

Aging disrupts cell subpopulation dynamics and diminishes the function of mesenchymal stem cells

Supplementary Information

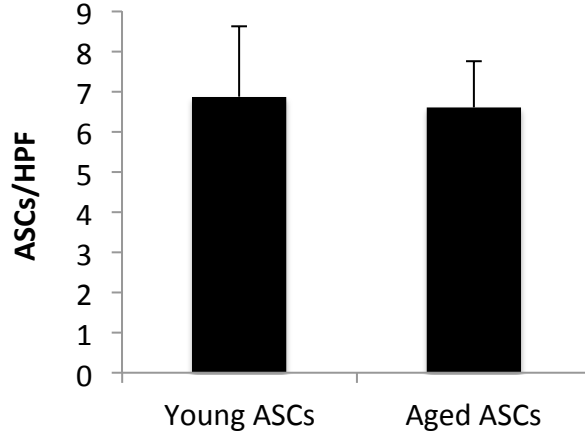
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Supplemental Figure 1. Age does not affect ASC viability following *in vivo* transplantation. (A) Quantification of cell density between aged and young ASC-seeded *in vivo* matrigel plugs revealed no significant differences in cell survival.

Gene Name	Assay ID
<i>Ace</i>	Mm00802048_m1
<i>Actb</i>	Mm00607939_s1
<i>Adam10</i>	Mm00545742_m1
<i>Angpt1</i>	Mm00456503_m1
<i>Angpt2</i>	Mm00545822_m1
<i>B2m</i>	Mm00437762_m1
<i>Bcl2</i>	Mm00477631_m1
<i>Bcl2l1</i>	Mm00437783_m1
<i>Bmp2</i>	Mm01340178_m1
<i>Bst2</i>	Mm01609165_g1
<i>Ccl2</i>	Mm00441242_m1
<i>Ccl3</i>	mm00441259_g1
<i>Ccnd1</i>	Mm00432359_m1
<i>Cd200</i>	Mm00487740_m1
<i>Cd320</i>	Mm00507988_m1
<i>Cd63</i>	Mm01966817_g1
<i>Cd68</i>	Mm03047340_m1
<i>Cd74</i>	Mm00658576_m1
<i>Cd81</i>	Mm00504869_m1
<i>Cd93</i>	Mm00440239_g1
<i>Cd99</i>	Mm04214669_u1
<i>Cdh5</i>	Mm00486938_m1
<i>Cflar</i>	Mm01255578_m1
<i>Cnttb1</i>	Mm00517812_m1
<i>Cxcl12</i>	Mm00457276_m1
<i>Cxcl16</i>	Mm00469712_m1
<i>ErbB2</i>	Mm00658541_m1
<i>F3</i>	mm00438853_m1
<i>Fas</i>	mm01204974_m1
<i>Fgf4</i>	Mm00438917_m1
<i>Fgf9</i>	Mm00442795_m1
<i>Fgfr2</i>	Mm01269930_m1
<i>Flt1</i>	Mm00438980_m1
<i>Fzd4</i>	Mm00433382_m1
<i>Gata6</i>	Mm01235633_m1
<i>Hbegf</i>	Mm00439306_m1

Gene Name	Assay ID
<i>Hgf</i>	Mm01135193_m1
<i>Hif1a</i>	Mm00468869_m1
<i>Igfbp5</i>	Mm00516037_m1
<i>Il6r</i>	Mm00439653_m1
<i>Itga5</i>	Mm00439797_m1
<i>Itgb3</i>	Mm00443980_m1
<i>Kit</i>	Mm00445212_m1
<i>Mef2c</i>	Mm01340842_m1
<i>Mme</i>	Mm00485028_m1
<i>Mmp3</i>	Mm00440295_m1
<i>Mmp9</i>	Mm00442991_m1
<i>Ngfr</i>	Mm00446296_m1
<i>Nos2</i>	Mm00440502_m1
<i>Nt5e</i>	Mm00501910_m1
<i>Pcna</i>	Mm00448100_g1
<i>Pdgfa</i>	Mm01205760_m1
<i>Pdgfrb</i>	Mm00435546_m1
<i>Pecam1</i>	Mm01242584_m1
<i>Pgf</i>	Mm01302896_m1
<i>Plaur</i>	Mm00440911_m1
<i>Ptn</i>	Mm01132688_m1
<i>Ptprc</i>	Mm01292575_m1
<i>Pvrl1</i>	Mm00445392_m1
<i>Pvrl2</i>	Mm00436144_m1
<i>R18s</i>	Mm03928990_g1
<i>Sod2</i>	Mm00449726_m1
<i>Sod3</i>	Mm01213380_s1
<i>Tgfa</i>	Mm00446232_m1
<i>Tgfb1</i>	Mm01178820_m1
<i>Tie1</i>	Mm00441786_m1
<i>Tlr4</i>	Mm00445273_m1
<i>Tnf</i>	Mm00443258_m1
<i>Tnfrsf1</i>	Mm00441875_m1
<i>Vcam1</i>	Mm01320970_m1
<i>Vegfa</i>	Mm01281447_m1

Supplemental Table 1. Gene names and assay IDs for microfluidic single-cell gene expression analysis. Genes specifically relating to stemness and vasculogenesis were chosen, in addition to selected control, cell-cycle and surface marker related probes.

Gene ID	K-S p-value
<i>Igfbp5</i>	1.41e-11
<i>Hif1a</i>	1.03e-08
<i>Ace</i>	1.20e-07
<i>Cd200</i>	5.56e-06
<i>Bst2</i>	5.71e-06
<i>Mef2c</i>	4.91e-05
<i>Mm3</i>	9.97e-05
<i>Bmp2</i>	1.90e-04
<i>Ccl2</i>	3.60e-04
<i>Adam10</i>	6.08e-04
<i>Sod2</i>	1.20e-03
<i>Cxcl12</i>	3.88e-03

Supplemental Table 2. Genes with significant differential expressed between ASC clusters. Gene expression profiles were compared between Cluster 1 and Cluster 2 (**Figure 2**) using a two sample Kolmogorov-Smirnov test, with Bonferroni correction for multiple hypothesis testing.

<i>Angpt1</i>	Mm00456503_m1
<i>Vegfa</i>	Mm01281447_m1
<i>Sod3</i>	Mm01213380_s1
<i>Sod2</i>	Mm00449726_m1
<i>Angpt2</i>	Mm00545822
<i>Fgf2</i>	Mm00433287_m1
<i>Fgfr2</i>	Mm01269930_m1
<i>Pdgfa</i>	Mm01205760_m1
<i>Pdfgra</i>	Mm01205760_m1
<i>Actb</i>	Mm01205647_g1
<i>B2m</i>	Mm00437764_m1

Supplemental Table 3. Taqman assays used for qRT PCR.