



INDO SWISS JOINT RESEARCH PROGRAMME (ISJRP)

JOINT RESEARCH PROJECT

ABSTRACT

Grant No.: 138866

MULTITRACER MOLECULAR IMAGING OF TUMOUR METABOLISM, CELL PROLIFERATION AND HYPOXIA: A PATHWAY TO PERSONALIZED TARGETED THERAPY

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Official start date of the project: 1st January 2012
Actual start date of the project: 1st May 2012
Project finish date: 30th April 2015

PROJECT ABSTRACT

While most cancer therapies deliver a uniform amount of radiation to the tumour as a whole, malignant lesions are not homogenous. It is hypothesized that most of tumours contain three statistically different subpopulations with distinct profiles. We plan to evaluate multitracer PET/CT scans of series of patients and measure three different characteristics, namely: metabolism, cell proliferation and oxygen deprivation of hypoxia. Previous studies have shown that these three factors can vary within a tumour to effect how a tumour reacts to treatment. Three different PET tracers as surrogates for the different characteristics will be used, namely: ^{18}F -FDG for metabolism, ^{18}F -FLT for cell proliferation and ^{18}F -FMISO for hypoxia. Computational algorithms will be developed to classify the regions based on these three parameters.

The division of nuclear medicine of Geneva University Hospital together Radiation Medicine Center (RMC), a division of the Biomedical group of Department of the Atomic Energy Commission of the Government of India foresees to develop innovative approaches for molecular multimodality imaging-guided radiation therapy treatment planning.