

| Gene symbol | Gene name | First trimester MSC | | Term MSC | |
|-------------|--|--|---------|--|-------------|
| | | Fold change in expression (compared to BM-MSC) | p-value | Fold change in expression (compared to BM-MSC) | p-value |
| ABCB1 | ATP binding cassette subfamily B member 1 | 193.30 | 0.21 | 243.87 | 0.31 |
| ACTA2 | actin alpha 2, smooth muscle | 4.57 | 0.12 | 2.29 | 0.29 |
| ALCAM | activated leukocyte cell adhesion molecule | 102.13 | 0.50 | 530.29 | 0.38 |
| ANPEP | alanyl aminopeptidase, membrane | 6.81 | 0.18 | 18.93 | 0.34 |
| ANXA5 | annexin A5 | 3.92 | 0.38 | 3.46 | 0.65 |
| BDNF | brain-derived neurotrophic factor | 11.51 | 0.13 | 15.48 | 0.12 |
| BGLAP | bone gamma-carboxyglutamate protein | 1.50 | 0.51 | 4.73 | 0.10 |
| BMP2 | bone morphogenetic protein 2 | 160.69 | 0.31 | 708.66 | 0.29 |
| BMP4 | bone morphogenetic protein 4 | 2.54 | 0.88 | 17.97 | 0.27 |
| BMP6 | bone morphogenetic protein 6 | 7.20 | 0.18 | 8.32 | 0.17 |
| BMP7 | bone morphogenetic protein 7 | 6.85 | 0.48 | 6.16 | 0.40 |
| CASP3 | caspase 3 | 3.16 | 0.27 | 6.28 | 0.20 |
| CD44 | CD44 molecule (Indian blood group) | 0.05 | 0.32 | 0.35 | 0.36 |
| COL1A1 | collagen, type I, alpha 1 | 3.07 | 0.13 | 346.00 | 0.31 |
| CSF2 | colony stimulating factor 2 | 7.40 | 0.18 | 15.77 | 0.09 |
| CSF3 | colony stimulating factor 3 | 5.09 | 0.36 | 30.80 | 0.35 |
| CTNNB1 | catenin beta 1 | 0.15 | 0.20 | 1.63 | 0.38 |
| EGF | epidermal growth factor | 10.91 | 0.11 | 5.87 | 0.25 |
| ENG | endoglin | 48.37 | 0.46 | 37.51 | 0.01 |
| ERBB2 | erb-b2 receptor tyrosine kinase 2 | 0.38 | 0.22 | 6.86 | 0.27 |
| FGF10 | fibroblast growth factor 10 | 70.79 | 0.47 | 573.23 | 0.12 |
| FGF2 | fibroblast growth factor 2 | 29.35 | 0.09 | 16.80 | 0.01 |
| FUT1 | fucosyltransferase 1 | 155.61 | 0.15 | 641.94 | 0.03 |
| FUT4 | fucosyltransferase 4 | 0.64 | 0.89 | 7.50 | 0.33 |
| FZD9 | frizzled family receptor 9 | 3.73 | 0.23 | 8.89 | 0.23 |
| GDF15 | growth differentiation factor 15 | 19.26 | 0.18 | 54.07 | 0.06 |
| GDF5 | growth differentiation factor 5 | 9.23 | 0.23 | 6.31 | 0.37 |
| GDF6 | growth differentiation factor 6 | 0.99 | 0.15 | 2.53 | 0.39 |
| GDF7 | growth differentiation factor 7 | 36.10 | 0.30 | 148.33 | 0.06 |
| GTF3A | general transcription factor IIIA | 3.55 | 0.46 | 1.85 | 0.30 |

