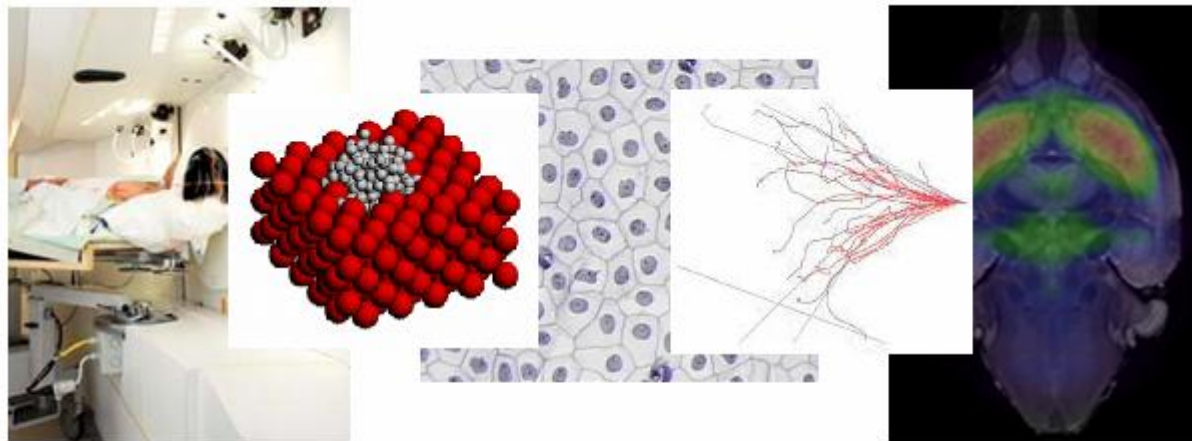


Computational modeling of cells – cell-level dosimetry calculations

RC Medical Physics in Clinical and Preclinical Research (Finland)

- Laboratory of Medical Physics, University of Helsinki
- HUS Medical Imaging Center, Helsinki University Central Hospital
- [https://tuhat.halvi.helsinki.fi/portal/fi/projects/medical-physics-in-\(5fcb1b5b-4219-45ae-9bcf-f8deec2a9404\).html](https://tuhat.halvi.helsinki.fi/portal/fi/projects/medical-physics-in-(5fcb1b5b-4219-45ae-9bcf-f8deec2a9404).html)

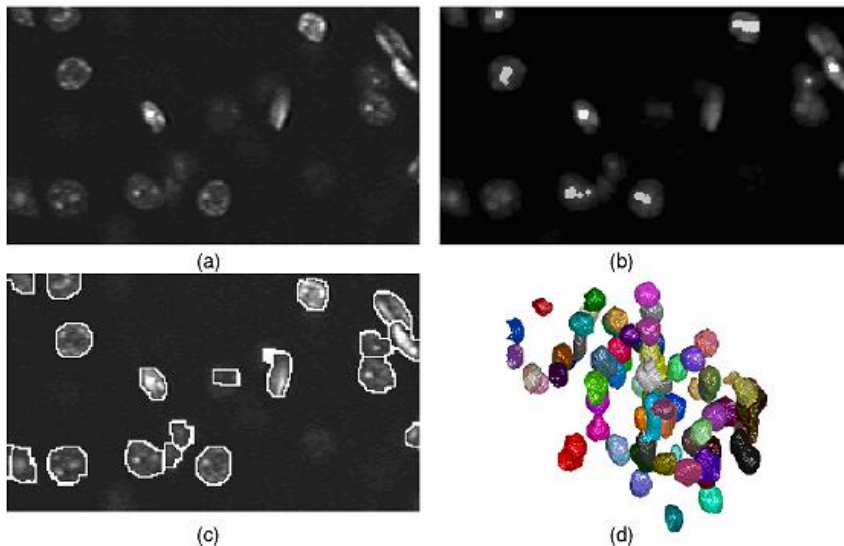
contact: vappu.reijonen@hus.fi



Computational modeling of cells – cell-level dosimetry calculations

We develop

- Mathematical 2D and 3D models of cells and cell clusters
 - morphology can be automatically built from volumetric imaging data
- Computer-based calculation processes for any irradiation experiment
 - acquiring simulated absorbed dose distribution down to sub-cellular level
- Application of simulated dosimetry data to clinical and preclinical themes of research
 - in the past, targeted radionuclide therapy (TRT) methods
- in the future, low dose exposures due to e. g. medical imaging processes



Reconstruction of computational 3D model from fluorescence microscope imaging data. (a) A single slice from the 3D image, (b)-(c) Image data is being processed. (d) 3D visualization of the created mathematical model.