NOVOGEN
THE FUTURE OF CANCER THERAPY

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Novogen Ltd
(Company)

ABN 37 063 259 754

Capital Structure

Ordinary Shares on issue:

251 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
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POTENTIAL OF ANISINA TO BECOME MAJOR NEW CHEMOTHERAPY CONFIRMED BY CODA STUDY

Novogen today has announced that one of its oncology pipeline drug candidates, Anisina (ATM-3507), has achieved a major milestone in its development, confirming the concept that comprehensive destruction of a cancer cell's cytoskeleton can deliver a powerful anti-cancer effect.

The cytoskeleton (cell skeletal structure) is a common and validated target for anti-cancer therapy. The most commonly used drugs in chemotherapy target the cytoskeleton by destabilising one of its two key components, the microtubules. These drugs are known as 'anti-mitotics' and include the taxanes (paclitaxel, docetaxel) and the vinca alkaloids (vincristine, vinblastine). Collectively, these anti-mitotics have dominated chemotherapy for the past 30 years and look set to do so for many years to come.

The rationale behind the development of Anisina was that the anti-mitotic drugs only do half the job, because they leave the other major component of the cytoskeleton, the microfilaments, intact. It was reasoned that this half-complete destruction of the cytoskeleton by the anti-mitotic drugs accounted for their low rate of patient response for many tumor types and for the generally short-term response to therapy. Anisina was developed specifically to destroy the microfilaments and to work in combination with the anti-mitotic drugs to deliver comprehensive destruction of the cancer cell's architecture.

Anisina targets a specific protein known as tropomyosin Tpm3.1 (previously known as Tm5NM1). Tpm3.1 is a protein that provides structural integrity to the microfilaments of a cell. It is present in both normal cells and cancer cells, the difference being that cancer cells have an increased reliance on this form of tropomyosin to survive.

It has been announced previously that anti-tropomyosin drugs in combination with anti-mitotic drugs boost the cancer-killing ability of a drug such as vincristine 20-fold *in vitro* against neuroblastoma cancer cells.

The next crucial step was to confirm that this powerful combined anti-cancer effect was transferable to animals. The study reported today confirms this.

This proof of concept study was done as part of the Children's Oncology Drug Alliance (CODA) involving Australian charity, The Kids' Cancer Project (Sydney), The

University of New South Wales (Sydney), The Nationwide Children's Hospital (Columbus, Ohio), and Novogen. The studies were conducted using cancer cells
derived from children who had developed neuroblastoma.
The full details of these studies will be presented at the Eighth Annual Cancer Molecular Therapeutics Research Association (CMTRA) meeting in the USA in July of this year.

Justine Stehn PhD, Novogen Anti-Tropomyosin Program Director, said, "This was the crucial step we needed to bring Anisina into the clinic. We now are proceeding to bring Anisina into the clinic in 2016 into both adults and children. In adults we will be looking to use Anisina to potentiate the anti-cancer effect of anti-mitotics in cancers such as prostate, ovarian, lung, breast, colorectal and haematological cancers, as well as in cancers such as melanoma where anti-mitotics currently show little benefit."

"But what particularly excites us from a CODA perspective is the promise that this technology holds in being able to achieve a potent anti-cancer effect in children where anti-mitotics currently are widely used, but being able to use lower dosages of anti-mitotics that hopefully will lower the risk of leaving children with side-effects with life-long consequences."

Graham Kelly PhD, Novogen CEO and Executive Chairman said, "From the outset, the anti-tropomyosin technology platform has held the promise of delivering a major new chemotherapy, one that we saw becoming a standard companion drug to the most commonly-used drugs in chemotherapy. Today's announcement just serves to reinforce that promise."

"The promise of Anisina is that it is not a drug limited to working in a proportion of patients with a particular form of cancer, or one that is reliant on the over-expression of certain functions such as immune checkpoints or pro-survival mechanisms. Its promise lies in its ability to make the most widely-used chemotherapy drugs work better and safer in more forms of cancer and in more patients. Our objective is to see Anisina become one of the most widely used drugs in chemotherapy."

