

'Old' drug offers new hope in cancer fight

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'Old' drug offers new hope in cancer fight

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SCOTTISH scientists have discovered that a drug, originally developed to treat schizophrenia, could offer fresh hope in the fight against cancer.

The breakthrough has been made by researchers at Dundee University who have proved that the drug, rimcazole, has the ability to destroy cancer cells while leaving healthy tissue alone.

The researchers believe that the "smart" drug could provide an important new treatment for a range of cancers. And, because the drug has already been used in trials on humans, rimcazole could be on the market within just four years.

It was revealed yesterday that the university has reached an agreement to grant an exclusive worldwide licence to a major drug development company, Modern Biosciences, to manage the development programme in what could prove a lucrative money-spinning deal for the university.

The development of rimcazole for the treatment of cancer has been made possible through the groundbreaking research of Dr Barbara Spruce and her team at the university. Dr Spruce's work has focussed on the so-called "sigma-1 receptor", which has been the subject of considerable pharmaceutical research in the field of psychiatric and neurological disorders.

Dr Spruce said: "We are very excited about the potential of this drug. Certainly the anti-tumour studies so far in the laboratory look very promising indeed and the next step is to test that in humans.

"The drug is showing promise in a broad range of cancer types, most possibly all cancer types. But we suspect it will be more effective in some groups of patients and there will almost certainly be a selection process to select the best patients to treat."

The drug was originally developed in the 1980s as a treatment for schizophrenia but was never licensed as more effective medication was

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developed.

Dr Spruce explained: "Through our work we discovered that the target molecule that rimcazole binds to can also protect cells from the natural cell suicide process called apoptosis. It restores this natural self-destruct mechanism in cancer cells, but it doesn't do so in normal cells."

The drug also had several features that made it particularly promising for the treatment of cancer. It can be taken orally, it prevents the growth of blood vessels within tumours and has very few toxic side effects.

She said the fact that she and her team had discovered a new use for an "old" drug meant that the development of the drug could be fast-tracked. Clinical trials are expected to begin within a year and the drug could be on the market within four years.

Dr Sam Williams, chief executive of Modern Biosciences, said: "We are very excited to be in a position to start the clinical development of rimcazole. It has great promise as a selective cancer agent."

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http://www.jobs.ac.uk/careers/news/662/University_of_Dundee_And_Modern_Biosciences_PLC_To_Develop_Novel_Cancer_Drug

University Of Dundee And Modern Biosciences PLC To Develop Novel Cancer Drug

Friday, 3 August, 2007 ? University of Dundee

The University of Dundee and Modern Biosciences plc, the drug development company, have entered into an agreement to develop a new treatment for cancer, rimcazole.

Under the terms of this agreement, the University will grant an exclusive worldwide licence to Modern Biosciences for the development of rimcazole in cancer and Modern Biosciences will fund and manage the development programme. Revenues generated through commercialisation of the drug will be shared by Modern Biosciences and the University. Modern Biosciences expects rimcazole to be in clinical trials in patients within a year.

Rimcazole represents a highly attractive drug development candidate as it has already been the subject of a clinical trial programme in a different therapeutic area, schizophrenia. The re-profiling of rimcazole for cancer is lower risk than a normal development programme as there is already a considerable amount of pre-clinical and clinical safety data available. These data will allow Modern Biosciences to move into Phase I trials rapidly.

Rimcazole has several features that make it particularly promising for the treatment of cancer:

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- ? it is a small molecule drug that can be taken orally;
- ? it works via a dual mechanism of action that makes it highly potent – stimulating apoptosis (cell 'suicide') and preventing angiogenesis (the growth of blood vessels) within tumours;
- ? it works against a broad range of cancer types, including those that are resistant to existing drugs;
- ? it has very little toxic effect towards normal, healthy tissues, which means it is likely to have a low side effect profile.

The development of rimcazole for the treatment of cancer has been made possible through the groundbreaking research of Dr Barbara Spruce and her team at the University of Dundee. Dr Spruce's work has focussed on the so-called 'sigma-1 receptor', which has been the subject of considerable pharmaceutical research in the field of psychiatric and neurological disorders.

Dr Spruce and her team were the first to show that agents that bind to the sigma-1 receptor (such as rimcazole) cause tumour cells, but not normal cells, to undergo apoptosis. In recognition of her work, Dr Spruce received the inaugural Gannochy Trust Innovation Award of the Royal Society of Edinburgh in 2003.

The University, with the help of funding from the Wellcome Trust, the North-East Scotland Technology Fund (NESTech) and Scottish Enterprise, has progressed rimcazole to the point of clinical development, a unique achievement within a Scottish university.

Modern Biosciences plans to initiate Phase I dosing studies in healthy volunteers this year.

Phase Ib trials, which will monitor tumour growth and several biomarkers that are indicators of disease progression, are expected to start in 2008. Modern Biosciences believes that proof-of-concept data for rimcazole in cancer could be available within two years.

Dr James Houston, Director, Research and Innovation Services at the University of Dundee, said: "We are delighted to see rimcazole progressing towards clinical trials in cancer. The deal with Modern Biosciences represents the culmination of years of hard and innovating work from Dr Spruce's research group and the University of Dundee, which has developed the project to a point where it is ready for clinical trials. The decision to develop rimcazole to this stage is an unusual and bold move by an academic organisation. We are extremely grateful to The Wellcome Trust, NESTech and Scottish Enterprise for supporting Dr Spruce's work and we are very pleased to be collaborating with Modern Biosciences and its team of drug development experts."

Dr Sam Williams, Chief Executive Officer of Modern Biosciences, said: "We are very excited to be in a position to start the clinical development of rimcazole which has great promise as a selective cancer agent with a

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benign side effect profile. The re-profiling of rimcazole is perfectly suited to Modern Biosciences' model which aims to quickly generate proof-of-concept data in man as a means to substantially increasing the value of its projects. We are also delighted to be working with Dundee and Dr Spruce to capitalise on their ground-breaking research."

Dr Barbara Spruce, senior lecturer in the Department of Surgery and Molecular Oncology at the University of Dundee, said, "One of the major problems with cancerous cells is that their ability to commit the normal process of 'cell suicide' or 'apoptosis' is reduced.

Apoptosis is a natural self-defence mechanism designed to rid the body of rogue or damaged cells. If apoptosis fails, flawed cells survive when they shouldn't and this includes cancerous cells. Rimcazole appears to restore apoptosis to cancerous cells, causing them to self-destruct but without doing so in normal cells. Our results lead us to believe that rimcazole will produce good anti-tumour effects while, crucially, sparing healthy cells.

"I would like to acknowledge the hard work and commitment of my team and the help of my many collaborators at the University of Dundee, including Dr Neil Perkins and Dr Alan Prescott; and also collaborators outside Dundee, in particular Dr Suzanne Eccles at the Institute for Cancer Research, Sutton, Surrey."

Dr Richard Seabrook, Head of Business Development at The Wellcome Trust's Technology Transfer Division, said "This is a very good example of how excellent science, conducted in a university environment, can reveal a new therapeutic intervention for adoption by industry and is exactly the type of outcome the Trust seeks from its translation award funding."

Jill Farrell, director of operations at Scottish Enterprise Tayside, said: "This exciting development is excellent news for Scotland's life sciences profile. SE Tayside first supported this project more than seven years ago, which illustrates the need for a long term approach in this sector. We are delighted that this approach has enabled Dundee to secure such internationally renowned expertise."