

CHERENKOV-EXCITED LUMINESCENCE IMAGING OF MICRODOSE INJECTIONS FOR NOVEL TUMOR RESPONSE ASSAY

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We propose a radically new assay of tumor response to chemotherapeutic agents using microdose injections of luminescent marker inks, where the response spread of the microdose injections are readout using radiotherapy sheet illumination. In this work we characterize, in tissue-simulating phantoms, a variety of luminescent marker inks that can be detected using Cherenkov-excited luminescence imaging. Luminescent marker inks studied include commercially available UV-activated tattoo inks. Initial feasibility studies to assess the use of this novel tumor response assay demonstrate key parameters including spatial resolution, variations in inclusion size, injection spread and depth detection in tissue-simulating phantoms to show promise for further application of this technology in animals.

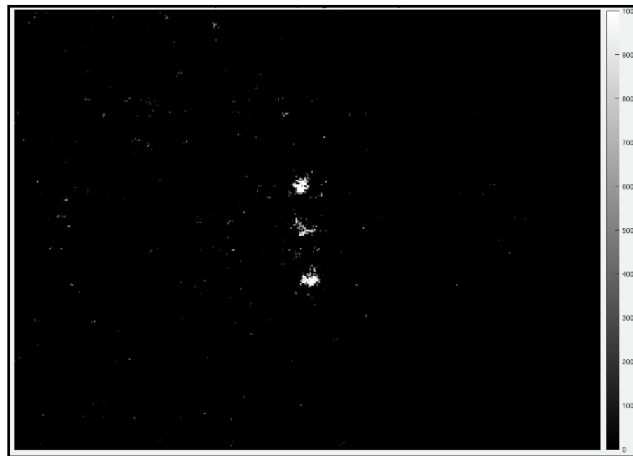


Figure 1 – Microdose injections of luminescent marker inks in tissue-simulating phantom, imaged using Cherenkov-excited luminescence technique