

Breakthrough by Welsh scientists could prevent cancer cells becoming resistant to drugs

by Madeleine Brindley, Western Mail

A BREAKTHROUGH by Welsh scientists could end the problem of cancer drugs becoming resistant to the disease they are designed to treat.

Experts at the Welsh School of Pharmacy have developed cancer ProTide technology, which can make it very difficult for cancer cells to develop resistance to a particular drug.

Scottish company NuCana BioMed, which has the worldwide rights to the technology has now secured £6.74m in financing to take the first ProTide anti-cancer drug into clinical trial next year.

If the trial is successful, it could give a number of existing cancer drugs, which have developed resistance problems, a new lease of life and increase the treatment options for patients.

Professor Chris McGuigan, the lead ProTide researcher who is based at Cardiff University, said: "We think this is a good way of discovering new drugs to which a tumour will have difficulty becoming resistant, which is a major current problem.

"Researchers have developed drugs, which are very effective and targeted but if a tumour can easily learn how to evade them, then the drug can have transient use.

"In theory, every drug has the potential for resistance to arise."

The ProTide technology is potentially effective in a family of about 30 anti-cancer and anti-viral drugs, which are related to the nucleoside components of DNA.

The team at the Welsh School of Pharmacy at Cardiff University has designed and developed a new molecule – called NUC-1031 – against which cancer cells have, so far, been incapable of generating any form of resistance.

Prof McGuigan said: "This is a completely new drug but it is based on a known drug called gemcitabine – essentially we have engineered it to make a new drug, which can overcome the known mechanisms for resistance.

"Gemcitabine was developed for pancreatic cancer but works in only about 10% of patients so it's rather limited. If we're able to double that, it will be a major step forward."

Gemcitabine ProTide, or NUC-1031, is expected to enter clinical studies in early 2012, and will be followed by two other anti-cancer ProTides developed by NuCana with the Cardiff team.

It will also be tested on a range of different tumours to see whether it is an effective treatment in other types of cancer.

Hugh Griffith, NuCana's chief executive officer, said: "This financing is a very significant step forward for the company because it will allow us to take a range of known cancer drugs, which we have improved by applying the ProTide technology, into clinical development.

"We are delighted to have attracted the support of such sophisticated healthcare investors with the ability to add considerable value to NuCana."

This is not the only ProTide drug to be developed by researchers at Cardiff University. Another, INX-189 which is used to treat hepatitis C infections, is currently progressing well in clinical trials in the USA.

If successful, INX-189 could replace the current treatment, which involves the use of two drugs and has many side-effects.

It is thought that 170m people worldwide have hepatitis C, which can lead to liver cancer and cirrhosis.

Prof McGuigan added: "We believe that INX-189 offers the possibility of more potency against hepatitis, more rapid action in the liver, and fewer side effects than existing treatments."

NUC-1031 is the fourth new drug developed in Cardiff laboratories to go into trials, raising the distinct possibility of a drug invented in Cardiff entering clinical use.