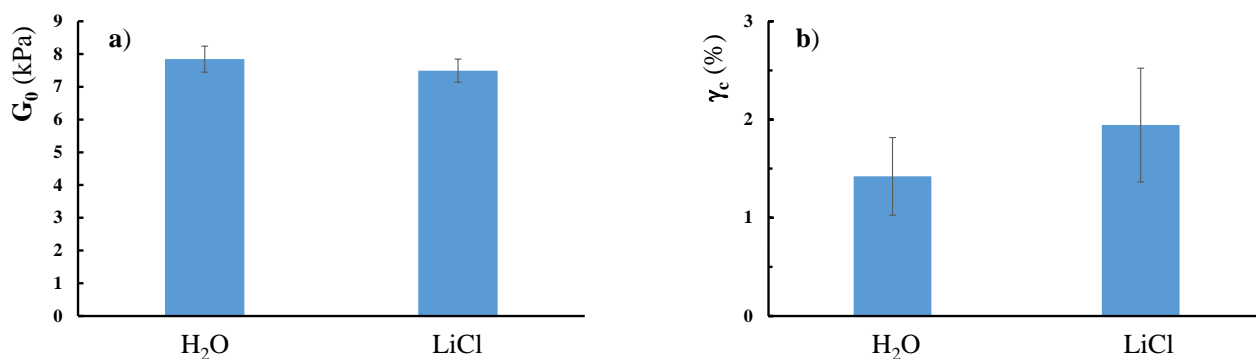


## Supporting Information

**Figure S1**

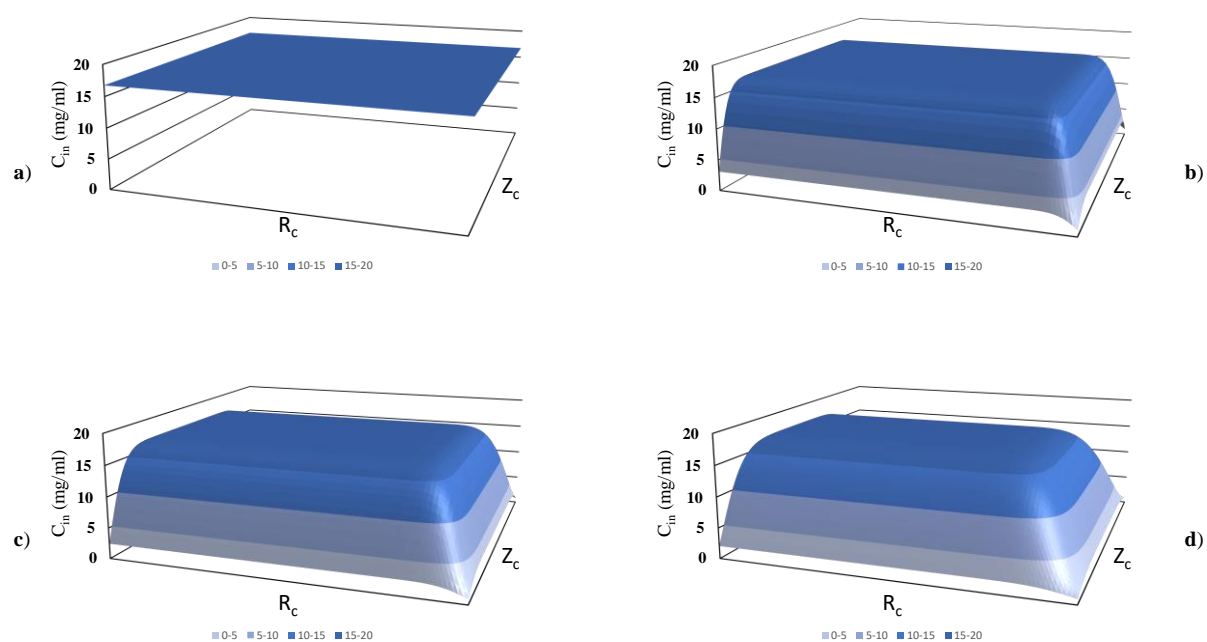


**Figure S1.** Shear modulus (a) and critical strain (b) for 1 % (w/V) agarose hydrogels prepared in LiCl 1M and whased for 24 h in water or LiCl 1M.

