INSTITUTE FOR CELLULAR ENGINEERING

Mechanical Properties of Alginate Based Interpenetrating Polymer Networks for Biomedical Applications

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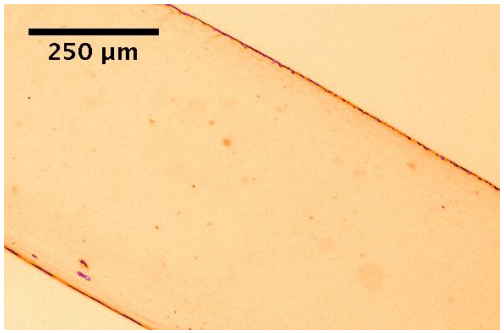
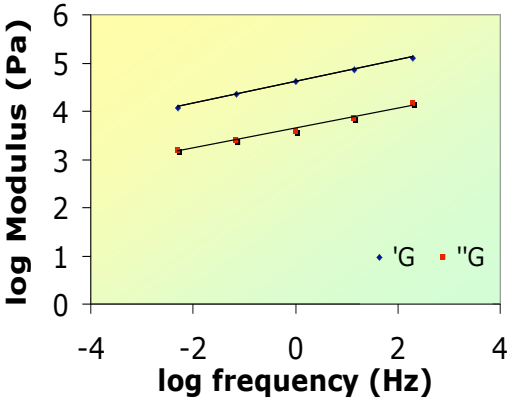
Polymeric hydrogels have been studied for use in tissue engineering matrices for cellular implantation and for drug delivery. Such hydrogels must be biocompatible and able to withstand stresses within the human body.





Left: 1 wt% alginate fiber in 0.1M $CaCl_2$ crosslinker.
Right: Gel kinetics for IPN sample 1-A1-C2G2 at the gel point.

Our lab developed an Interpenetrating Polymer Network (IPN) of alginate and hydrophobically modified cellulose (HMEHEC) to bolster the mechanical strength of alginate. We will use the IPN to create a three-dimensional polymer matrix that increases the viability of encapsulated cells and that can eventually be introduced into patients.

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