# Biotech Daily

Monday June 15, 2015

*Daily news on ASX-listed biotechnology companies*

*** ASX, BIOTECH DOWN: CELLMID UP 13%, PATRYS DOWN 12.5%**

*** QUEENSLAND UNI, JANSSEN CILAG WORK ON INFLAMMATORY DISEASE**

*** LIVING CELL: '4-PATIENT PARKINSON'S STUDY SAFETY, EFFICACY'**

*** COMPUMEDICS $7.5m, 3-YEAR CHINA SLEEP DIAGNOSTICS DEAL**

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*** RHINOMED READY FOR MONASH INPEAP SLEEP APNOEA TRIAL**

*** ALFRED JOINS POLYNOVO NOVOSORB CE MARK DEEP BURNS TRIAL**

*** OPTISCAN TO RAISE $2m**

*** AUSTRALIAN ETHICAL BELOW 5% IN PHARMAXIS**

*** GENETIC TECHNOLOGIES APPOINTS BRIAN MANUEL CFO**

## MARKET REPORT

The Australian stock market slipped 0.12 percent on Monday June 15, 2015 with the S&P ASX 200 down 6.5 points to 5,538.8 points. Thirteen of the Biotech Daily Top 40 stocks were up, 17 fell, five traded unchanged and five were untraded. All three Big Caps fell.
Cellmid was the best, up 0.3 cents or 13.0 percent to 2.6 cents with 6.7 million shares traded, followed by Living Cell up 12.1 percent to 7.4 cents with 11.3 million shares traded. Circadian climbed 7.1 percent; Tissue Therapies was up 5.9 percent; both Antisense and Clinuvel rose 4.8 percent; Benitec was up 3.25 percent; Admedus, Anteo, Bionomics, Compumedics and Medical Developments were up more than one percent; with Mesoblast up 0.25 percent.
Patrys led the falls for the second trading day in a row, down 0.1 cents or 12.5 percent to 0.7 cents with 16.2 million shares traded. Neuren lost 6.9 percent; Genetic Technologies, Optiscan and Prana fell more than five percent; Prima and Oncosil fell four percent or more; Biotron, Starpharma and Universal Biosensors were down more than three percent; Acrux, Atcor, Impedimed and Pharmaxis shed more than two percent; Actinogen, Nanosonics and Osprey were down more than one percent; with Cochlear, CSL and Resmed down by less than one percent.

## UNIVERSITY OF QUEENSLAND, JANSSEN CILAG

The University of Queensland says that it will work with Janssen Cilag on treatments for ankylosing spondylitis, psoriasis and inflammatory bowel disease.

The University of Queensland Diamantina Institute director Prof Matt Brown said the agreement between the University's commercialisation arm Uniquest, and Johnson & Johnson's Janssen Cilag would capitalize on more than a decade of research on enzymes involved in activating the immune system, including work with Melbourne's St Vincent's Institute of Medical Research.

Prof Brown said it had implications for the treatment of ankylosing spondylitis, which was a painful form of arthritis, as well as for psoriasis and inflammatory bowel disease.

"These three conditions affect two to three per cent of the world's population and there is a great need for better treatments," Prof Brown said.

"This research and development agreement is a dream come true," Prof Brown said.

"I have spent my career researching the causes of these conditions, so it is tremendously rewarding to be collaborating with Janssen to find a treatment based on one of our discoveries," Prof Brown said.

The University said that ankylosing spondylitis was an incurable immune disease affecting the spine, joints and tendons, and could be difficult to diagnose.

"Patients often ignore the initial symptoms, including recurring back pain and stiffness, but if untreated it can slowly worsen and result in the spine becoming fused and totally inflexible," Prof Brown said.

The University said that current treatments focussed on reducing the symptoms, using non-steroidal anti-inflammatories and biologic therapies to minimise pain and inflammation.

The University said that in the 1970s it was discovered that most people with ankylosing spondylitis carried a mutation on the HLA-B27 gene and for 40 years it was thought to be the only gene involved in the development of the disease.

"But since 2007 we have identified more than 26 other genes involved in the development of ankylosing spondylitis," Prof Brown said. "This discovery has led to the resulting research collaboration."

