



Lu-177 PRRT

Lutetium-177 Peptide Receptor
Radionuclide Therapy

Providing patient-centered excellence

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The Canopy Imaging logo is displayed on a glass panel, tilted at an angle. It consists of a green leaf icon and the text "canopy imaging" in white, lowercase, sans-serif font.

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What are Neuroendocrine Tumors (NETs)?

Neuroendocrine tumors (NETs) develop in the neuroendocrine system, which is made up of nerve (neuro) and hormone (endocrine) cells. These cells are responsible for producing hormones and other chemicals that regulate normal body functions. NETs occur when neuroendocrine cells undergo changes and divide uncontrollably, forming tumors that can potentially spread to other parts of the body. Some NETs can overproduce hormones, leading to symptoms such as flushing and diarrhoea. Many NETs have a large number of special receptors on them called somatostatin receptors or SSRs.

What is **Peptide Receptor Radionuclide Therapy (PRRT)**?

Peptide Receptor Radionuclide Therapy (PRRT) is a type of targeted radiation therapy used for neuroendocrine tumors. It involves the use of a radioactive material, typically Lutetium-177, which is attached to a special protein called Octreotate. This combination, known as Lutetium-Octreotate (LuTate), is injected into your bloodstream. LuTate travels through the body and binds to somatostatin receptors or SSRs on the surface of NET cells, delivering a high dose of radiation that damages the cancer cells.

The primary aim of PRRT is to slow or control tumor growth and improve symptoms and quality of life. While PRRT can be highly effective, it rarely destroys tumors completely. Outcomes vary from patient to patient, and your individual prognosis should be discussed with your clinician.



Is PRRT right for you?

To determine if PRRT is suitable for your case will be reviewed at New Zealand's National NET Multidisciplinary meeting. This team includes specialists from nuclear medicine, medical oncology, radiology, surgery, endocrinology and pathology.

What is a GaTate PET-CT scan?

A GaTate PET-CT scan is a three dimensional scan that evaluates the presence of somatostatin receptors on neuroendocrine tumours, which is crucial to determine if PRRT is a suitable therapy option for you.

What does PRRT involve?

PRRT is typically administered in four cycles, with a break of 6-12 weeks between each cycle. The total therapy time ranges from 6-12 months.

Each therapy cycle requires you to attend the Therapy Centre for two consecutive days. PRRT is an outpatient therapy, meaning you will not need to be admitted to hospital.

What should you bring?

Your regular medications and any items to keep you entertained during therapy, such as books, magazines, or an iPad.

What happens during each cycle of PRRT?

First specialist appointment:

Prior to starting therapy, you will have a consultation with the Nuclear Medicine Specialist and Therapy Nurse. During this consultation the Nuclear Medicine Specialist will discuss the therapy with you and review your most recent imaging and blood test to ensure that PRRT therapy is appropriate.

During your therapy, the Nuclear Medicine Specialist will collaborate closely with your Oncologist to provide you with the highest quality of care.

Therapy day:

- The Therapy Nurse will place a cannula in a vein in your arm and administer medications to prevent nausea.
- The PRRT therapy will be administered slowly over 30 minutes along with the amino acid infusion to protect your kidneys.
- The therapy will take approximately 4 hours to complete.
- After therapy you may go home with written radiation safety instructions.

Post Therapy scan and consultation:

- You will return the next day for a post therapy SPECT-CT scan and a post therapy consultation. The post therapy scan is done to ensure that the PRRT therapy has been taken up by your tumour cells.
- During the post therapy consultation, the Nuclear Medicine Specialist will discuss your scan results and follow up plan leading up to the next therapy cycle.

Are there any **side effects**?

PRRT is generally well tolerated, but some patients may experience side effects. Your doctor will discuss these with you and prescribe medications if necessary.

Your Nuclear Medicine Specialist will carefully assess the benefits and risks before proceeding with therapy.

Short-term side effects:

- Tiredness
- Pain at the tumor site
- Flare-up of hormone-related symptoms
- Nausea
- Minor hair loss

Other potential side effects:

- Temporary decrease in white blood cells and platelets
- Temporary worsening of liver function in patients with large liver tumors
- Possible kidney impairment, which is mitigated by an amino acid infusion during therapy
- Rare but serious risk of developing a bone marrow condition called Myelodysplastic Syndrome (MDS) that may lead to leukemia

Radiation safety precautions

After receiving Lu-177 PRRT Therapy, you will be radioactive for a short period. To protect others you should follow some precautions:

- **Avoid close contact:** Keep at least 2 metres away from others, especially children and pregnant women, for the first 5 days.
- **Sleep arrangements:** Sleep in a separate bed for the first 3 nights.
- **Personal hygiene:** When using the toilet, sit down to avoid splashing, flush twice after use, and wash your hands thoroughly afterward for 3 days.

Can I bring anyone with me?

Due to the use of radioactivity during PRRT, visitors are not allowed in the therapy area, however, a support person can accompany you to your appointment, and stay with you until your therapy starts.

Do you require more information?

If you have any concerns or questions about PRRT, please contact the Canopy Imaging Molecular Imaging and Therapy Centre. We are here to support you throughout your therapy.

Contact Information:

Canopy Imaging Molecular Imaging and Therapy Centre

4 Murray Place, Camberly, Hastings 4120

Phone: 06 873 1166 EXT 6

Email: hawkesbay@canopyimaging.co.nz

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