About Anti-mitotic drugs

Anti-mitotic drugs are drugs that block cell division (mitosis). This a shorthand term to describe a family of drugs that embraces mainly the *taxanes* (paclitaxel, docetaxel, Abraxane) and *vinca alkaloids* (vincristine, vinblastine, Vineralbine) and which work by blocking the ability of cells to divide (mitosis). These remain among the most widely prescribed anti-cancer drugs after 35 years of use. Anti-mitotic drugs are standard of care for breast, prostate, lung, ovarian, colo-rectal, gastric and head and neck cancer, and many forms of leukaemia.

About the cytoskeleton

The cytoskeleton provides the architecture of a cell. It is a protein structure that gives a cell its shape, ability to move and to divide and to store and move internal structures. It has two main components: the microtubules and the microfilaments. The key component of microtubules is the protein, tubulin, which is the target of the anti-mitotic drugs, and whose destabilisation leads to prevention of cell division (mitosis). The key components of the microfilaments are the proteins, actin and tropomyosin.

About Tpm3.1

Tpm3.1 is a tropomyosin protein. Tropomyosins provide a rigid external scaffold to microfilaments that have a central actin core. Without this rigidity, the microfilaments are inactive. There are over 40 different forms

(isoforms) of tropomyosin of which Tpm3.1 is one. Tpm3.1 is present in all cells; normal cells are able to survive and function without Tpm3.1; cancer cells are highly dependent on the presence of Tpm3.1 for their survival and function.

About Anisina

Anisina is a small molecule specifically designed to block the ability of Tpm3.1 to dimerize. By fitting into the C-terminus of the proximal Tpm3.1, it prevents dimerization of the N-terminus of the distal tropomyosin protein. Interruption of dimerization leads to the inability of the microfilaments in cancer cells to remain stable, resulting in their collapse.

About CODA

CODA's mission is to accelerate development of innovative new therapeutic approaches to the treatment of childhood cancers and to take account of the fact that childhood cancers are different to adult cancers and that the lifelong consequences of cancer drug side-effects can be far more devastating in a child than in an adult.

CODA unites the research and resources of five organisations in Australia and the US.

The Australian members are:

- The charity, **The Kids' Cancer Project**
- The originator of the anti-tropomyosin technology, the **University of New South Wales** and its commercial arm, **NewSouth Innovations**
- Biotechnology company, **Novogen Limited**

The US member is:

- **Nationwide Children's Hospital**, Columbus, Ohio

Novogen is providing access to both its anti-tropomyosin and super-benzopyran drug technologies. Anisina is being evaluated for its ability to complement the action of standard chemotherapies in childhood cancers. TRXE-009 is being evaluated for its ability to treat brain cancers in children.

Further information on CODA is available at www.childrensoncologydrugalliance.org

About Novogen Limited

Novogen is a public, drug-development company whose shares trade on both the Australian Securities Exchange ('NRT') and NASDAQ ('NVGN'). The Novogen Group includes a New Haven CT – based joint venture company, CanTx Inc., with Yale University.

Novogen has two Novogen has two main drug technology platforms: super-benzopyrans (SBPs) and anti-tropomyosins (ATMs). SBP compounds have been created to kill the full range of cells within a tumor, but particularly the cancer stem cells. The ATM compounds target the microfilament component of the cancer cell and when used in conjunction with standard anti-microtubule drugs, result in comprehensive and fatal destruction of the cancer cell's cytoskeleton. Ovarian cancer, colorectal cancer, malignant ascites, prostate cancer, neural cancers (glioblastoma, neuroblastoma in children) and melanoma are the key clinical indications being pursued, with the ultimate objective of employing both technologies as a unified approach to first-line therapy.

Further information is available on our websites 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, Anisina, 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 Anisina, 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, Anisina, 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 Anisina, 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.