The University said that in 2011, Prof Brown and his colleagues published research in Nature Genetics explaining how selected enzymes worked with HLA-B27 to help the immune system distinguish between what was self and what was foreign and showed that in ankylosing spondylitis genetic variants resulted in the production of overactive enzymes that acted in combination with HLA-B27 to induce arthritis.

The University said that research published in Nature Communication last month showed that a specific enzyme worked in conjunction with HLA-B27 and other genes associated with ankylosing spondylitis, psoriasis and inflammatory bowel disease.

Prof Brown said the culmination of the research led to the identification of two enzymes as promising drug targets.

"We think that by inhibiting these enzymes we could be able to switch off the immune reaction that causes these common diseases," Prof Brown said.

"In animal models the absence of such genes appears to have very few side effects," Prof Brown said.

"Our three-year collaboration seeks to capitalise on Janssen's drug discovery expertize including their capability to screen thousands of compounds to find inhibitors of the two enzymes, which we would optimise together," Prof Brown said.

The University said that Janssen Cilag would have exclusive worldwide rights to develop and commercialize the drug candidates identified by its researchers.

LIVING CELL TECHNOLOGIES

Living Cell says its four-patient phase I/IIa study of NTCell for Parkinson's disease met its primary endpoint of safety, and "improved clinical features of Parkinson's disease".

Living Cell said that the four patients, measured by validated neurological rating scales and questionnaires, showed improvement sustained at 26 weeks post-implant of the encapsulated pig choroid plexus cells.

The company said the study results, entitled 'Safety And Clinical Effects Of NTCell [Immunoprotected (Alginate-Encapsulated) Porcine Choroid Plexus Cells For Xenotransplantation] In Patients With Parkinson's Disease: 26 Weeks Follow-Up', would be presented at the Parkinson's Disease and Movement Disorders meeting in San Diego California on June 17, 2015, with an abstract currently available at: http://www.mdsabstracts.com/abstract.asp?MeetingID=802&id=112867.

Auckland City Hospital neurologist and principal investigator Dr Barry Snow said that "currently, clinicians are able to manage only symptoms in patients with Parkinson's disease as there are no disease-modifying treatments available that can reverse the underlying progressive degeneration of neurons in the brain".

"The positive clinical response observed in this small study of four patients is encouraging and I look forward to evaluating efficacy in a larger study," Dr Snow said.

Living Cell chief executive officer Dr Ken Taylor said NTCell was "the most advanced and only cell-based therapy currently in a clinical trial to target regeneration of brain cells in patients whose symptoms cannot be controlled by current therapies for Parkinson's disease … [and] while this regulatory-enabling study is small in scale, the secondary endpoint efficacy results are sufficiently encouraging to warrant further studies".

"We are advancing the clinical development of NTCell and will use the results of this study to design a larger registration-enabling phase IIb study to evaluate its potential as a disease-modifying treatment for patients with Parkinson's disease," Dr Taylor said.

Living Cell said it intended to begin the phase IIb study by the end of 2015, to be led by Dr Snow, with the same efficacy and safety endpoints evaluated in the phase I/IIa study.

The company said its open-label phase I/IIa study evaluated the safety and clinical effects of implantation of NTCell, containing the specialized choroid plexus brain cells that produced cerebrospinal fluid and neuro-active growth factors, into patients who had been diagnosed with Parkinson's disease for at least five years and who no longer responded to current therapy.

Living Cell said that NTCell was injected under guidance by neuroimaging into the affected area of the brain where neural activity was substantially diminished or degenerated, without the use of immune-suppressive drugs.

The company said that the primary endpoint was safety and the secondary endpoint was efficacy, measured by validated neurological rating scales and questionnaires, which assessed improvements in patients' movement abnormalities, other physical symptoms, well-being and ability to perform everyday tasks and positron emission tomography (PET) scans were conducted to measure the effects of NTCell on dopamine brain metabolism.

Living Cell said that at 26 weeks, NTCell was well tolerated, there were no adverse events or serious adverse events related to NTCell in any of the four patients.

The company said that "all four patients experienced sustained improvement in clinical features … at week 26 post-implant … [and] the first patient treated continued to show improvement in neurological scores at 74 weeks post-implantation".

Living Cell said that the PET scans did not show any consistent changes in the uptake of fluorodopa and tetrabenazine in the four patients, suggesting that the mechanism of NTCell was not likely due to a direct change in dopaminergic neurons.

