



# Biotech Daily

Wednesday January 23, 2019

*Daily news on ASX-listed biotechnology companies*

- \* **ASX DOWN, BIOTECH UP: PARADIGM UP 11%; PRANA DOWN 5%**
- \* **CARTHERICS, TOOLGEN GENE-EDIT STEM CELLS FOR CANCER**
- \* **CELLMID: 'DECEMBER PROFIT; CASH FLOW POSITIVE IN 2020'**
- \* **INVITROCUE, SHANGHAI INST DEVELOP BREAST CANCER ONCO-PDO**
- \* **NZ ALLOWS ELIXINOL MEDICAL MARIJUANA; 'AUSTRALIA LAGS'**
- \* **MMJ SHARE PLAN FOR \$10m, EGM**
- \* **LEO LEE REPLACES REGENEUS CEO JOHN MARTIN**
- \* **ANATARA APPOINTS DR DAVID BROOKES DIRECTOR**

## MARKET REPORT

The Australian stock market fell 0.26 percent on Wednesday January 23, 2019, with the ASX200 down 15.1 points to 5,843.7 points.

Fifteen of the Biotech Daily Top 40 stocks were up, nine fell, 13 traded unchanged and three were untraded.

Paradigm was the best, up 11.5 cents or 10.9 percent to \$1.17, with 194,509 shares traded. All three Big Caps were up.

Osprey climbed 9.1 percent; Genetic Signatures was up 8.3 percent; LBT improved 4.9 percent; Cynata and Nanosonics were up more than three percent; Antisense, Optiscan, Proteomics and Universal Biosensors rose more than two percent; Clinuvel, Cochlear, Mesoblast and Resmed climbed one percent or more; with CSL, Ellex, Neuren and Telix up by less than one percent.

Prana led the falls, down 0.2 cents or 5.4 percent to 3.5 cents with 205,000 shares traded.

Imugene and Opthea fell five percent or more; Airxlanders and Immutep lost more than three percent; Actinogen and Volpara shed more than one percent; with Pro Medicus and Starpharma down by less than one percent.

## CARTHERICS PTY LTD

Melbourne's Cartherics says it will combine its immunology and stem cell science with the Seoul-based Toolgen's gene-editing technology to enhance immunotherapies for cancer. Cartherics said that current cancer cell therapies were developed for individual patients at a high cost in time and money and were restricted to certain cancer types.

The company said the collaboration aimed "to overcome these disadvantages by accelerating Cartherics' goal of developing accessible off-the-shelf, effective, immune cell therapies for aggressive diseases such as relapsed ovarian and bowel cancers".

Cartherics chief executive officer Prof Alan Trounson said the collaboration would "enable precision gene-editing of our stem cells to increase their ability to track to and destroy targeted tumors".

"The collaboration will merge ... gene, stem cell and [chimeric antigen receptor T] cell technologies in the two companies for advanced cancer therapies," Prof Trounson said.

Toolgen chief executive officer Prof Jongmoon Kim said the collaboration "indicates wide applicability of our gene editing technology to various cell types including immune and pluripotent stem cells".

Cartherics said that in healthy individuals, T-cell immune system cells identified and killed infected or abnormal cells, including cancer cells and immunotherapy harnessed the immune system to target and kill the invader cells.

The company said the collaboration would focus on enhancing the cancer-killing ability of chimeric antigen receptor T-Cells (CAR-T cells), which were engineered molecules that recognized cancer cells and activated killer T-cells.

Cartherics said its CAR-T cells would target one or more tumor targets, derived from either patient T-cells or from induced pluripotent stem cells, while Toolgen's technology would edit the genetic material in the CAR-T cells, based on clustered regularly interspaced short palindromic repeats-associated protein 9 (CRISPR/Cas9).

The company said that Toolgen had intellectual property on the inhibitory effect of the molecule diacylglycerol kinase (DKG) on T-cell function as well as CRISPR/Cas9.

Cartherics chief scientific officer Prof Richard Boyd told Biotech Daily the project would apply the gene editing of T-cells and induced pluripotent stem cells to optimize the function of CAR-T cells for use in cancer trials.

Prof Boyd said that in-vitro and in-vivo research would investigate whether CAR-T cells engineered to be DKG deficient triggered a stronger immune response than CAR-T cells containing the gene, with the aim of the first human clinical trial in 2021.

Cartherics is a private company.

## CELLMID

Cellmid has reported receipts from customers for the six months to December 31, 2018 up 27.0 percent to \$3,089,000.

