Radioisotope research and development

The radioisotope research and development capability is focused on exploration of new, non-established ‘boutique’ radioisotopes, with a particular emphasis on positron, gamma and gamma/beta emitters.

The applications of these radioisotopes are aimed at medically-relevant materials for the next generation of radiotracers and radio-ligands for diagnostic and therapeutic radio-metal complexation.

Aside from the medically-oriented radioisotopes, a secondary focus is on tracers for the environment and for industrial processes. This programme will use OPAL for custom neutron irradiations (short and long residence) as well as proton activation of products in ANSTO’s dedicated 18 MeV cyclotron.

ANSTO plans to acquire liquid and solid targetry infrastructure for the cyclotron to expand our range of radioisotopes. The processing of irradiated targets is paramount to Radioisotope research and development and the available facilities for this are significant. Eight PET-rated hot cells (four with manipulators) as well as numerous shielded fume-cupboards provide ample work areas in connected radiation-rated laboratories for staff and visiting scientists.

As well as a suite of chemistry and radiochemistry analytical equipment, the team have knowledge and experience in the creation of custom fluidic and target processing modules: these can be tailored for the various targets and the separations/purifications required for isolating the product radioisotopes.

Capability selections

- Radioisotope handling and separations
- Radioisotope analysis
- Reactor target processing.

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