## **Electronic Supplementary Information**

## Voltage and concentration gradient across membraneless interface generated next to hydrogels: relation to glycocalyx

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Fig. S1 (a) Bending angle ( $\theta$ ) of: ALG – blue; AG – orange and FU – green. Columns are grouped according to the increasing (from 1 to 5) concentration of functional groups for a given gel type. (b) Image showing a gel specimen bending under a force of gravity after a fixed point to a degree defining  $\theta$ .



Fig. S2 Swelling degree (Q) of: ALG – blue, circles; AG – orange, triangles and FU – green, diamonds. Individual lines for a given gel correspond to different preparations with increasing concentration of functional groups on moving from bottom to top. Thermally crosslinked AG gels are virtually non-swelling due to stiffness of polymer network. ALG swells more with increasing concentration of functional groups in spite of concomitant increase in gel's density and therefore stiffness.