NOVOGEN

THE FUTURE OF CANCER THERAPY

ASX:NRT
NASDAQ:NVGN

Novogen Ltd
(Company)

ABN 37 063 259 754

Capital Structure

Ordinary Shares on issue:

281 M

Board of Directors

Dr Graham Kelly
Chairman &
Executive Director

Steve Coffey
Non Executive Director

John O'Connor
Non Executive Director

Prof Peter Gunning
Non Executive Director

ASX RELEASE
21 April 2015

CANTRIXIL HIGHLY SUCCESSFUL IN PREVENTING GROWTH OF CHEMO-RESISTANT OVARIAN CANCER

- Animal model highly representative of late-stage ovarian cancer in women
- Model proven resistant to all previous experimental and standard therapies
- Cantrixil providing potent anti-cancer effect.

Philadephia PA (Monday Apr 20, 2015). US-Australian drug discovery company, Novogen Ltd, (ASX:NRT; NASDAQ:NVGN), its subsidiary, CanTx, Inc, and Yale University today disclosed key pre-clinical data on experimental anti-cancer drug, Cantrixil, justifying the optimism in the ability of this drug candidate to significantly improve the survival outlook for patients with ovarian cancer. The data was presented by Professor Gil Mor of Yale Medical School to the American Association for Cancer Research (AACR) Annual Meeting.

Development of chemo-resistance is a major hurdle in the management of patients with ovarian cancer and this phenomenon is responsible for the high mortality associated with this disease. Growing evidence suggests that chemo-resistance is due to the presence in the tumor of a population of cancer cells with stem cell-like properties that are inherently drug-resistant, surviving radiotherapy and chemotherapy to produce a recurrent cancer re-populated with a new generation of chemo-resistant cancer cells.

There is an urgent need to develop treatments that will kill this population of stem cell-like cancer cells before they have a chance to establish a high degree of chemo-resistance. That is the rationale behind the development of Cantrixil, and the current data suggests that Cantrixil has the potential to be such a breakthrough treatment.

Researchers at the Yale Medical School have established clinically relevant in vitro and in vivo models of chemo-resistant ovarian cancer, providing a tool that drug developers increasingly are accessing to screen prospective drugs against. This is a highly stringent screen that Yale believes provides a rapid go/no-go decision point for lead drug-candidates. To date, no drug candidate has provided a meaningful or durable anti-cancer effect in this model. In this highly aggressive model, intra-peritoneal Cantrixil treatment effectively prevented tumor recurrence by 95%.

In vitro studies have been reported previously. TRXE-002 initially was identified as having potent activity against epithelial ovarian cancer (EOC) stem cells, inducing cell death (apoptosis) in a library of patient-derived EOC stem cells (IC50 of 130 - 250 nM).

To replicate recurrent ovarian cancer in vivo, Yale researchers inject human ovarian cancer stem cells directly into the peritoneal cavity of mice where they develop into a highly aggressive cancer that spreads throughout the abdominal cavity. The appearance and behavior of the cancer mirrors human ovarian cancer primary disease. Once established, the mouse then is treated with the chemotherapy drug, paclitaxel, the standard first-line treatment for ovarian cancer. Following an initial partial response, the tumor quickly regains rapid growth despite ongoing paclitaxel therapy. This produces a late-stage cancer condition (secondary or recurrent disease) that replicates the situation that Cantrixil will encounter initially in the clinic.

In the model of primary disease, Cantrixil administered intraperitoneally as a monotherapy inhibited tumor growth in a dose-dependent manner, significantly reducing terminal tumor burden by >90% (dosage 100 mg/kg; $p<0.01$) over 17-days of treatment. The treatment was well tolerated with no evidence of bone marrow toxicity or local abdominal toxicity.

More importantly, Cantrixil performed equally well in the far more stringent model of recurrent disease. In this model, following an initial 12-day treatment period with paclitaxel, tumors failed to recur (<95% terminal tumor burden) in those animals switched to daily treatment with intra-peritoneal Cantrixil, compared to animals that remained on treatment with paclitaxel.

Lead Investigator, Gil Mor MD PhD, said, “This animal data shows that it is possible with a drug that targets the chemo-resistant ovarian cancer stem cells to prevent recurrence. Taken together, the data from both the primary and recurrent disease models demonstrate that not only is Cantrixil effective as a first-line monotherapy in a clinically relevant model of ovarian cancer, but more importantly it also prevents tumor recurrence, again in a highly relevant model of drug-resistant and recurrent ovarian cancer,” Mor added.

David Brown PhD, Novogen Group Chief Scientific Officer, said, “Gil Mor’s team have shown that cell death from TRXE-002 is associated with the activation of the pro-death JNK pathway, concurrent with down-regulation of the MAPK pro-survival pathway through prevention of p-ERK signaling. As a molecular biologist, this is a particularly exciting discovery because this novel dual effect on cell-death and cell-survival pathways is believed to explain why TRXE-002 is such an efficient killer of both ovarian cancer cells and the highly chemo-resistant ovarian cancer stem cells, and opens up the opportunity for an entirely new class of chemotherapy.”