**Table S1.** Diffusion coefficient,  $D$ , for BSA in agarose hydrogels prepared in different conditions evaluated by fitting experimental data with Fick's second law (eq. 3).

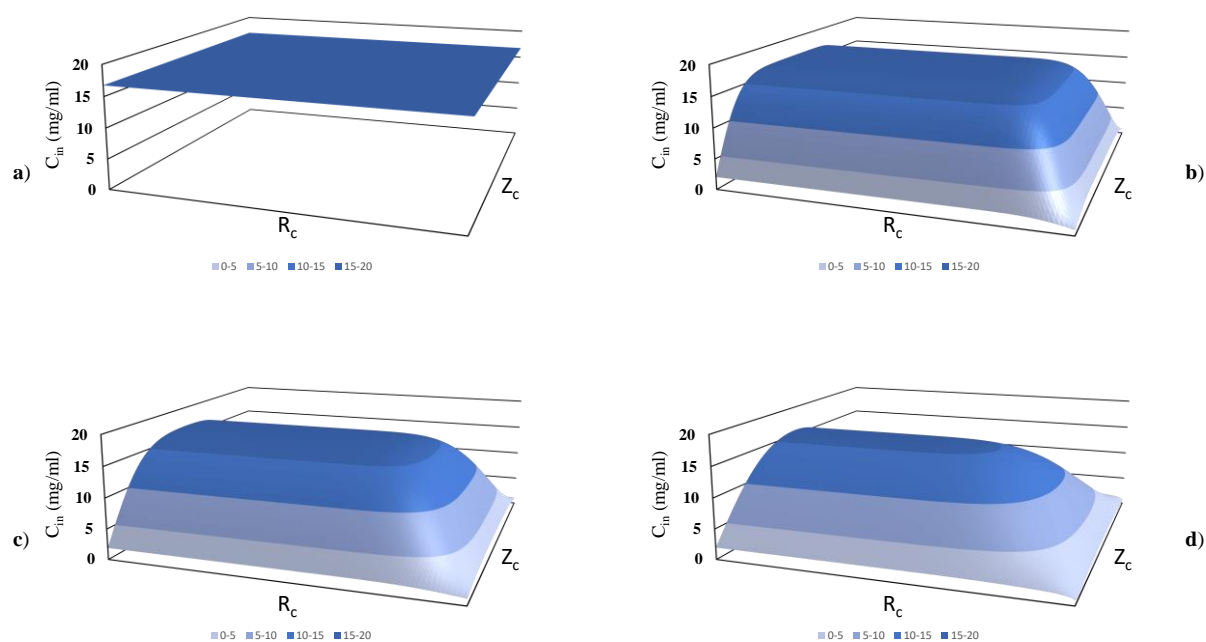
Condition	$D$ (cm <sup>2</sup> /s)
Water	$7.5 \cdot 10^{-7}$
NaCl 0.5M	$1.1 \cdot 10^{-7}$
LiCl 0.5M	$1.3 \cdot 10^{-7}$

**Figure S2**



**Figure S2.** Concentration profile of BSA inside agarose hydrogels at time 0 (a) and after 15 min (b), 30 min (c) and 60 min (d) of the diffusion in the presence of NaCl 0.5 M in the external reservoir. Calculations performed following Fick's second law (eq. 3).

**Figure S3**



**Figure S3.** Concentration profile of BSA inside agarose hydrogels at time 0 (a) and after 15 min (b), 30 min (c) and 60 min (d) of the diffusion in the presence of water in the external reservoir. Calculations performed following Fick's second law (eq. 3).