

## **Enzyme find promises drug advances**

Scottish scientists have discovered a substance which could help create drugs such as the anti-depressant Prozac without the need to use harmful chemicals.

The fluoroase enzyme was discovered by researchers at the University of St Andrews.

In the latest edition of the international science journal Nature they outline their hopes of using the substance to create cancer-curing drugs, Prozac and other materials such as Teflon.

Professor David O'Hagan, who made the find with colleagues at the university, said the discovery would eventually provide a safer way of creating a range of materials.

He said: "Fluorine, because of several unique properties it has, does not combine well with carbon and this means nature has found it hard to combine it with plants, trees or any organic life.

"The chemical industry currently produces fluorine compounds for use in the pharmaceutical industry, for polymers and gases such as CFCs, but these all have noxious by-products.

"What we have done is find a way to bond fluorine with carbon using a biological process."

### **Industry interest**

Professor O'Hagan, who carried out the research along with colleagues Dr Cormac Murphy and Christoph Schaffrath at the university's Centre for Biomolecular Sciences, added that molecules containing fluorine were increasingly important to a range of industries.

Fluorine is one of the most widely-found elements on earth but it is tied up in insoluble minerals and the amount of fluoride in sea or surface water is very low.

As a consequence, fluorine does not readily occur in biological life and there are very few naturally-occurring fluorinated compounds.

Professor O'Hagan said he expected there would be much industrial interest regarding the new process.

He added: "There is a lot of development required but the reason that this is interesting is that it is the first class of this enzyme that has been found, but it has also been discovered at a time of huge interest in fluorine-compounds in industry.

"The challenge now is to develop the protein and make the catalyst available to researchers worldwide."

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