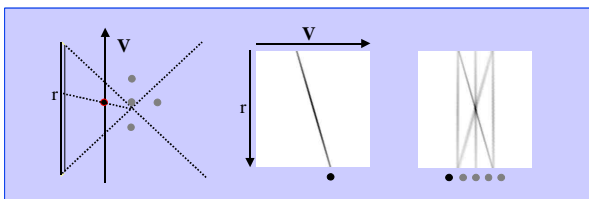


Real Time Molecular Imaging
Linoview® miniSPECT with high (0.35 mm) resolution

Technology

The new Linoview-SPECT modality is of better quality than typical SPECT imaging. (Walrand et al, EJNM 2002). The Linoview® miniSPECT uses novel short focal length collimators and a short transverse field of view detector (Walrand et al, JNM Nov 2005). The Linoview® miniSPECT has four detectors which move along four linear orbits drawing a rectangle surrounding the object. The system acquires linograms rather than the classical sinogram using conventional revolution. These linograms form a complete tomographic data set.

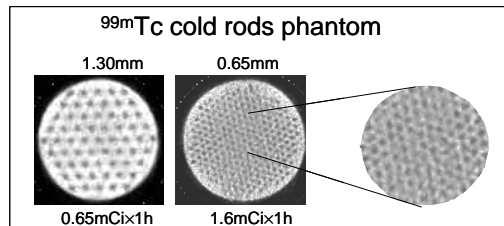
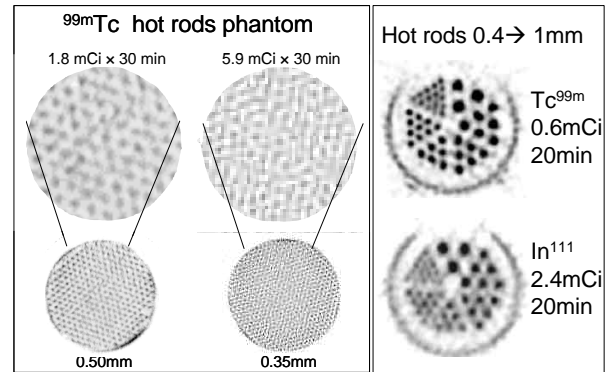


The benefits of Linoview over classical SPECT are:

- Improved sensitivity/spatial resolution
- No truncation issues
- Detector size 50% smaller
- Insensitive to detector uniformity phenomena
- Easy positioning

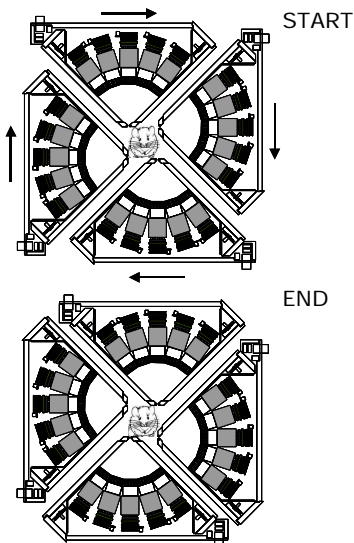
Performance

Phantom studies show that hot rods separated by 0.35 mm can be distinguished and that 0.65 mm-diameter cold rods can be visualized, both in a low count rate acquisition (111 and 59MBq Tc99m respectively).



Linoview rodent imaging system

The detectors move close to the object and the orbit parameters are computed automatically. The detectors then move to the start position, acquisition is initiated and the detectors start moving to the end position.



Specifications

- 125xLx9mm CsI(Na) pixelated (2.2x2.2mm) crystals curved L=50 → 150mm (custom size)
- Tuneable slit-parallel rake collimator:
 - Slit width 0-5mm. Slit material: Iridium
 - Transverse-longitudinal spatial resolution 0.35-1mm
 - Longitudinal FOV L
- Tuneable slit-focusing rake collimator:
 - Slit width 0-5mm. Slit material: Iridium
 - Transverse-longitudinal spatial resolution 0.35-0.5mm
 - Longitudinal FOV L/2
- Tuneable multi-slit high-sensitivity collimator:
 - Slit width 0-5mm. Slit material: Iridium
 - Transverse-longitudinal spatial resolution 0.35-0.35mm
 - Longitudinal FOV 15mm

- Maximum object diameter: 9cm
- Automatic collimator proximity positioning system
- Acquisition: Pentium computer
- Processing: dual-xeon parallelized computer
- Full list mode acquisition: position, time and energy
- Static, dynamic, multi-bed, gated and interleave tomographic acquisition
- FBP and EM-ML-blob reconstruction
- Orthogonal viewer, ROI and dynamic curve creation, interfile and Dicom export files
- Pmod technologies®: biomedical image quantification software