Living Cell was up 0.8 cents or 12.1 percent to 7.4 cents with 11.3 million shares traded.

## COMPUMEDICS

Compumedics says it has a new $7.5 million, three-year contract for the distribution of sleep diagnostic and monitoring systems with China partner Beijing Bestmed.
Compumedics said the contract covered provinces in North, West and Central China and was complementary to recent deals for the distribution of its neurological monitoring range in China.
The company said that the distribution agreement provided scope to introduce its Ehealthmedics internet-based sleep diagnostic services to China.
Compumedics executive chairman Dr David Burton said the company had spent “more than a decade, with our Chinese partners, building a foundation for future growth in one of the world’s most challenging but highest growth markets”.
“Compumedics is now the number one premium supplier of sleep diagnostic and neurological research systems in China,” Dr Burton said.
“As a result, Compumedics is well positioned to capture growth, not only in sleep diagnostics, but also in neurological monitoring, a relatively new and untapped market for the company in China and other parts of Asia,” Dr Burton said.
“China continues to be a latent and high growth opportunity for sleep diagnostics, and Compumedics will continue to deliver significant growth in this key market over the next three years,” Dr Burton said.
Compumedics was up half a cent or 1.6 percent to 32 cents.

## RESONANCE HEALTH, CSIRO

Resonance says it will collaborate with the Commonwealth Scientific and Industrial Research Organisation to expand its magnetic resonance imaging product pipeline.
Resonance general-manager Sander Bangma said the company was “delighted at this opportunity to develop a collaborative relationship with one of Australia’s leading research organisations”.
“The initial body of work will be assisting the company to enhance its [magnestic resonance] image analysis software for the measurement of liver fibrosis directly,” Mr Bangma said.
The company said it would work with CSIRO’s Biomedical Imaging Group led by Dr Olivier Salvado.
Resonance said that within the liver fibrosis project, CSIRO would use a number of software components and algorithms that were packaged within an image processing and viewing platform and cloud-based analysis platform.
“Working with Resonance Health is a perfect partnership to translate our world-class research to the clinic, ultimately benefiting doctors and patients, while supporting [a] successful Australian company [to] leverage its research and development pipeline internationally,” Dr Salvado said.
Resonance said the work had been partly funded by the Research Connections stream of the Federal Department of Industry and Science Entrepreneurs’ Infrastructure Program and the outcomes were expected to be available by the end of 2015.
The company said that it developed and delivered non-invasive image analysis technologies used for accurate assessment of patients’ conditions, including the Ferriscan for the measurement of liver iron overload and Hepafat-Scan for the measurement of liver fat, as well as a prototype for a non-invasive fibrosis measurement distinguishing between low and high fibrosis scores in patients with hepatitis C.
Resonance was up 0.3 cents or 6.7 percent to 4.8 cents.

## CIRCADIAN TECHNOLOGIES

Circadian says the US Food and Drug Administration has approved its investigational new drug for a phase I trial of OPT-302 for wet age-related macular degeneration.

Circadian chief executive officer Dr Megan Baldwin said the FDA acceptance of the application through the company's wholly-owned subsidiary Opthea Pty Ltd was "a major milestone".

"It is the result of a detailed review by the FDA of our non-clinical data package including preclinical safety, toxicology, efficacy testing and manufacturing processes for OPT-302, as well our phase I study design," Dr Baldwin said.

Circadian said that Opthea's first-in-human multi-centre clinical trial was a sequential dose-escalation study of OPT-302 administered to patients with wet age-related macular degeneration on a monthly basis for three months by ocular injection either alone or in combination with ranibizumab, marketed as Lucentis.

The company said the primary endpoint was the safety and tolerability of OPT-302, with secondary endpoints including the pharmaco-kinetic profile and preliminary measures of efficacy as measured by visual acuity, through eye charts, and imaging techniques to determine retinal thickness and wet age-related macular degeneration(wet AMD) lesion area.

University of Southern California clinical professor of ophthalmology and trial investigator Prof David Boyer said that OPT-302 was "a promising novel therapy with potential to improve outcomes for wet AMD patients".

Circadian said that OPT-302 was a soluble receptor or Trap molecule that blocked the activity of the two vascular endothelial growth factor (VEGF) proteins VEGF-C and VEGF-D that caused blood vessels to grow and leak.

