Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Cell Migration on crosslinked gelatin based scaffolds DIVYA BHATNAGAR, MIRIAM RAFAILOVICH, Stony Brook University — The goal of this work was to develop a novel biomaterial to be used as a scaffold for tissue engineering, particularly in the field of dermal healing. The biodegradable hydrogels were prepared through cross linking of gelatin with microbial transglutaminase(mTG) in an aqueous solution and were found to be stable at 37 degrees celcius. Hydrogels were synthesized by cross-linking gelatin with mTG in a ratio of 25:1, 5:1 (gelatin:mTG). Cell proliferation was studied for a period of 8 days showing that cell proliferates better on 25:1 gelatin-mTG hydrogel. Single cell migration for 16 hrs revealed than cells migrated faster and in same direction on 25:1 compared to 5:1 gelatin/mTG hydrogel substrate. En-mass cell migration for 24hrs of also indicated that the cells migrated faster and in a well defined direction following each other on 25:1 compared to the control and 5:1. Cellular traction forces, hence, played a major role in cell migration on these substrates.

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Date submitted: 20 Nov 2009 Electronic form version 1.4