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Characterizing Galbumin as a high molecular weight contrast agent in MRI - A novel dual contrast agent protocol FIRAS MOOSVI, UBC Student, STEFAN REINSBERG, UBC Assistant Professor, JENNIFER BAKER, BC Cancer Research Centre PhD. Candidate — In studying cancer and tumours, traditional biochemical methods call for analyzing frozen cross sections of tumour tissues, staining and then fluorescently imaging them at high resolution. While this method has served its purpose for decades, situations and conditions are arising that require dynamic imaging in live animals. Recent advances in the field of Biophysics have allowed researchers the ability to correlate images taken with Magnetic Resonance Imaging (MRI) to those using high- resolution fluorescent microscopy. While live imaging is possible using MRI, it is certainly not possible to reproduce much of the biologically relevant data acquired by fluorescent microscopy. In this proposal, we set the stage for the biological problem, cover some basic tumour biology then outline the basic principles of imaging with NMR. Finally, we characterize the use of a new contrast agent, Galbumin, to conduct a pilot study for a new class of animal MRI experiments. Finally, we present a novel protocol for a dual contrast agent MR protocol to extract permeability and flow information to improve characterization of drug delivery. Our over-arching goal is to use the live imaging capabilities of MR, and combine them with traditional fluorescent microscopy techniques to get a more accurate biological picture of a tumour.

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