

MEDIA RELEASE

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NEW PROBE SHARPENS FOCUS OF BRAIN CANCER THERAPY

An Australian research team has shown that an experimental probe used in nuclear medicine can guide the treatment of brain tumours in cases where current medical imaging techniques have limited accuracy.

Researchers at the CRC for Biomedical Imaging Development Ltd (CRCBID) say the preliminary results of a small clinical study are encouraging enough to warrant distribution of the probe to researchers in Australian hospitals for further studies.

The experimental probe is fluoro ethyl tyrosine (FET for short), an amino acid labelled with the radioactive element fluorine-18 to produce a *radiotracer*. The radioactive label makes it possible to trace the amino acid's precise location in the brain with an imaging technique known as positron emission tomography (PET).

The CRC's clinical director, Dr Rob Ware, said: "Based on these early results—and other research overseas—FET may lead to improvements in the duration and quality of life for brain tumour patients by enhancing current treatments and speeding up the development of new treatments."

According to ABS data, brain tumours kill more than 1200 Australians a year, including about 45 children. New cases of malignant brain tumours in Australia have risen significantly since the early 1990s.

In a pilot study of cancer patients at the Peter MacCallum Cancer Centre in Melbourne, researchers found that PET scans made with the FET radiotracer were very accurate at detecting malignant brain tumours.

The use of FET PET scans provided the correct diagnostic information in 24 out of 25 cases, compared with only 13 out of 25 cases using conventional PET using fluoro deoxy glucose (FDG). Patients were asked to participate in the study when conventional imaging with MRI scans—which are commonly used to guide surgery or radiotherapy—did not allow completely confident treatment advice.

Dr Ware said: "Radio-labelled amino acids like FET are very good at determining the location of active tumour cells in the brain because these tumours require large amounts of amino acids to support their abnormal cell growth, and this is something that distinguishes them clearly from normal brain tissue"

The CRC says it has also improved the efficiency of the process for synthesising FET. The improvement makes feasible the supply of the probe to hospitals throughout Australia with PET facilities for clinical research.

According to CRCBID's Chief Operating Officer, Dr Gerry Roe, FET will be manufactured at the Melbourne laboratory of Cyclotek Pty Ltd, a CRCBID participant.

“FET is a difficult molecule to synthesise with a high yield, but we have refined the synthesis protocols to the point where it is now feasible to supply PET facilities around Australia that are unable to make radiotracers on-site”, he said.

Work is well advanced on the certification of FET to allow its distribution from Cyclotek to other Australian research institutions by late 2008 or early 2009.

For more information:

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CRC partners working on the FET initiative:

- *Cyclotek (Aust) Pty Ltd is an Australian company, the first commercial operator in Australia of medical cyclotrons, used for the manufacture of PET radiopharmaceuticals. Cyclotek currently distributes FDG throughout Australia and New Zealand.*
- *Peter MacCallum Cancer Centre is Australia's leading cancer hospital and research centre, based in Melbourne.*
- *ANSTO is the Australian Nuclear Science and Technology Organisation. ANSTO participates in CRCBID through its Radiopharmaceutical Research Institute.*

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