

ASX:NRT

NASDAQ:NVGN

Novogen Ltd  
(Company)

ABN 37 063 259 754

---

### Capital Structure

Ordinary Shares on  
issue:

185 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 November 2014

### NOVOGEN ANNOUNCES IDENTIFICATION OF LEAD ATM DRUG CANDIDATE

Novogen today announced that it has identified its lead anti-tropomyosin (ATM) drug candidate. This follows the announcement on 12 November at the 2014 Annual General Meeting that the Company had refined its search to 5 candidate compounds with the final selection imminent. The final selection was confirmed yesterday with the Company confident that it has developed a major new initiative in the field of chemotherapy.

The main clinical application of ATM-3507 is believed to lie in its ability to significantly boost the anti-cancer activity of certain existing chemotherapies and to do so in a safer way.

Those existing chemotherapies come from two classes of drugs known as taxanes and vinca alkaloids. Together these drugs are among the most widely prescribed drugs in oncology, serving as first-line therapies for cancers such as breast, prostate, ovary, lung, head and neck and a range of hematological cancers.

The taxanes and the vinca alkaloids target the skeletal structure of the cancer cells, known as the cytoskeleton. This cytoskeleton is vital to a cell's ability to divide and to survive and it has two main components – the microtubules and the microfilaments. The taxanes and the vinca alkaloids target the microtubules, in so doing blocking the cancer cell's ability to divide and ultimately to survive.

Dr Justine Stehn, Novogen ATM Program Director, explained, "The microtubule inhibitors have been the backbone of chemotherapy for the past 40 years, but they come with three main problems. One is that they are toxic because their inhibitory effect is not limited to cancer cells. Another is that cancer cells rapidly develop resistance to these drugs. A third is that many forms of cancer show no response to these drugs."

"The strategy we adopted 8 years ago was to find a way of knocking out the other main component of the cancer cell's cytoskeleton, the microfilaments. The reasoning was that by comprehensively knocking out both parts of the cytoskeleton, that the anti-cancer effect would be considerably enhanced."

"We are delighted to see that this is the case. ATM-3507 significantly increases the sensitivity of cancer cells to the microtubule inhibitors, resulting in much enhanced cancer cell killing with significantly lower amounts of drugs, an important step-forward in potentially reducing the toxic side-effects of those commonly-used chemotherapies. Novogen is in the unique position with ATM-3507 of having the potential to improve the effectiveness and safety of these very common standard-of-care drugs," Stehn added.

ATM-3507 was designed by a team of Novogen chemists led by Dr Andrew Heaton, Novogen Vice-President of Drug Discovery and Manufacture. ATM-3507 targets the terminal end of the Tm5NM1 tropomyosin isoform, a form of tropomyosin that is prevalent in cancer cell's microfilaments. In the laboratory, ATM-3507 has proved to be highly effective in disabling the microfilaments of cancer cells, resulting in their death. This has been observed across a broad range of cancer types, although the focus has been on prostate cancer and melanoma and the main solid cancer of children, neuroblastoma.

Novogen now is looking to bring ATM-3507 into the clinic in combination with taxanes or vinca alkaloids in the treatment of prostate cancer, melanoma and neuroblastoma with a target of being in a first-in-man study by early-2016. The studies preparing ATM-3507 for entry into the clinic are ongoing in Australian and US hospitals and universities. The development of ATM-3507 comes under the broad umbrella of The Children's Oncology Drug Alliance (CODA) involving The Kids' Cancer Project (Sydney), The University of New South Wales (Sydney), The Nationwide Children's Hospital (Columbus, Ohio), and Novogen. Novogen owns all intellectual property in relation to ATM-3507.

Professor Peter Gunning, Non-Executive Director of Novogen, and inventor of the ATM drug technology, said, "The original impetus for the ATM drug technology was the need to find more effective and safer therapies for pediatric cancers. Walking through the cancer ward in a children's hospital is a powerful incentive to improve the health of children with cancer. To finally have the drug that we are confident of taking into the clinic brings this dream within sight."

ATM-3507 has been given the name *Anisina*, Turkish word for 'in memory of', in memory of the children whose deaths were the stimulus that led to the development of this technology.

## About Novogen Limited

Novogen is a public, Australian 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 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-microtubular 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](http://www.novogen.com)

For more information please contact:

### Corporate Contact

Dr. Graham Kelly  
Executive Chairman & CEO Novogen Group  
[Graham.Kelly@novogen.com](mailto:Graham.Kelly@novogen.com)  
+61 (0) 2 9472 4100

### Media Enquiries

Cristyn Humphreys  
Operations Manager Novogen Group  
[Cristyn.Humphreys@novogen.com](mailto:Cristyn.Humphreys@novogen.com)  
+61 (0) 2 9472 4111

