

The Royal's Brain Imaging Centre PET-MRI System Information

MRI System Information

- **MRI magnet strength:** 3 Tesla
- **Magnet Length:** 163 cm
- **Bore Size:** 60 cm
- **Field of View:** 0.5-50cm
- **Slice thickness 2D:** 0.1-200mm
- **Slice thickness 3D:** 5-500mm
- **Actively shielded whole-body gradient coil system:** maximum amplitude 45mT/m, slew rate 200 T/m/s

PET System Information

- **LSO crystals:** 4mm x 4mm x 20mm
- **Transaxial Field of View:** 588mm
- **Axial Field of View:** 258mm
- **Energy Resolution:** $\leq 14.5\%$
- **†Average Spatial Resolution (1cm from centre of FOV):** 4.3mm FWHM in all directions
- **†Average Spatial Resolution (10cm from centre of FOV):** 5.2mm (transverse radial), 4.8mm (transverse tangential), 6.6mm (axial)
- **†System Sensitivity:** 15.0kcps/MBQ along centre of scanner

†Source: *Performance Measurements of the Siemens mMR Integrated Whole-Body PET/MR Scanner.* G Delso, S Furst, B Jakoby et al. *JNM*, Dec 1, 2011, vol 52 #12, 1914-1922.

Available MRI Coils

32 Channel Head (Ceresensa)

- PET/MR compatible

12 Channel mMR Head/Neck (Siemens)

- Attachments for head and neck, or head only
- PET/MR compatible

mMR Spine (Siemens)

- Spine exams
- Combined measurements with other coils
- PET/MR compatible

mMR Body (Siemens)

- Upper body and abdomen, pelvis
- Patient positioned head first or feet first

- Several body coils can be used for complete upper body exams (we have 4)
- PET/MR compatible

Shoulder Array (Siemens/Invivo)

- Small and large size shoulder coil cups available

TxRx CP Extremity Coil (Siemens/QSC)

- Exams of joints in lower extremities (knee, ankle)

Flex Coil (small and large)

- Exams of hand, elbow, shoulder, hip, knee
- PET/MR compatible

Loop Coils (4cm, 7cm, 11cm)

- Exams of fingers, wrist bone, toes
- Exams of skin, e.g. melanoma, birth marks, other skin anomalies

PET Tracers

PET tracers used are produced at the Molecular Imaging Probes and Radiochemistry Laboratory at the University of Ottawa Heart Institute.

Currently, the following tracers are in routine production:

- 11C-HED
- 13N-Ammonia
- 18F-FDG
- 11C-acetate
- 18F-LMI1195
- 18F-NaF

To request the implementation of a tracer not on this list, please contact [Katie Dinelle](#), BIC Facility Manager. Additional tracers may also be available via third party suppliers.

Note: Tracer production and transport costs are not included in the listed imaging rates.