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Cellular Responses to Patterned Laser Wounding[1] LILA NASSAR, Georgia Institute of Technology, AARON STEVENS, JAMES WHITE, JAMES T. O'CONNOR, M. SHANE HUTSON, ANDREA PAGE-MCCAW, Vanderbilt University — An increase in cytosolic calcium is a ubiquitous cellular response to wounding. Experimentally these wounds are produced via pulsed-laser ablation. One limitation to this approach is the creation of cavitation bubbles which damage the plasma membranes of surviving cells along the wound margin. The inability to minimize this damage interferes with attempts to isolate non-mechanical mechanisms behind the calcium signal observed post wounding. In this project, patterned ablation is explored as a method to minimize the creation of cavitation bubbles in pulsed-laser ablation wounding assays. Preliminary results suggest variations in cellular responses to patterned wounding when compared to previously employed single shot wounding methods. Promisingly, a lack of cell fusions around the wound margin implies the method may successfully minimize the plasma membrane damage inflicted on surviving cells by cavitation bubbles.

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