMITED	3.859	-32%
CTE	CRYOSITE LIMITED	6.063	-13%
CSL	CSL LIMITED	22462.633	4%
CYT	CYTOPIA LIMITED	13.551	-22%
DIA	DIA-B TECH LIMITED	3.006	-33%
GBI <sup>4</sup>	GENERA BIOSYSTEMS LIMITED	9.215	-40%
GBL	GENESIS BIOMEDICAL LIMITED	2.486	0%
GEN	GENESIS RESEARCH AND DEVELOPMENT CORPORATION LIMITED	2.090	-11%
GTG	GENETIC TECHNOLOGIES LIMITED	25.851	-23%
GIA	GIACONDA LIMITED	10.657	-48%
HGN	HALCYGEN PHARMACEUTICALS LIMITED	22.449	-22%
HTX	HEALTHLINX LIMITED	2.612	-54%
HXL	HEXIMA LIMITED	58.932	7%
IMU	IMUGENE LIMITED	8.762	-13%
ICV	INCITIVE LIMITED	1.406	-41%
IDT	INSTITUTE OF DRUG TECHNOLOGY AUSTRALIA LIMITED	87.354	10%
LFE	LIFE THERAPEUTICS LIMITED	7.794	-24%
LCT	LIVING CELL TECHNOLOGIES LIMITED	36.947	-37%
MVP	MEDICAL DEVELOPMENTS INTERNATIONAL LIMITED	12.536	-35%
MTY	MEDICAL THERAPIES LIMITED	5.449	-5%
MSB	MESOBLAST LIMITED	132.612	21%
MBP	METABOLIC PHARMACEUTICALS LIMITED	9.645	-24%
NEU	NEUREN PHARMACEUTICALS LIMITED	16.229	-36%
NRT	NOVOGEN LIMITED	112.849	-5%
NSP	NUSEP LIMITED	2.064	-58%
PAB	PATRY'S LIMITED	34.392	-25%
PLI <sup>5</sup>	PEPLIN, INC	73.046	10%
PBP	PROBIOTEC LIMITED	67.574	7%
PAA	PHARMAUST LIMITED	4.734	-9%
PXS	PHARMAXIS LTD	437.709	48%
POH	PHOSPHAGENICS LIMITED	43.794	-34%
PYC	PHYLOGICA LIMITED	15.068	30%
PBT	PRANA BIOTECHNOLOGY LIMITED	86.865	2%
PRR	PRIMA BIOMED LTD	2.136	-30%
PCC	PROBIOMICS LIMITED	2.787	-8%
PGL	PROGEN PHARMACEUTICALS LIMITED.	43.538	-48%
PVA	PSIVIDA CORP.	36.6	-26%
QRX	QRXPHARMA LIMITED	45	2%
RBY	ROCKEY BIOMED LIMITED	2.963	-50%
SIE	SCIGEN LIMITED	3.500	12%
SLT	SELECT VACCINES LIMITED	2.298	-25%
SRX	SIRTEX MEDICAL LIMITED	114.882	-31%
SLA	SOLAGRAN LIMITED	68.479	27%
SPL	STARPHARMA HOLDINGS LIMITED	48.523	-2%
STC	STEM CELL SCIENCES PLC	8.547	-15%
STI	STIRLING PRODUCTS LIMITED	4.206	-50%
TEO	TELESSO TECHNOLOGIES LIMITED	2.707	-36%
TIS	TISSUE THERAPIES LIMITED	3.816	-11%
VLA	VIRALYTICS LIMITED	14.624	4%
VHL	VIRAX HOLDINGS LIMITED	3.65	26%
XCD	XCEED CAPITAL LTD	6.506	-7%

## Notes:

- 1 SBP is no longer included in the index.
- 2 OBJ has been added to the index.
- 3 APH had a new name change and code change from GAA in the quarter.
- 4 GBI is a new addition to the index, following its listing in Q4FY08.
- 5 PLI has been re-added to the index although redomiciled in the US.

# Methodology

## Sources

*BioForum* draws on historical data from the following sources:

- Bloomberg
- Connect 4
- the ASX
- company websites
- *PwC Global Pharma and Life Science Quarterly Newsbriefs*

## Market performance

The Australian life sciences sector's market performance is tracked through two indices:

- PwC Life Sciences Index
- PwC Life Sciences Index ex majors (CSL, ResMed and Cochlear)

Analysis is provided without the large-capitalisation stocks (majors) so the performance of smaller-capitalisation stocks can be observed.

The PwC Life Sciences Index is based on the performance of life sciences companies listed on the Australian Securities Exchange (ASX). It comprises two subsectors:

- pharmaceutical/biotechnology
- medical devices

These sectors have been classified according to the Global Industry Classification Standard. The index includes life sciences companies primarily involved in research, development, commercialisation and manufacturing of pharmaceutical and biotechnology products and medical devices. It excludes healthcare, medical software and distribution companies. Companies included in the PwC Life Sciences Index are listed at the end of each issue of *BioForum*.

The PwC Life Sciences Index is based on the combined market capitalisation of the listed companies and calculates the change of their value over the quarter and change over the previous year. These changes are compared to the changes in the market performance of the following indices:

- ASX All Ordinaries
- NASDAQ Composite
- NASDAQ Biotech

Different formulae are used to calculate the value of these indices and track their performance. These formulae use a combination of company market prices and a weighted average of market capitalisation. Because of these different methods of calculating value, the absolute value of the indices cannot be directly compared. Only their changes over time can be sensibly compared.

## Top and bottom performers

Data on these companies is sourced from Bloomberg each quarter. Company announcements are sourced from the ASX or directly from company websites.

## IPO and secondary finance markets

IPO and secondary financing data is sourced from the Connect 4 database's health-care industry category. We include data from companies on the PwC Life Sciences Index only. Data on options, rights and bonus issues is excluded.

The US IPO and secondary financing data is sourced from our quarterly *PwC Global Pharma and Life Sciences Newsbrief*.

## Announcements

These are from companies listed on the PwC Life Sciences Index only. They are sourced from Connect 4 using the health-care industry category. We include announcements on partnerships, mergers and acquisitions and divestments, clinical results, regulatory activity and other information. Examples of other information include management and board changes, the closing or opening of offices, and successful grant applications.

Announcements on the following are excluded:

- trading halts
- capital raisings
- proposed (versus actual) mergers, acquisitions and partnerships
- progress reports on clinical trials (results only are included)
- market registration approval

The US announcement data is sourced from our quarterly *PwC Global Pharma and Life Sciences Newsbrief*.



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