

BC Cancer's provincial Molecular Imaging and Therapy program operates the only publicly-funded clinical PET/CT scanners in the province. Two scanners are located at the Vancouver site, one scanner is located at the Victoria site, and another scanner is located at the Kelowna site which opened a new PET/CT facility in August 2020.

BC Cancer also operates a PET cyclotron - radiopharmacy facility at the Vancouver site that produces the radiotracers used in PET/CT scanning at all its provincial locations.



PET, CT, and PET/CT

Positron Emission Tomography (PET) detects increases in cellular metabolism (how active a cell is) often indicating the presence of disease. Computed Tomography (CT) detects changes in physical size/shape of a lesion and shows exactly where in the body the lesion is located. By combining these two imaging tools into a single scanner, we are now able to more accurately detect cancer and pinpoint its location.

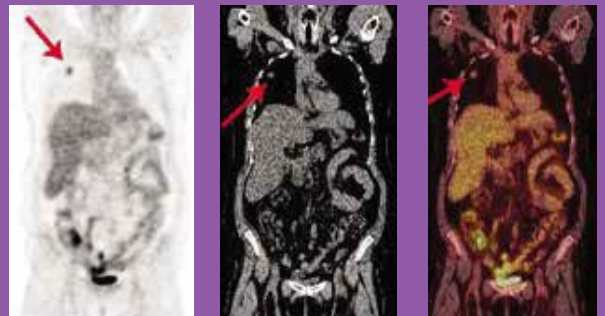
Together, PET/CT can be very helpful, for example, in the pre-operative staging of some cancer types and in localizing suspected cancer recurrence when standard tests are inconclusive. This type of information can help physicians improve treatment planning for individual patients.

How PET/CT works

Active cells such as malignant cancer cells will use sugar as an energy source. Inactive cells such as benign cells (non-cancerous) and scar tissue will not use sugar as an energy source.

In PET, a special type of sugar is combined with a safe radioactive component to produce the radioactive tracer called FDG (Fluorodeoxyglucose). Once injected into a vein, the tracer, which emits signals detected by the scanner, will be absorbed by malignant cells but not absorbed by benign cells. This will indicate whether or not a lesion could be cancerous.

Combined with the localizing capabilities of CT, this information can be used, for example, to show a surgeon the exact location of a malignant lesion that needs to be removed.



BC Cancer Case Study

A 50 year old female patient with a suspicious lesion in the right lung. Increased FDG uptake is seen, indicating that the lesion could be malignant.

Before the Scan

Upon arrival to the Molecular Imaging and Therapy department, you will be asked to complete a brief questionnaire pertinent to the PET/CT scan. Following this, you will then be led to a private exam room where you will receive the tracer injection. After receiving the injection, you will be asked to relax in the exam room for approximately 60 minutes. This provides adequate body distribution time for the tracer. When this “uptake period” is complete, we will take you to the scan room to begin imaging.

Scanning Procedure

You will lie on an imaging table that will slowly move you through the scanner while data is collected. The scan will last approximately 20- 40 minutes depending on the type of imaging protocol best suited to you. Once the scan has been completed and reviewed for technical quality, you will be free to leave.

The entire procedure, from the time you arrive until the time you leave, will last approximately 2 hours. A report will be sent to your physician once the scan has been read by our PET physicians.

Risks

A PET/CT scan is considered a diagnostic procedure similar to those done in Radiology and Nuclear Medicine. Millions of these scans have been performed worldwide without any reports of adverse reaction to the tracer. Although there is a small amount of radiation exposure involved in your PET/CT scan, the exposure level is very small and is considered safe for a diagnostic procedure.

In addition, tracers used in PET/CT have very short half-lives. This essentially means they only remain in your body for a short period of time. Within 24 hours of completing your PET/CT scan, the tracer will have completely left your body.

Website

For more information about PET/CT imaging at BC Cancer, please refer to our website at: <http://www.bccancer.bc.ca/our-services/services/pet-functional-imaging>

Contact Information

If you have any questions or concerns about your procedure, please contact the reception desk in your location at:

Kelowna:	250-861-6456
Vancouver:	604-707-5951
Victoria:	250-519-5754

Mission:

BC Cancer PET scan provides professional, compassionate care for patients.

Vision:

Delivery of world-class innovative molecular imaging technologies and treatment strategies through research and collaboration.