ASX code	NRT
Share price (5/7/13)	18.5 cents
52-Week range	6-48 cents
Market capitalisation	~$26m
Shares outstanding	~140.5m
Cash	~A$2m

COMPANY SUMMARY

Novogen Limited is the first company globally to have a single drug capable of killing both the dominant differentiated cells in a cancer as well as the undifferentiated cancer stem cells at the same dose. Novogen believes that this is a game-changing development that offers the first realistic prospect of eradicating the source of cancer cells, thereby delivering long-term remission. The Company's inaugural drug candidate CS-6 belongs to a new class of drug candidates known as Mitochondrial Electron Transfer Inhibitors (METIs) that work by depriving the cancer cell of its main energy source. In another technology breakthrough, CS-6 has had its electronic signature altered to substantially increase its ability to bind to its cancer cell target. CS-6 is being developed in the first instance for the treatment of temozolomide-resistant glioblastoma multiforme, the main form of primary brain cancer, and for late-stage chemo-refractory ovarian cancer. The company's shares trade on both the Australian Stock Exchange (NRT) and NASDAQ (NVGN). The Company is based in Sydney, Australia, with an office in New York City, USA.

TRIAXIAL ACQUISITION

Novogen acquired the privately-owned biotechnology company, Triaxial Pharmaceuticals Pty Ltd, in December 2012. Triaxial had been formed by Drs. Heaton, Brown and Kelly, all ex-Novogen employees. The objective of Triaxial had been to extend the earlier Novogen drug technology platform to a level of anti-cancer potency that would exceed anything previously seen. With the purchase, Company management and the Board of Directors were replaced and the Company given an entirely new set of R&D and commercial objectives, as well a fresh approach to investor relations.

INVESTMENT HIGHLIGHTS

- **A world-first technology capable of producing drugs that kill standard cancer cells & cancer stem cells in equal measure**
- **Game-changing opportunity to deliver long-term remission of cancer through the removal of the cancer stem cells as the source of cancer**
- **Aiming for clinical indications of significant unmet clinical need with the opportunity to achieve Breakthrough Therapeutic status with the FDA**
- **Highly experienced executive team in the fields of drug design and manufacture, clinical trial design, and interaction with regulatory bodies**
- **Sufficient capital to fund medium-term R&D programs leading up to clinical studies**
- **Building a unique and highly valued intellectual property portfolio**

CS-6

CS-6 belongs to a new family of drugs known as *super-benzopyrans* that Novogen has developed and which have a number of design features purposely built into them. These include:

- The ability to kill both cancer stem cells and their daughter cells through chemical asphyxiation (METI action)
- Increased electron-donating and electron-accepting potential leading to considerable increase in drug potency
- Control over drug design producing a drug with the ability to cross the blood-brain barrier.

CS-6 is being developed as a treatment of glioblastoma multiforme (GBM), the main form of primary brain cancer, and late-stage chemo-refractory ovarian cancer on the basis of it:

- being highly active in the laboratory against all forms of differentiated cancer cells tested so far, with GBM showing the highest level of sensitivity
- being highly active against ovarian cancer stem cells that are highly resistant to all other known drug.

CS-6 and OVARIAN CANCER

A recent study on CS-6 was conducted at Yale University looking at the ability of CS-6 to kill ovarian cancer stem cells. Cancer stem cells from a wide variety of cancer types have proven to be highly resistant to both radiotherapy and chemotherapy, leading to the general belief that these cells are the primary source of a cancer, the source of its spread, and the source of the ultimate development of chemo-resistance that leads inevitably to patient death. The laboratory of Professor Gil MOR at Yale has achieved world leadership in the field of ovarian cancer stem cells, isolating a number of primary cell cultures of ovarian cancer stem cells, along with their highly chemo-resistant progeny. CS-6 proved highly effective at stopping the growth of both ovarian cancer stem cells as well as their progeny cells, making it the first drug in their hands to do so both at dosages readily achievable in patients and at dosages likely to be safe. That observation now forms the basis of a current program aimed at bringing CS-6 into the clinic in the US for late-stage ovarian cancer in 2014, a disease that approximately 14,000 women will die from this year in the US and which represents an urgent and major unmet clinical need.

