



## Media Release

2 March 2009

### World-first research set to improve cancer treatment

Patient treatment for severe diseases like cancer is set for revolution through ground-breaking collaborative research using British medical imaging and clever Australian technology to ensure the correct treatment is being prescribed and working. This is achieved by tracking the treatment through the body to ensure it's getting to the disease site and not to other organs where it could do damage.

The international research is being conducted by ANSTO<sup>1</sup> and Kevin Brindle's laboratory - funded by the charity Cancer Research UK - at Cambridge University in the United Kingdom, and is using a new Australian platform imaging technology known as SarAr<sup>2</sup> originally developed by ANSTO and the Australian National University under the guidance of project leader Dr Suzanne Smith.

A recently signed agreement marked the start of this sophisticated three-year research project which uses Positron Emission Tomography (PET) imaging radiopharmaceuticals to detect early responses to tumour treatment and ensure correct treatment prescription, based on an individual's personal make-up.

Dr Smith said the collaboration was a major step towards personalising medicine by targeting treatments which would also significantly improve results.

"We are living in a world where we know that genetics can have a significant effect on biological processes," she said. "Through this knowledge we also know that people respond differently to treatment. This work will be significant in optimising treatments and reducing side effects.

"The research will develop non-invasive methods of monitoring treatments which will undoubtedly improve how they are used and the overall result."

Researchers are utilising PET and Magnetic Resonance Imaging (MRI) technologies, both currently used to diagnose and monitor disease, and applying the SarAr technology to ensure the PET radiopharmaceutical copper 64 (<sup>64</sup>Cu) securely attaches itself to the drug. When <sup>64</sup>Cu radiopharmaceutical is injected into the body the SarAr ensures it stably attaches to the drug, sending a radiation signal to the camera to provide pictures of where the drug is.

PET imaging shows what is going on chemically within the body and MRI gives an anatomical picture so doctors can see if a tumour is physically growing as well as being chemically active, or vice versa.

"This is a very exciting time for medicine as the aim of the project is to get optimal anatomical images using MRI combined with the functional images of PET, using the same imaging agent," said Dr Smith. "Ultimately this combination will deliver accurate information about where the disease is and likely outcomes of the patient's treatment."

Dr Smith also said the SarAr technology had application for clinical trials of new therapies.

"The flexibility of SarAr and its ability to be attached to molecules and nanoparticles means we will also be able to use PET imaging to conduct risk assessment of products in clinical trials and ultimately help get the best products to market," concluded Dr Smith.

---

**For more information and photos please contact ANSTO Media and Community Relations Manager, Sharon Kelly, on (02) 9717 9575 or 0400 394 085**

---

<sup>1</sup> Australian Nuclear Science and Technology Organisation

<sup>2</sup> 1-*N*-(4-aminobenzyl)-3,6,10,13,16,19-hexaazabicyclo[6.6.6]icosane-1,8-diamine (SarAr)