The company said that in preclinical models of wet AMD, OPT-302 showed significant activity as a monotherapy and additive activity when used in combination with existing agents that blocked VEGF-A.

"We are aggressively pursuing the development of this molecule following the compelling preclinical activity we have observed," Dr Baldwin said.

"Importantly, OPT-302 shuts down two proteins that are implicated in resistance to existing therapies."

"Our hope is that we can improve vision in patients with wet AMD when it is administered alone, and/or improve outcomes for patients when it is used in combination with existing therapies," Dr Baldwin said.

Circadian said that wet age-related macular degeneration was the leading cause of blindness in the elderly in the Western world and was caused by excessive growth and leakage of blood vessels at the back of the eye that led to a chronic and often rapid loss of vision.

The company said that existing therapies were limited and targeted VEGF-A but not VEGF-C or VEGF-D, and about half of those patients had sub-optimal improvement in their vision following treatment.

Circadian was up one cent or 7.1 percent to 15 cents.

## ATCOR MEDICAL

Atcor has requested a trading halt pending "an announcement to the market in relation to a potential capital raising".

Trading will resume on June 17, 2015 or on an earlier announcement.

Atcor last traded down half a cent or 2.4 percent to 20 cents.

## BIONOMICS

Bionomics says it has filed an Australian patent application for the use of BNC105 in combination with immune checkpoint inhibitors for the treatment of cancer.

Bionomics said the application was based on synergistic effects in pre-clinical models of a combination of BNC105 and antibodies against known immuno-oncology targets.

Bionomics chief executive officer Dr Deborah Rathjen said the company was “very happy to announce the results of these preclinical studies which suggest that BNC105 may be effectively combined with immune-oncology approaches for the treatment of solid tumors".

"We have filed an additional patent application in order to further strengthen the intellectual property surrounding BNC105 and enhance both its development and licencing potential,” Dr Rathjen said. “BNC105 has demonstrated that it can be safely combined across a number of treatment modalities and solid tumour types.”

Bionomics said that animals with MC38 colorectal tumors had 40 percent inhibition of tumor growth when treated with BNC105 as a monotherapy and 74 percent inhibition when treated with an antibody targeting the programed cell death 1 protein (PD1), but animals treated with the combination of BNC105 and the anti-PD1 therapy had 97 percent inhibition in tumour growth.

The company said that animals with CT26 colorectal tumours had 27 percent inhibition of tumor growth when treated with BNC105 as a monotherapy and 14 percent inhibition in tumour growth when treated with an antibody targeting cytotoxic T-lymphocyte-associated protein 4 (CTLA4), but animals treated with the combination of BNC105 and the anti-CTLA4 therapy had 70 percent inhibition in tumor growth.

Bionomics said it intended to present the data in November, 2015.

Bionomics was up half a cent or 1.1 percent to 47 cents.

## CELLMID

Cellmid says its anti-midkine therapeutic molecule toxicology studies showed no mortalities, dose-limiting toxicities or organ damage in any animal at any dose.

Cellmid said that a US contract research organization conducted two studies using its humanized lead anti-midkine antibody CAB102 in rats and cynomolgus macaques.

The company said that the endogenous midkine of both species had identical CAB102-binding properties as human midkine and the doses of CAB102 given to these species should recognize and interact with any midkine in a way that was analogous to humans.

Cellmid said that single doses of CAB102 were intravenously infused at 10mg/kg, 50mg/kg or 100mg/kg and the animals were monitored for 14 days for clinical observations, morbidities, weight changes, clinical chemistries and blood cell counts.

The company said that all major organs were examined for gross abnormalities and histological specimens were collected for further investigation in case of any irregularities.

Cellmid said that CAB102 was well-tolerated at all dose levels, with the only notable observation a slight and transient decrease in red blood cells and increases in bilirubin in the cynomolgus macaques, with no such effect in the rats.

The company said that necropsies confirmed no CAB102-induced abnormalities or changes to organs of the treated animals and at the 100 mg/kg, dose, which was up to 10 times higher than the expected maximum human dose, there were no adverse effects.

Cellmid head of product development Darren Jones said that the “lack of dose limiting toxicities in these studies is heartening for our CAB102 clinical plans”.

“These studies are the first ever to formally show that a well-designed [midkine] specific molecule has no deleterious side effects,” Mr Jones said.

