

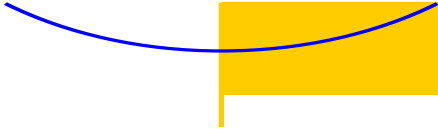
Medical Physics Seminar

Monday, March 19, 2018
1325 HSLC ~ 4:00 P.M.



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Development of Animal Models for Radiation Engineered Oncology - Experiences and Potential Pitfalls

Pre-clinical experiments involving focused ultrasound and therapeutic radiation oncology are becoming increasingly advanced and technically challenging. Because variations in biological effects can be considerable when using small animal systems, any variations in treatment delivery must be kept to a minimum, or else the interpretation of experimental results may be jeopardized. To this end we have compiled a summary of important factors to consider when setting up quality assurance programs for animal models, as well as potential pitfalls that may not be obvious but can be quite problematic. This includes our own experiences from the last few years of research involving tumor treatments with focused ultrasound, normal tissue radiation injury, and radiation-induced immunotherapy using animal models. Some of the key examples include the use of imaging modalities for targeted hepatic irradiation, thermal and spatial phantom studies for focused ultrasound localization, and the importance of systematic animal handling procedures. We will share our experiences with issues such as unwanted and unexpected morbidity and mortality, uncertainty related to whether the correct dose was delivered to the intended target, and how to implement precise and accurate targeted treatment models. The importance of systematic quality assurance procedures will be discussed for the various examples and how we chose to implement these in order to ensure the reliability of experimental results.

1325 Health Sciences Learning Center (HSLC) 4:00 - 5:00 P.M.