Invites you to attend a thesis proposal presentation by:

CHRIS ABRAHAM

entitled

“In vivo Quantification of a Functional Antibody-labelled Super-Paramagnetic Iron Oxide Contrast Agent Targeting Prostate Cancer Cells for Magnetic Resonance Imaging: Nude Mouse Study”

Supervisor: Dr. Laura Curiel

ABSTRACT:

With an increasing number of treatment options for prostate cancer, one thing that always is of importance is the need for accurate localization and verification of cancer. By conjugating a known prostate antibody, J591, to a well-known Magnetic Resonance Imaging (MRI) contrast agent Super Paramagnetic Iron Oxide (SPIO), a susceptibility effect induces a reduction of T2 relaxation around the targeted area in MRI. This reduction of T2 inherently also reduces MRI signal at a desired Echo Time (TE). As the antibodies attach to the prostate cancer it takes along with it the SPIO. We propose to use this principle for accurate diagnosing confirmation along with effective tumour characterization.

In this seminar we will explore relevant MRI theory and the effect a J591:SPIO particle has on MRI through the use of an in vitro model as well as an in vivo experiment. These preliminary experiments showed a clear decrease in signal intensity and T2 when using the J591:SPIO. However, necessary changes regarding the conjugation process along with the MRI sequence parameters for the Multi-Echo Spin Echo (MESE) scan are needed.

The future entails applying necessary changes on MRI sequences and conjugation techniques as well as exploring new sequences such as Susceptibility Weighted Imaging (SWI) and different contrast agents. The changes to the experiment will show the impact of MRI contrasts agents in diagnosing and the treatment of prostate cancer.

DATE: FRIDAY, MARCH 21st, 2014
TIME: 11:30 AM
Room: CB 4058