ABSTRACT SUBMISSION

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Injectable thermo-sensitive hydrogels for cell delivery

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ABSTRACT

Cell-laden injectable hydrogels are highly valuable delivery vehicles for cell therapies: (i) they provide a temporary scaffold to injected cells in order to ensure their viability and to stimulate their activity; (ii) they can be administrated in a minimally invasive manner and fill-in the defects in hardly accessible and fragile tissues[1]. It has been shown that mixtures of chitosan (CS) and organic salts such as beta-glycerophosphate (βGP) can be held liquid at room temperature and neutral pH while exhibiting a sol/gel transition at body temperature[2,3] (Fig. 1a-b). We investigate the potential of such a thermo-sensitive chitosan-based hydrogel for cell delivery. Firstly, in a systematic study, we explored the formulation parameters governing the gelation kinetics, which is crucial for the use as an injectable matrix. Secondly, we elaborated an *in vitro* injection model to characterize the microstructure, in particular the porosity of the hydrogel, which is important for cell mobility (Fig. 1c). The results and protocols will be used for in vitro injection experiments of cellularized chitosan injectable hydrogels to study the effect of cells on the sol/gel transition.

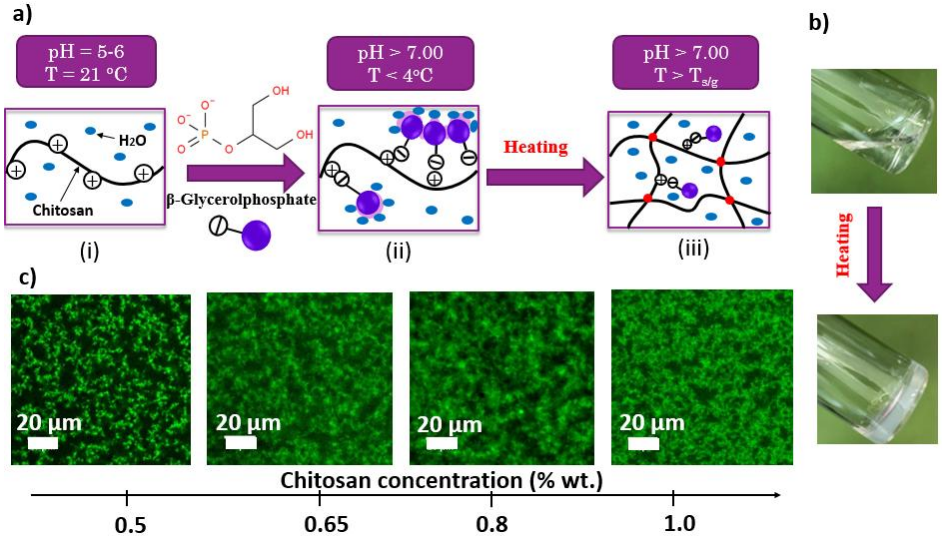

***Figure 1**: **a)** Schematic representation of the thermo-gelling process of CS/βGP systems (reproduced from [3]). **b)** Pictures of CS/βGP in sol (i) and gel (ii) states. **c)** Confocal microscopy images of fluorescently labelled CS/βGP hydrogels at different concentrations.*

References:

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