Supplementary Information

Molecular weight of surface immobilized hyaluronic acid influences CD44-mediated binding of gastric cancer cells

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**Figure S1.** Schematic presentation of the interactions between the cell-surface glycoprotein CD44 (A) and hyaluronan in solution (B and C). Oligomers of hyaluronan bind monovalently to CD44 and do not activate the following intracellular signaling (B). In fact, they can replace the endogenous hyaluronan of high molecular weight and attenuate the signaling. On the contrary, hyaluronan of high molecular
weight bind CD44 multivalently resulting in CD44 clustering and activation in different downstream signaling.

**Figure S2.** Number of adherent cells (AGS, A and MKN45, B) and morphology of AGS (C) and MKN45 (D) after 72h of culture on TCPS in the presence of hyaluronan with different M₆₅s supplemented to the culture media at concentration of 1 mg/mL.
**Figure S3.** Flow cytometry analysis of surface marker CD44s and CD44v6 for the AGS and MKN-45, after 72h of cell culture in each surface.
**Figure S4.** Immunohistochemistry of AGS (A) and MKN-45 (B) cultured on control surfaces (TCPS and PLL) during 72 h without or after CD44 blocking (green for CD44, red for actin and blue for nuclei). IgG was used as an isotype control. Bars correspond to 50 µm.

**Figure S5.** Representative example of single cell paths. Images show the cells tracking during 60 minutes of incubation, of AGS (A) and MKN-45 (B) cells on the different surfaces. The displacements of cells are represented as color lines. Each plot represents 1 individual cell track. Bars correspond to 100 µm.