Graham Kelly, Novogen Group Chief Executive Officer, said, “It is easy to downplay the importance of pre-clinical data. But the significance of this data needs to be seen in the perspective of the high failure rate of anti-cancer drugs that enter the clinic. For every 50 experimental anti-cancer drugs that enter the clinic, only 1 or 2 ever make it to market. There are a multitude of reasons for this appallingly high attrition rate, but one of the main ones is the lack of relevance of the animal model that was used to justify bringing it into patients in the first place.”

“The animal models developed by Yale bring an entirely new level of stringency to the quest for finding an effective treatment for both primary and recurrent ovarian cancer. The performance of Cantrixil in a model that arguably is the most representative of human ovarian cancer yet developed gives us reason to be confident about the potential of this agent as a new form of chemotherapy for this significant unmet clinical need.”

About Ovarian Cancer

Approximately 1 in 70 women will develop ovarian cancer in their lifetime. In the US this equates each year to approximately 22,000 new cases diagnosed and 15,000 deaths from ovarian cancer; the figures for Europe

are 66,000 and 41,000 respectively. There are different forms of ovarian cancer with epithelial ovarian cancer accounting for 90% of cases.

Approximately 15% of women present with disease localized to the ovaries and with successful surgery the 5-year survival rate is >90%.

For women with more advanced disease at the time of diagnosis, the 5-year survival rate is <30%.

Approximately 85% of advanced cases respond to first-line therapy (typically paclitaxel and carboplatin), but 80% of these will relapse within several years.

About Cantrixil

Cantrixil is a cyclodextrin envelope containing the active ingredient, TRXE-002. The construct has been designed as an intra-cavity chemotherapy to be injected directly into the peritoneal and pleural cavities without causing local irritation or toxicity. Its purpose is to achieve high drug levels in the environment in which the cancer is spreading through the migration of the cancer stem cells are spreading. The ultimate primary indication of Cantrixil to be sought is first-line therapy of early-stage cancers of the abdominal cavity (e.g. ovarian, uterine, colo-rectal and gastric carcinomas). Cantrixil will enter the clinic in later-stage cancers where the abdominal carcinomatosis has resulted in the terminal condition of malignant ascites.

Cantrixil is owned by CanTx, Inc.

About TRXE-002

TRXE-002 is a small molecule cytotoxic belonging to a family of compounds whose anti-cancer function is based on various biological effects including inhibition of trans-membrane electron-transfer mechanisms. TRXE-002 is pan anti-cancer acting, resulting in caspase-dependent apoptosis of both stem cell-like cancer cells and their daughter cancer cells. The compound has a high therapeutic index with little cytotoxic effect on non-tumor cells.

About CanTx, Inc

CanTx is a joint venture company between Novogen and Yale University. Novogen has licensed the drug candidate, TRXE-002, to CanTx for use in Cantrixil. CanTx is based in New Haven, CT.

About Novogen Limited

Novogen is a public, Australian-US drug-development company whose shares trade on both the Australian Securities Exchange (‘NRT’) and NASDAQ (‘NVGN’). The Novogen group includes US-based, CanTx Inc, a joint venture company with Yale University.

Novogen has two main drug technology platforms: super-benzopyrans (SBPs) and anti-tropomyosins (ATMs). SBP compounds have been designed to kill the full heterogeneity of cells within a tumor, but with particular activity against the cancer stem (tumor-initiating) cell.

The ATM compounds target the micro-filament component of the cancer cell’s cytoskeleton and have been designed to combine with anti-microtubule drugs (taxanes, vinca alkaloids) to produce comprehensive and fatal destruction of the cancer cell cytoskeleton.

The Company pipeline comprises two SBP drug candidates (TRXE-002, TRXE-009) and one ATM drug candidate (*Anisina*).

Further information is available on our website www.novogen.com

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Forward Looking Statement

This press release contains "forward-looking statements" within the meaning of section 27A of the Securities Act of 1933 and section 21E of the Securities Exchange Act of 1934. The Company has tried to identify such forward-looking statements by use of such words as "expects," "appear," "intends," "hopes," "anticipates," "believes," "could," "should," "would," "may," "target," "evidences" and "estimates," and other similar expressions, but these words are not the exclusive means of identifying such statements. Such statements include, but are not limited to any statements relating to the Company's drug development program, including, but not limited to the initiation, progress and outcomes of clinical trials of the Company's drug development program, including, but not limited to, Cantrixil and TRXE-002, and any other statements that are not historical facts. Such statements involve risks and uncertainties, including, but not limited to, those risks and uncertainties relating to the difficulties or delays in financing, development, testing, regulatory approval, production and marketing of the Company's drug components, including, but not limited to Cantrixil and TRXE-002, the ability of the Company to procure additional future sources of financing, unexpected adverse side effects or inadequate therapeutic efficacy of the Company's drug compounds, including, but not limited to, Cantrixil and TRXE-002, that could slow or prevent products coming to market, the uncertainty of patent protection for the Company's intellectual property or trade secrets, including, but not limited to, the intellectual property relating to Cantrixil and TRXE-002, and other risks detailed from time to time in the filings the Company makes with Securities and Exchange Commission including its annual reports on Form 20-F and its reports on Form 6-K. Such statements are based on management's current expectations, but actual results may differ materially due to various factions including those risks and uncertainties mentioned or referred to in this press release. Accordingly, you should not rely on those forward-looking statements as a prediction of actual future results.