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| HAT1 | histone acetyltransferase 1 | 3.34 | 0.34 | 4.68 | 0.34 |
| HDAC1 | histone deacetylase 1 | 4.88 | 0.31 | 6.31 | 0.42 |
| HGF | hepatocyte growth factor | 7.89 | 0.45 | 39.02 | 0.35 |
| HNF1A | HNF1 homeobox A | 12.70 | 0.09 | 6.57 | 0.42 |
| ICAM1 | intercellular adhesion molecule 1 | 50.73 | 0.19 | 75.46 | 0.12 |
| IFNG | interferon gamma | 3.07 | 0.70 | 22.29 | 0.23 |
| IGF1 | insulin like growth factor 1 | 6.62 | 0.37 | 664.58 | 0.37 |
| IL10 | interleukin 10 | 0.36 | 0.59 | 34.08 | 0.37 |
| IL1B | interleukin 1 beta | 92.49 | 0.19 | 171.88 | 0.36 |
| IL6 | interleukin 6 | 3.06 | 0.34 | 29.32 | 0.30 |
| INS | insulin | 1.16 | 0.63 | 5.98 | 0.35 |
| ITGA6 | integrin subunit alpha 6 | 0.03 | 0.22 | 10.40 | 0.32 |
| ITGAV | integrin subunit alpha V | 169.17 | 0.34 | 155.34 | 0.44 |
| ITGAX | integrin subunit alpha X | 15.86 | 0.31 | 69.29 | 0.32 |
| ITGB1 | integrin subunit beta 1 | 66.82 | 0.25 | 109.16 | 0.31 |
| JAG1 | jagged 1 | 309.89 | 0.15 | 654.97 | 0.35 |
| KAT2B | lysine acetyltransferase 2B | 94.26 | 0.63 | 70.57 | 0.54 |
| KDR | kinase insert domain receptor | 8.89 | 0.36 | 10.33 | 0.34 |
| KITLG | KIT ligand | 15.38 | 0.18 | 89.41 | 0.02 |
| LIF | leukemia inhibitory factor | 2.10 | 0.24 | 2.11 | 0.49 |
| MCAM | melanoma cell adhesion molecule | 41.23 | 0.28 | 175.17 | 0.58 |
| MMP2 | matrix metalloproteinase 2 | 141.99 | 0.30 | 169.99 | 0.47 |
| NES | nestin | 0.00 | 0.34 | 0.79 | 0.73 |
| NGFR | nerve growth factor receptor | 0.22 | 0.66 | 0.12 | 0.36 |
| NOTCH1 | notch 1 | 1.13 | 0.60 | 1.07 | 0.57 |
| NT5E | 5'-nucleotidase ecto | 5.83 | 0.38 | 5.44 | 0.62 |
| NUDT6 | nudix hydrolase 6 | 4.67 | 0.29 | 8.46 | 0.23 |
| PDGFRB | platelet derived growth factor receptor beta | 0.46 | 0.29 | 3.10 | 0.55 |
| PIGS | phosphatidylinositol glycan anchor biosynthesis class S | 21.69 | 0.04 | 7.62 | 0.48 |
| POU5F1 | POU class 5 homeobox 1 | 5.11 | 0.18 | 51.84 | 0.32 |
| PPARG | peroxisome proliferator activated receptor gamma | 0.31 | 0.53 | 1.10 | 0.84 |
| PROM1 | prominin 1 | 626.90 | 0.17 | 102.27 | 0.31 |

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| PTK2 | PTK2 protein tyrosine kinase 2 | 32.47 | 0.47 | 11.59 | 0.08 |
| PTPRC | protein tyrosine phosphatase receptor type C | 42.17 | 0.18 | 17.46 | 0.19 |
| RHOA | ras homolog gene family member A | 336.04 | 0.53 | 332.90 | 0.77 |
| RUNX2 | RUNX family transcription factor 2 | 2.47 | 0.75 | 2.45 | 0.91 |
| SLC17A5 | solute carrier family 17 member 5 | 4.15 | 0.85 | 206.83 | 0.38 |
| SMAD4 | SMAD family member 4 | 51.12 | 0.47 | 395.53 | 0.06 |
| SMURF1 | SMAD specific E3 ubiquitin protein ligase 1 | 221.52 | 0.21 | 537.19 | 0.13 |
| SMURF2 | SMAD specific E3 ubiquitin protein ligase 2 | 0.07 | 0.62 | 1.44 | 0.71 |
| SOX2 | SRY-box transcription factor 2 | 3.51 | 0.48 | 6.70 | 0.37 |
| SOX9 | SRY-box transcription factor 9 | 0.17 | 0.41 | 0.88 | 0.82 |
| TBX5 | T-box transcription factor 5 | 5.09 | 0.51 | 65.49 | 0.37 |
| TERT | telomerase reverse transcriptase | 7.58 | 0.47 | 13.89 | 0.26 |
| TGFB1 | transforming growth factor beta 1 | 0.17 | 0.73 | 3.95 | 0.94 |
| TGFB3 | transforming growth factor beta 3 | 0.71 | 0.47 | 13.80 | 0.25 |
| THY1 | Thy-1 cell surface antigen | 0.04 | 0.13 | 0.05 | 0.27 |
| TNF | tumor necrosis factor | 54.61 | 0.19 | 10.59 | 0.26 |
| VCAM1 | vascular cell adhesion molecule 1 | 0.11 | 0.22 | 0.05 | 0.78 |
| VEGFA | vascular endothelial growth factor A | 0.07 | 0.52 | 2.19 | 0.34 |
| VIM | vimentin | 538.79 | 0.39 | 348.81 | 0.41 |
| VWF | von Willebrand factor | 2.14 | 0.59 | 7.36 | 0.19 |
| WNT3A | Wnt family member 3A | 0.98 | 0.25 | 6.90 | 0.36 |
| ZFP42 | ZFP42 zinc finger protein | 5.46 | 0.31 | 0.33 | 0.33 |

Supplementary Table 1: Fold change in gene expression in first trimester (n=5) and term (n=3) placental MSC relative to bone-marrow derived MSC (BM-MSC, n=3). Significant differences are highlighted in bold.