

Supplementary Information:

Supplement Figure 1. Cell attachment to the peptide IKVAV. HUVECs and hMSCs were seeded on array spots presenting varied peptide densities including 5.0, 1.6, 0.6, 0.2, 0.06, 0.02, 0.01, and 0% IKVAV. Representative images of 5% and 0% IKVAV densities are shown at t=0 hrs.

Supplement Figure 2. Quantification of focal adhesion expression. Vinculin staining of focal adhesions expressed by HUVECs and hMSCs at 24 hours was characterized by quantifying (A) focal adhesion density (B) average focal adhesion size and (C) average total focal adhesion staining intensity per cell. (Error bars represent SEM, asterisk indicates significant difference between HUVECs and hMSCs at a specific GRGDSP density, $p < 0.05$)

Quantification of Focal Adhesion Staining

Analysis of vinculin stained focal adhesions was achieved using Nikon NIS Elements Software (Melville, NY). Briefly, stacked images of array spots were thresholded and then automated measurements of focal adhesion areas and counts were tabulated. Reported metrics for each spot was calculated as follows: (i) *Focal adhesion density* ($\#/\mu\text{m}^2$) was determined by dividing the the total number of focal adhesions by the number of nuclei, (ii) *Average focal adhesion size* (μm^2) was determined by averaging individual focal adhesion areas, and (iii) *Average total focal adhesion intensity per cell* was determined by dividing the mean fluorescent intensity of vinculin staining in a spot by the total number of nuclei.

Supplement Movie 1A. Human umbilical vein endothelial cells on 1.67% GRGDSP SAM array spot over 48-72 hrs. Movie dimensions are 1365 μm x 1365 μm . (File name: S1.A 1.6% RGD HUVEC.mov) *Keywords:* human umbilical vein endothelial cell, migration, SAM, array, RGD

Supplement Movie 1B. Human mesenchymal stem cells on 1.67% GRGDSP SAM array spot over 48-72 hrs. Movie dimensions are 1365 μm x 1365 μm . (File name: S1.B 1.6% RGD MSC.mov) *Keywords:* human mesenchymal stem cell, migration, SAM, array, RGD

Supplement Movie 1C. Human umbilical vein endothelial cells on 0.20% GRGDSP SAM array spot over 48-72 hrs. Movie dimensions are 1365 μm x 1365 μm . (File name: S1.C 0.2% RGD HUVEC.mov) *Keywords:* human umbilical vein endothelial cell, migration, SAM, array, RGD

Supplement Movie 1D. Human mesenchymal stem cells on 0.20% GRGDSP SAM array spot over 48-72 hrs. Movie dimensions are 1365 μm x 1365 μm . (File name: S1.D 0.2% RGD MSC.mov) *Keywords:* human mesenchymal stem cell, migration, SAM, array, RGD

Supplement Movie 2A. Human umbilical vein endothelial cell migration on 5.00% GRGDSP SAM array spot over 12-18 hrs. Movie dimensions are 205 μm x 159 μm . (File name: S2.A 5% RGD HUVEC.mov) *Keywords:* human umbilical vein endothelial cell, migration, SAM, array, RGD

Supplement Movie 2B. Human mesenchymal stem cells migration on 5.00% GRGDSP SAM array spot over 12-18 hrs. Movie dimensions are 205 μm x 159 μm . (File name: S2.B 5% RGD MSC.mov) *Keywords:* human mesenchymal stem cell, migration, SAM, array, RGD

Supplement Movie 1C. Human umbilical vein endothelial cell migration on 0.06% GRGDSP SAM array spot over 12-18 hrs. Movie dimensions are 205 μm x 159 μm . (File name: S2.C 0.06% RGD HUVEC.mov) *Keywords:* human umbilical vein endothelial cell, migration, SAM, array, RGD

Supplement Movie 1D. Human mesenchymal stem cells migration on 0.06% GRGDSP SAM array spot over 12-18 hrs. Movie dimensions are 205 μm x 159 μm . (File name: S2.D 0.06% RGD MSC.mov) *Keywords:* human mesenchymal stem cell, migration, SAM, array, RGD