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Dextran hydrogels by crosslinking with amino acid diamines and their viscoelastic properties

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Abstract

Amine functionalized polysaccharide hydrogels such as those based on chitosan are widely examined as biomaterials. Here we set out to develop a facile procedure for developing such hydrogels by crosslinking dextran with amino acid diamines. The dextran-amino acid gels were formed by the addition of the amino acid diamines to a dextran and epicholorohydrin solution once it became homogeneous. This was demonstrated with three amino acid diamines, lysine, lysine methyl ester, and cystine dimethyl ester. Hydrogel networks with albumin entrapped were also demonstrated. These hydrogels were characterized by FTIR, SEM, rotational rheometry, swelling studies and cell biocompatibility analysis. These hydrogels