

# Radioisotopes - Provision

By irradiation of targets in the world-class OPAL research reactor, a diverse set of primarily nuclear medicine focussed radioisotopes can be made available for a variety of applications and for research.

To complement this suite of emerging, non-commercially available OPAL-produced radioisotopes, we are working to extend this range by accessing

- ANSTO commercial
- National partner cyclotrons
- Imports from international commercial radioisotope vendors
- Imports from collaborative international research reactors and accelerators

The availability of these radioisotopes will differ significantly depending on reactor and cyclotron scheduling and demand for non-routine custom irradiated products.

Fundamental to this capability, ANSTO provides well equipped, licensed facilities and well trained staff to handle SPECT-, PET- and therapeutically relevant radionuclides.

ANSTO also operates the National Research Cyclotron Facility providing fluorine-18 and carbon-11 for research. This 18 MeV cyclotron is part of the National Imaging Facility (NIF) and is funded via the National Collaborative Research Infrastructure Strategy (NCRIS). If you access these facilities, then the support of NIF must be acknowledged in all outputs e.g. conference posters, oral presentations, journal articles etc. Please go to <https://anif.org.au/news/acknowledging-nif/> for details.

Please confirm the availability of your selected radioisotope with your ANSTO contact before submitting your proposal.

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Radioisotope	Half life	Emission type	Application
Carbon-11	20.3 minutes	$\beta^+$	PET Imaging
Chromium-51	27.7 days	$\gamma$	Tracing
Cobalt-57	271.8 days	(EC), $\gamma$	Tracing
Copper-64	12.7 hours	$\beta^+$ , $\beta^-$	PET Imaging
Fluorine-18	1.83 hours	$\beta^+$	PET Imaging
Gallium-67	3.26 days	(EC), $\gamma$	SPECT Imaging
Gallium-68	68.3 minutes	$\beta^+$	PET Imaging
Holmium-166	26.8 hours	$\beta^-$ , $\gamma$	Therapy
Indium-111	2.8 days	(EC), $\gamma$	SPECT Imaging
Iodine-123	13.2 hours	(EC), $\gamma$	SPECT Imaging
Iodine-124	4.2 days	$\beta^+$	PET Imaging
Iodine-125	59.4 days	$\gamma$	Tracing
Iodine-131	8.02 days	$\beta^-$ , $\gamma$	Therapy
Lutetium-177	6.65 days	$\beta^-$ , $\gamma$	SPECT Imaging/Therapy
Samarium-153	46.3 hours	$\beta^-$ , $\gamma$	Therapy
Scandium-47	3.35 days	$\beta^-$ , $\gamma$	SPECT Imaging/Therapy
Technetium-99m	6.01 hours	$\gamma$	SPECT Imaging
Terbium-161	6.9 days	$\beta^-$ , $\gamma$	Therapy
Yttrium-86	14.74 hours	$\beta^+$	PET Imaging
Zirconium-89	3.3 days	$\beta^+$	PET Imaging

