



ASX Release

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Potency of CS-6 against cancer stem cells confirmed in follow-up study.

Novogen previously (18 February 2013) announced data from a sighting study that showed that the experimental anti-cancer drug, CS-6 was highly cytotoxic in the laboratory against ovarian cancer stem cells (OCSC). That study served as a guide to the merits of conducting more extensive studies.

The follow-up study went on to examine the effect of CS-6 against a range of other OCSC cell lines, including cell lines virtually indestructible by both standard-of-care and experimental anti-cancer drugs. The study also looked at the effect of CS-6 on the differentiated daughter cells of these cancer stem cells, mirroring the situation in patients with ovarian cancer where the cancer responds to chemotherapy initially, but then recurs. Recurrence in that case being the result of the chemo-resistant cancer stem cells in the tumor surviving the chemotherapy to produce a new population of daughter cells with increased resistance to chemotherapy.

Novogen Chief Scientific Officer, Dr Andrew Heaton, today said, "The cancer stem cell lines that were used in this follow-up study are extraordinarily difficult to kill. They are impervious to virtually all drugs. Drug levels required to kill these cells typically have been so high as to be impractical or would be so toxic as to destroy the rest of the body. The behavior of these cells is why late-stage ovarian cancer carries such a poor prognosis."

"CS-6 proved to be highly cytotoxic against all cancer stem cell lines tested. But even more impressive was the sensitivity of the cancer stem cells to CS-6, with both the cancer stem cells and their daughter cells being wiped out at drug levels down to picomolar levels. Just as remarkably, the cytotoxic effects of CS-6 were evident as early as 4 hours."

Novogen CEO, Dr Graham Kelly, added, "These results are a key step in our goal of developing first-in-class drugs offering comprehensive anti-cancer therapy and bringing hope to cancer sufferers world-wide. For many common cancers, cancer stem cells are thought to be the reason why cancers recur after responding initially to treatment. Having the ability to knock out these progenitor cells holds the potential at most of being able to block the growth and establishment of cancers, and at least of being able to prevent or slow down cancer recurrence following anti-cancer therapy."

"As usual, this is one small, but important, step in our goal with many more steps to go before we can declare success, and investors should be aware of the timelines and risks involved," Kelly added.

About Novogen

Novogen Ltd is a public Australian biotechnology company whose shares trade on both the Australian Stock Exchange (symbol 'NRT') and NASDAQ (symbol 'NVGN'). The Company is based in Sydney, Australia and is focused on the development of a family of novel anti-cancer drugs based on comprehensive anti-cancer activity against both cancer cells and cancer stem cells. The Company's inaugural drug candidate is CS-6.

About CS-6

CS-6 belongs to a new family of drugs known as *super-benzopyrans* which Novogen has developed and which have a number of design features purposely built into them, viz. (i) ability to kill both cancer stem cells and their daughter cells, (ii) ability to cross the blood-brain barrier, and (iii) improved bio-availability.

CS-6 is being developed as a treatment of glioblastoma multiforme, the main form of primary brain cancer, and late-stage, chemo-refractory ovarian cancer.

About Cancer Stem Cells

Cancer stem cells (CSC) (or tumour-initiating cells) are believed to be a subpopulation of cells within many types of cancer that are responsible for driving the growth and spread of the cancer. CSC typically are resistant to radiotherapy and chemotherapy and are thought to be responsible for cancer recurrence following therapy. Targeting CSC is a new direction in oncology drug development as a means of preventing cancer recurrence.

Further information

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