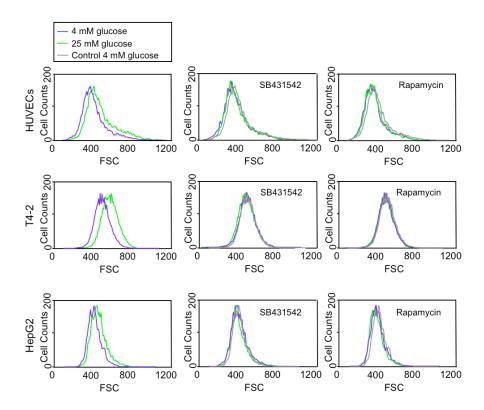
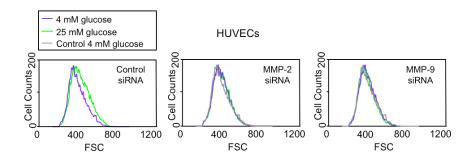


Supplemental Figure 1. Transient effect of glucose on cell size and Smad3 phosphorylation. (A) Cell size distribution of NRK-52E cells, cultured without or with 4 mM or 25 mM glucose for 72 h. Cells in G1 phase were analyzed by flow cytometry using the forward light scatter (FSC) parameter. (B) Cell size distribution of NRK-52E cells cultured in 25 mM glucose for 48 h, then shifted or not to 0 mM glucose (25→0 mM) for 24 h, in the absence (left) or presence (right) of SB431542. The grey line, marked "Control 25 mM glucose", in the right panel corresponds to the 25 mM glucose profile in the absence of SB431542 that is shown in the left panel. (C) Cell size distribution of NRK-52E cells cultured for 96 h without glucose (0 mM), or cultured for 24 h without glucose, then shifted to 25 mM glucose for 24 h and then back to medium without glucose for 48 h  $(0\rightarrow25\rightarrow0$  mM), in the absence (top) or presence (bottom) of SB431542. The grey line, marked "Control 0 mM glucose", in the bottom panel corresponds to the 0 mM glucose profile in the absence of SB431542 that is shown in the top panel. (D) Cell size distribution of NRK-52E cells cultured in 4 mM glucose for 96h, or for 24 h, then shifted to 25 mM glucose for 24 h and then back to 4 mM glucose for 48 h ( $4\rightarrow 25\rightarrow 4$  mM), in the absence (top) or presence (bottom) of SB431542. The grey line, marked "Control 4" mM glucose", in the bottom panel corresponds to the 4 mM glucose profile in the absence of SB431542 that is shown in the top panel. (E) Cell size distribution of NRK-52E cells treated without or with 25 mM glucose or 25 mM mannose for 24 h. (F) NRK-52E cells were cultured without glucose for 24 h, then shifted to normal  $(4 \text{ mM}) (0 \rightarrow \text{N})$  or high (25 mM) (0 $\rightarrow$ H) glucose for 24 h, and then back to normal (0 $\rightarrow$ H $\rightarrow$ N) or no (0 $\rightarrow$ H $\rightarrow$ 0) glucose for 48 h, in the presence or absence of SB431542. Phosphorylated Smad3 and total Smad3 were assayed by western blotting.



**Supplemental Figure 2. Glucose-induced increase in cell size is inhibited by rapamycin.** Cell size distribution of HUVECs, T4-2 and HepG2 cells, cultured with 4 mM glucose and then shifted or not to 25 mM glucose for 24 h, in the absence or presence of SB431542 or rapamycin, was determined by flow cytometry using FSC as parameter. The grey lines, marked "Control 4 mM glucose", in the middle and right panels correspond to the 4 mM glucose profile in untreated cells shown in the left panels.



**Supplemental Figure 3. MMP-2 and MMP-9 are essential for glucose-induced increase of cell size.** HUVECs were transfected with MMP-2 siRNA, MMP-9 siRNA or control siRNA. The size distribution of cells cultured with 4mM and then shifted or not to 25mM glucose was determined by flow cytometry using FSC as parameter. The grey lines, marked "Control 4 mM glucose", in the middle and right panels correspond to the 4 mM glucose profile in cells transfected with control siRNA shown in the left panel.