

Supplementary Information

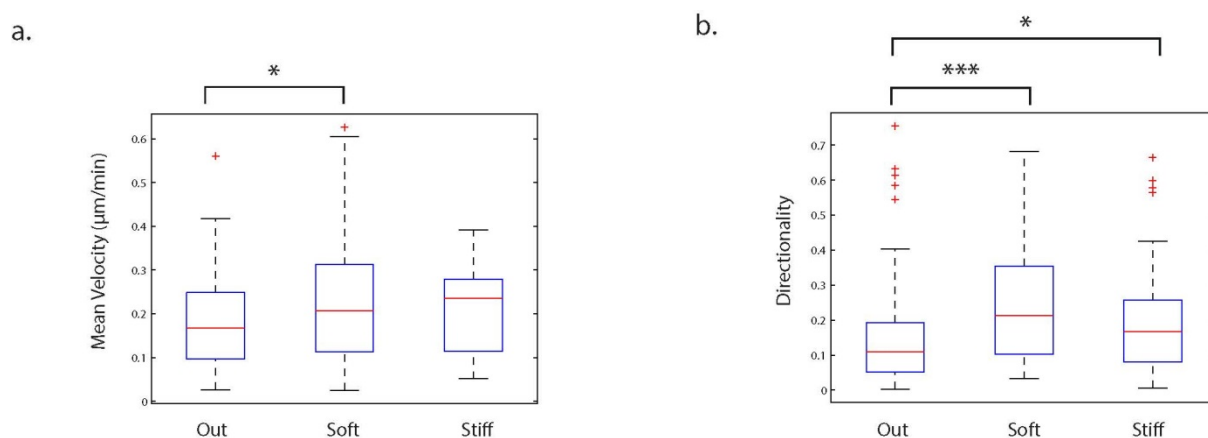


Figure 1: Changes in migratory behavior of mesenchymal stem on stiffness gradients. **a**, A significant increase in mean velocity was measured on the softer area in comparison to the non-modulated outside. **b**, The directionality (i.e. the ratio of the net displacement to the total path length covered by the cell, the more the cell movement tends towards one direction the more the value comes close to unity) was quantified and was significant for both mechanically-patterned regions in respect to the outside *i.e.* random motility is decreased.

Movie S1: Celllight-RFP-stained hMSCs were seeded on the top of photomodulated hydrogels functionalized with 1 mM RGDSP peptide. The stiffness-gradient was visualized by a fluorescent Alexa488-maleimide and borders are indicated by a white frame. Cell movements across the stiffness patterns on the hydrogel was tracked by acquiring phase contrast (upper panel) and fluorescence (TRITC filter, lower panel) images at 5x magnification every hour for 36 hours starting three hours after cell seeding (scale bar = 200 µm, 2 frames per second).

Table1

Average values for the rate constant k and half-life of photolysis of HP, NB and DMNB.

Compound	k (sec ⁻¹)	$t_{1/2}$ (sec)
HP	0.0209	33.2
DMNB	0.0572	11.9
NB	0.1473	4.7