

Novogen to develop new class of cancer drugs

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Singapore: Australia-based Novogen has acquired a novel drug technology that will be developed as a potentially major class of cancer drugs known as anti-tropomyosins (anti-Tms), joining the company's growing pipeline of super-benzopyran drugs, including Trilexium and related analogs.

The target of anti-Tm drugs is the protein, Tm5NM1, an integral part of the microfilament component of the cytoskeleton of a cell. Inhibition of Tm5NM1 effectively blocks the ability of a cancer cell to function and to divide.

The cytoskeleton is so-called because it gives a cell its shape and form, but more relevantly serves a wide range of functions that actively contribute to the ability of a cell to survive, to move, and to divide.

Drugs that target the cytoskeleton are highly effective anti-cancer drugs, mainly because they block the ability of the cytoskeleton to prepare the cell for division. After four decades they still remain among the most commonly prescribed chemotherapeutics. These include the taxanes (paclitaxel, docetaxel) and the vinca alkaloids (vincristine, vinblastine). Despite their common use and relative effectiveness, they bear a number of negative features including (a) non-specific activity against the cytoskeleton of non-cancer cells resulting in a range of serious side-effects, (b) limited or no effectiveness against many types of cancer, and (c) the rapid ability of the cancer cell to develop resistance. The taxanes and vinca alkaloids are both off-patent.

The taxanes and vinca alkaloids target that part of the cytoskeleton known as microtubules. There is a second component of the cytoskeleton that, while an obvious anti-cancer drug target, has to date successfully resisted drug development. That component is the microfilament, a series of filaments made up of inter-woven strands of two proteins, actin and tropomyosin. Drugs directed against the microfilaments have been too toxic to consider using because of the key role of microfilaments in muscle contraction, with muscle cells in the diaphragm and the heart being adversely affected.

The private Australian biotechnology company, Genscreen Pty Ltd, has developed extensive intellectual property in the field of drug design targeting the Tm5NM1 protein. Laboratory and animal studies have confirmed the anti-cancer effect and safety

of this drug target. Novogen has acquired the technology from Genscreen in a transaction based on a royalty payment of product sales, with no upfront or milestone fees.

"This anti-tropomyosin drug technology perfectly complements Novogen's super-benzopyran drug technology in our quest to deliver comprehensive anti-cancer drug therapy. Our super-benzopyran family of drugs are highly effective against cancer stem cells, a basic requirement of successful longer term cancer therapy," said Dr Graham Kelly, CEO, Novogen.

"But we still need to eliminate all cancer cells and that is where the potential potency of an anti-tropomyosin drug comes in. Rather than relying on a blend of super-benzopyran drugs and currently available standard therapy to achieve across-the-board eradication of all cancer cells, the anti-Tm drugs now give us the opportunity to own the full complement of effective drugs, Dr. Kelly added"

Mr Ian Dixon, CEO, Genscreen, said that, "we have always seen the anti-Tms as an obvious replacement for taxanes, one of the largest-selling class of anti-cancer drugs that are now off patent. But unlike the taxanes, we see the anti-Tms as having so much less toxicity, plus being more broadly active, including against cancers such as melanoma that taxanes have little effect against. We are pleased to put the technology into the hands of a Company with the enthusiasm and expertise to see its potential realised."

Novogen will undertake a program to identify lead compounds, with prostate cancer, melanoma and neuroblastoma the nominal targets.