Cellmid was up 0.3 cents or 13.0 percent to 2.6 cents with 6.7 million shares traded.

## RHINOMED

Rhinomed says it has approval from Monash Health for its inaugural 20-patient phase I sleep apnoea trial of its intranasal positive expiratory airway pressure (Inpeap) product.
Rhinomed said that the Inpeap was being developed as a potential therapy for the $US13 billion dollar obstructive sleep apnoea market.
The company said that 80 percent of obstructive sleep apnoea patients were undiagnosed, partly due to attitudes towards invasive existing therapies, including continuous positive airways pressure (CPAP) and mandibular splint devices, with compliance rates for CPAP below 40 percent.
Rhinomed chief executive officer Michael Johnson said the trial approval was “a pivotal moment for Rhinomed”.
“The work carried out establishing the Turbine in sport and exercise and Mute in the [over-the-counter] snoring space continues to socialise people with the idea of using a nasal stent,” Mr Johnson said. “The Inpeap technology leverages this acceptance of a nasal solution and seeks to address the appalling compliance rates that currently exist.”
Rhinomed said the trial at Melbourne’s Monash Lung and Sleep Department would have an in-clinic study and a 14-day at-home trial to demonstrate that Inpeap was well tolerated by patients over a 14-day period, with results by the end of the year.
Rhinomed fell 0.2 cents or five percent to 3.8 cents with 3.3 million shares traded.

## POLYNOVO

Polynovo says that Melbourne’s Alfred Hospital has ethics approval to enrol patients in the multicentre Conformité Européenne (CE) mark directed Novosorb burns trial.
Last month, Polynovo said it expected to recruit 20 patients in the trial of the Novosorb biodegradable temporizing matrix( BTM) which had French regulatory and the Toulon Hospital ethics approvals (BD: May 8, 2015).
The company said that the primary objective was to evaluate the safety and performance of Novosorb for the treatment of deep burns involving 20 to 50 percent of patients total body surface area and the primary performance endpoint would be the “BTM take assessed by a histological analysis of the samples obtained by a centrally-located 4mm punch biopsy, at 28 days plus or minus two days after BTM placement”.
Polynovo said that the primary safety endpoint was the incidence of invasive infection at BTM-treated lesions, as well as a raft of specified secondary performance endpoints.
Today, Polynovo said that the funding of the trial was being assessed and it had applied for funding from the Victorian Government.
Polynovo fell 0.1 cents or 1.2 percent to eight cents with 1.8 million shares traded.

## OPTISCAN

Optiscan says it hopes to raise $1.19 million through a $500,000 loan and a fully underwritten one-for-15 rights issue at five cents a share to raise $690,074.
Optiscan said that the $500,000 debt facility was closed on June 12, 2015 and matured on November 30, 2015, with a 15 percent coupon, payable on maturity and secured against its 2015 Federal Government R&D Tax Incentive claim expected to be about $700,000.
The company said that the non-renounceable rights issue would open on June 22 and close on July 6, 2015.
Optiscan said that the funding came “at a true transitional point … as it nears the launch of its first imaging systems using Optiscan’s latest second generation technology platform”.
Optiscan fell 0.3 cents or 5.8 percent to 4.9 cents.

## PHARMAXIS

Australian Ethical Smaller Companies Trust has reduced its substantial shareholding in Pharmaxis from 19,207,764 shares (6.16%) to 14,007,764 shares (4.45%).
Australian Ethical's substantial shareholder notice said that on April 21 and June 10, 2015 it sold 5,200,000 shares for $1,240,260 or 23.85 cents a share.
Australian Ethical last increased its holding in Pharmaxis in 2013 when it acquired 3,491,976 shares for $473,326 or 13.55 cents a share (BD: Oct 23, 2013).
Pharmaxis fell half a cent or 2.1 percent to 23 cents with 1.1 million shares traded.

## GENETIC TECHNOLOGIES

Genetic Technologies says it has appointed Brian Manuel as its chief financial officer, effective from today June 15, 2015.
Genetic Technologies said that Mr Manuel was a chartered accountant and a fellow of the Governance Institute of Australia, with more than 25 years of experience, and was the Cellestis chief financial officer and company secretary until its acquisition in 2011.
The company said that Mr Manuel had expertize in finance, information technology and corporate governance.
Genetic Technologies fell 0.2 cents or 5.6 percent to 3.4 cents.