Cellmid chief executive officer Maria Halasz told Biotech Daily that December was the first time the entire Cellmid group had been profitable for one month from sales revenue.

Ms Halasz said the company expected to be profitable by June 30, 2020.

Ms Halasz said the company previously had higher revenues from one-off licencing deals, but the increased sales of its Évolis hair growth products was the driver for revenue with ongoing smaller revenues from licences relating to its midkine antibody programs.

Cellmid said it had paid its Platinum Road loan facility and had \$5,412,000 in cash at December 31, 2018 with a projected cash burn of \$2,000,000 for the three months to March 31, 2019.

Cellmid was unchanged at 27.5 cents.

## INVITROCUE

Invitrocue says it will work with the Shanghai Institute of Biochemistry and Cell Biology to develop breast cancer models for its cancer patient-derived organoid technology.

Invitrocue said the Shanghai Institute would undertake the laboratory culture and development of new breast cancer models for its personalized Onco-PDO test.

The company said that Prof Ariel Zeng would help develop and optimize the protocols for the in-vitro culture, propagation and expansion of patient-derived organoids from breast cancer patients with multiple breast cancer subtypes.

Invitrocue said that intellectual property developed under the agreement would be jointly owned by both parties and Invitrocue would have commercialization rights to any intellectual property developed under the agreement.

Invitrocue executive chairman Dr Steven Fang said his company already offered breast cancer testing with Onco-PDO but the collaboration “was an important advancement of our technology to expand into multiple subtypes of the world’s leading cancer for women”. Invitrocue was unchanged at 8.3 cents.

## ELIXINOL GLOBAL

Elixinol says its first medical marijuana products are available on prescription in New Zealand.

Elixinol said that New Zealand legislation passed last year classified cannabidiol with low levels of tetrahydrocannabidiol as a prescription medicine.

The company said patients could import up to a three-month supply of cannabidiol (CBD) products, provided it met prescription medicine guidelines and patients could enter or leave New Zealand with up to three months’ supply of cannabidiol.

Elixinol chief executive officer Paul Benhaim said the change “enables Elixinol to ship CBD to patients who have been requesting it for years”.

“The doctor can prescribe it for anxiety, sleep, pain or anything the doctor believes I appropriate,” Mr Benhaim told Biotech Daily. “Patients go to the website, place the order and send the script to our US manufacturer in Broomfield, Colorado, which will ship the product and the prescription back to the customer in New Zealand within one week of posting the prescription”.

“I would love to see Australia copy the New Zealand system, allowing supply from Australia, and stick to the words of Health Minister Greg Hunt who promised that Australia would be one of the world’s largest cannabis producers,” Mr Benhaim said.

Elixinol was up 24 cents or 8.7 percent to \$3.00 with 760,212 shares traded.

## MMJ GROUP

MMJ says it hopes to raise a minimum of \$10 million in a share purchase plan for shareholders at the record date of January 22, 2019.

The company said the share price would not be less than 80 percent of the 5-day volume weighted average price when the prospectus was lodged.

MMJ said it would hold extraordinary general meeting to approve the share plan, which would be launched immediately following the meeting.

The company said the meeting would vote to approve the share plan, director participation in the plan, elect director Michael Curtis and issue Mr Curtis 1,000,000 options, vesting in four equal six monthly installments over two years and exercisable at 135 percent of the 5-day volume weighted average price to the date of issue and within three years.

MMJ fell one cent or 3.85 percent to 25 cents.

## REGENEUS

Regeneus says Leo Lee has been appointed as chief executive officer, replacing John Martin, effective immediately.

Regeneus said Mr Martin had been chief executive officer for 10 years and would continue as a non-executive director.

The company said Mr Lee was formerly the head of Merck Japan and Allergan Japan, as well as having held executive roles for Merck & Co, Iqvia and Accelrys.

Regeneus said Mr Lee held a Bachelor of Science from the University of California in Los Angeles.

Regeneus was up one cent or 6.1 percent to 17.5 cents.

## ANATARA LIFESCIENCES

Anatara says it has appointed Dr David Brookes as a non-executive director effective from January 23, 2019.

Anatara said Dr Brookes had experience in health and biotechnology and was previously the chairman of Reproductive Health Science Limited, acquired by Perkinelmer Inc last year (BD: May 30, 2018).

The company said Dr Brookes was previously a director at Living Cell Technologies and Atcor Medical Holdings, now Cardiex and was currently the chairman of Better Medical Group.

Anatara said that Dr Brookes held a Bachelor of Medicine and Bachelor of Surgery from the University of Adelaide.

Anatara was up three cents or 7.1 percent to 45 cents.