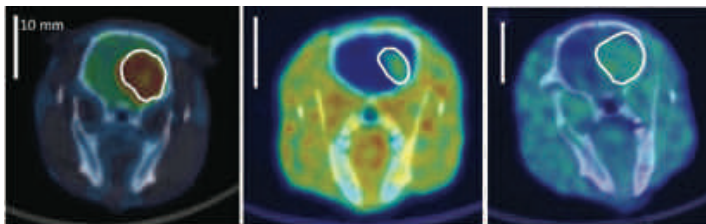
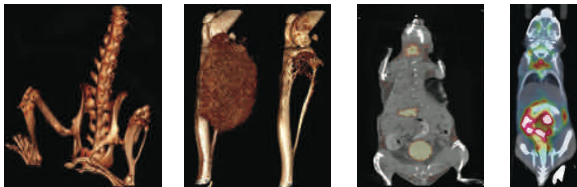


COMPUTER TOMOGRAPHY & MOLECULAR IMAGING: CT/PET/SPECT



Top image, brain tumor images registered with MRI for tissue differentiation; left: metabolic changes using 18F-FDG PET/CT; middle: tumor proliferation using 18F-FLT PET/CT; right: Amino acid transportation using 18F-FDOPA PET/CT.



Bottom images, left: exquisite bone imaging; middle left: Osteosarcoma imaging using high resolution CT; middle right: SPECT/CT image of 125I showing uptake in thyroid and spleen; right: PET/CT imaging of colitis using Gastroview (CT) and 18F-FDG.

The Siemens Inveon is an integrated system that includes PET, CT and SPECT for imaging mice and rats. It is comprised of two gantries – a dedicated PET and a combined CT-SPECT. The Inveon is characterized by high spatial resolution [20 μ m (micrometers) for CT, 1mm for SPECT and 1.4 mm for PET] and offers a large field of view (CT -10x 10 cm, SPECT - 15x 15 cm and PET - 12.7 x 10 cm). The PET system is equipped with dual-rotating ^{57}Co transmission sources (emission energy of 122KeV and 98% detection efficiency) inboard and is self-shielded. The dual sources allow for a doubling of the scan speed and result in a reconstructed image that can be used for anatomical localization and more accurate attenuation correction. The CT system is equipped with a zoom control for optimized field of view and resolution. There are several SPECT collimators available for various nuclide energies and imaging applications. A multi-pinhole SPECT collimator offers high sensitivity and spatial resolution.



- High quality CT imaging optimized for low radiation dose
- Bone studies using extra high resolution CT
- Molecular imaging using 18F -FDG, -FLT, -FDOPA PET studies.
- SPECT imaging using radiolabeled isotopes ($^{99\text{m}}\text{Tc}$, ^{125}I , etc.)
- Inflammation studies using 18F-FDG imaging
- Automated PET-CT and SPECT-CT registration
- Longitudinal monitoring of disease progression and drug delivery
- State-of-the-art image analysis using Inveon Research Workplace