

DosiTest : Intercomparison of clinical dosimetry approaches in molecular radiotherapy by Monte-Carlo simulation

The Toulouse Computer Science Institute (IRIT UMR CNRS 5505) and the « radiopharmaceutical dosimetry » group of the « Sterol metabolism and therapeutic innovations in oncology » team (INSERM UMR 1037) are opening a one year position (with possible duration extension) in Toulouse (France).

The work will consist in the generation of clinical SPECT images via Monte-Carlo modelling, within the frame of a digital inter-comparison of clinical dosimetric studies.

The computing framework (TESTDOSE) has already been developed, and validated for the analytical modelling of SPECT images. The candidate will carry on the development of TESTDOSE by integrating Monte-Carlo modelling (using GATE) within the existing framework. In addition, a feasibility study will be performed by comparing the results obtained from Molecular Radiotherapy clinical trials conducted in European institutes (Nantes- Toulouse-Milano).

The candidate will have a strong background in programming (C++, scripting languages such as Tcl, Perl, Python), and medical imaging specifically in signal and image processing. A good knowledge of Gate is recommended. Skills in denoising and image restoration would be appreciated.

The project is ongoing, so the candidate should be available as soon as possible.

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References:

<http://opengatecollaboration.healthgrid.org/>

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Ferrer L, McKay E, Lisbona A, Kraeber-Bodéré F, Bardiès M 2009. "DosiTest : Accuracy of radio-immunotherapy dosimetry protocol". J Nucl Med 50(Supp 2): 392p.