CS-6 and BRAIN CANCER

Glioblastoma multiforme (GBM) is the most common and aggressive form of malignant brain cancer with approximately 10,000 cases p.a. in the US. The median survival time is 15 months from diagnosis with treatment and 5 months without treatment. It is poorly sensitive to radiotherapy and chemotherapy and the blood-brain barrier presents a major hurdle to all current chemotherapies. CS-6 is highly active against GBM cancer cells in vitro, plus it also has been designed to cross the blood-brain barrier.

In collaboration with a number of universities and other biotech companies around the world, Novogen is seeking to confirm the ability of CS-6 to kill GBM stem cells, and to determine whether the drug is optimally used pre-, post-, or as adjuvant therapy with temozolomide, the only drug approved for GBM but which only works in about 20% of patients and only then with short-term benefit.

The current pre-clinical program has been designed to bring CS-6 into the clinic in a Phase 1a study in an Australian hospital in 1Q14, and then into a Phase 1b study in patients with GBM in 2Q14.

DRUG DISCOVERY PROGRAM

Novogen is conducting an extensive drug discovery program based on the CS-6 structure. The purpose is to identify a panel of drugs with broad activity across the full spectrum of cancer phenotypes. While it is confidently expected that CS-6 will prove to be highly effective in most cases of cancer, it also is recognized that cancer is a very individual condition and that there almost certainly will be an idiosyncratic response to chemotherapy. Phenotype variations come from factors such as where the cancer originates (e.g. ovary versus pancreas), the histological sub-type (e.g. there are 30 different histological varieties of ovarian cancer), and the variety of cell populations within a single cancer (e.g. differentiated versus stem cancer cells).

In the program to date, Novogen has discovered that minor variations to the CS-6 structure result in significant shifts in the types of cancers being preferably killed. This suggests that the primary target has multiple forms across the cancer landscape.

In this ground-breaking endeavor, Novogen is seeking to identify a panel of super-benzopyran drugs representing a spread of anti-cancer activity across most if not all cancer phenotypes. This represents the basis of the Company's ultimate goal of providing personalized chemotherapy, which is the identification of the optimal chemotherapy regimen on an individual patient basis.

NEAR-TERM DEVELOPMENT MILESTONES

Second-half 2013:	- Complete pre-clinical program
	- File IND with FDA
1Q 2014	- Complete Phase 1a study
2Q 2014	- Commence Phase 1b study in GBM
	- Commence Phase 1b study in late-stage ovarian cancer.

BOARD

Prof Graham Edmund Kelly B.Sc. (Hons), B.VSc (Hons), Ph.D. – Executive director, CEO & Chairman

Founder and previous CEO and chairman of ASX-listed and NASDAQ-listed companies Novogen Ltd and Marshall Edwards Inc. 25 years in cancer research at the Department of Surgery, The University of Sydney, and the German Central Cancer Research Institute, Heidelberg. Graham has overseen the design and implementation of numerous clinical trials.

Dr Andrew Heaton B.SC (Hons) Ph.D. – President & CEO, Novogen North America

Extensive drug discovery background. Designed and executed Novogen drug discovery platform to progress four compounds to clinical trials for which he is the principal inventor on a series of global patents.

Robert Birch – Non-executive director, Deputy Chairman

A Royal Australian Navy officer for 23 years who later established a successful business he has managed for 20 years. A long term Novogen shareholder and founding investor in Triaxial Pharmaceuticals.

John P O'Connor BEc., MAICD – Non-executive director

A veteran in funds management and stockbroking having worked across Australia, the UK and USA. Has held management and partner roles at securities businesses as well as serving on the board of Lonsec Securities.

Steven Coffey CA – Non-executive director

A chartered accountant with extensive public practice experience over the past 30 years including his role as partner at Watkins Coffey Martin since 1993. Registered as a company auditor with experience at various large private companies and not for profits.

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