Abstract Submitted
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Three-Dimensional Cell Behavior in Microgels[1] TAPOMOY BHATTACHARJEE, GLYN PALMER, STEVEN GHIVIZZANI, BENJAMIN KESELOWSKY, W GREGORY SAWYER, THOMAS ANGELINI, University of Florida — The number of dimensions in which particles can freely move strongly influences the collective behavior that emerges from their individual fluctuations. Thus, in 2D systems of cells in petri-dishes, our growing understanding of collective migration may be insufficient to explain cell behavior in 3D tissues. To study cell behavior in 3D, polymer scaffolds are used. Contemporary designs of 3D cell growth scaffolds enable cell migration and proliferative expansion by incorporating of degradable motifs. Matrix degradation creates space for cells to move and proliferate. However, different cell types and experimental conditions require the design of different scaffolds to optimize degradation with specific cell behaviors. By contrast, liquid like solids made from packed microgels can yield under cell generated stresses, allowing for cell motion without the need for scaffold degradation. Moreover, the use of microgels as 3D culture media allows arranging cells in arbitrary structures, harvesting cells, and delivering drugs and nutrients. Preliminary data describing cell behavior in 3D microgel culture will be presented.

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