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Title: Engineering a Novel Preclinical Cancer Assay Platform

Abstract: As the second leading cause of death in the US, cancer has maintained its epidemiological prominence for nearly 90 years, despite decades of research and billions of dollars in funding. Currently, the success rate of oncologic drugs entering clinical trials sits at 3.4% and the drugs that do pass often have little to no effect on overall survival. This resiliency is due in part to the tumor microenvironment, which promotes cancer development and mitigates therapeutic response. To better understand the role of the tumor microenvironment, our lab utilizes microfabrication techniques to develop novel experimental tools, including the microfluidic intravital window (MFIW), an implantable platform for the observation and manipulation of tissues in live animals. This technology provides unique opportunities for assessing the pharmacologic effects of therapeutics in the target tissue while preserving organism level complexity.