

Abstract Submitted
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The Co-axial Flow of Injectable Solid Hydrogels with Encapsulated Cells BRANDON STEWART, DARRIN Pochan, SAMEER SATHAYE, University of Delaware — Hydrogels are quickly becoming an important biomaterial that can be used for the safe, localized injection of cancer drugs, the injection of stem cells into areas of interest or other biological applications. Our peptides can be self-assembled in a syringe where they form a gel, sheared by injection and, once in the body, immediately reform a localized pocket of stiff gel. My project has been designed around looking at the possibility of having a co-axial strand, in which one gel can surround another. This co-axial flow can be used to change the physical properties of our gel during injection, such as stiffening our gel using hyaluronic acid or encapsulating cells in the gel and surrounding the gel with growth medium or other biological factors. Rheology on hyaluron stiffened gels and cells encapsulated in gels was performed for comparison to the results from co-axial flow. Confocal microscopy was used to examine the coaxial gels after flow and to determine how the co-axial nature of the gels is affected by the concentration of peptide.

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