

Table S3. RNA-seq differential expression analysis. Table S3A shows transcripts identified by RNA-seq analysis [1] that were (A) consistently higher in ESC or (B) consistently higher in iPSC compared to amniocytes. Table S3B shows differential expression results that were sorted by the smallest to largest adjusted p-value. The top ten most significant genes for each comparison are listed.

Table S3A. Selected 15 genes consistently higher in ESC and iPSC compared to amniocytes.

Gene	Function	ESC	iPSC	Amniocytes
(A) Higher in ESC				
<i>Tcerg1l</i>	Transcription elongation regulator 1	100.9	1.2	1.1
<i>Fam19a5</i>	Small secreted protein acting as regulator of immune and nervous cells.	350.6	1.8	11.9
<i>Dpp6</i>	Membrane serine protease, may play a role in brain development.	140.1	23.0	11.0
<i>Irx2</i>	Multiple roles during pattern formation	2500.1	603.3	38.2
<i>Nnat</i>	Neural differentiation	907.2	4.4	165.9
<i>Sox11</i>	Neural differentiation	18311.0	13583.3	924.3
(B) Higher in iPSC				
<i>Tbx15</i>	Transcriptional regulator of the skeleton, limb, vertebral column, and head	8.8	304.9	38.1
<i>Pitx2</i>	Eye, tooth, abdominal organs, left-right asymmetry.	22.1	107.5	104.6
<i>Cr1l</i>	Hematopoietic, lymphoid, Liver, spleen, thymus	3.6	76.7	0.4
<i>Ctsf</i>	Cysteine proteinases in the lysosomal proteolytic system	17.6	94.5	281.5
<i>Grem1</i>	BMP antagonist regulates organogenesis, body patterning, and differentiation.	210.8	238.7	11889.3
<i>Ly6k</i>	Carcinoembryonic antigen	1.1	2.1	23.8
<i>Znf208</i>	Transcriptional repression	17.4	327.0	9.0
<i>Znf560</i>	Transcriptional regulation	4.1	64.1	7.3
<i>Znf662</i>	Transcriptional regulation	3.0	5.2	44.4

Table S3B. The top ten most significant genes for each comparison.

Amniocytes vs ESC (high in ESC)								
Gene symbol	Ensgene id	Base Mean	Amniocyt mean	hESC mean	Fold Change	log2Fold Change	pval	padj
<i>TDGF1</i>	ENSG00000241186	3784.3	0.2	11153.4	0.0	-16.1	5.4E-240	1.6E-235

<i>DPPA4</i>	ENSG00000121570	8397.8	2.0	24747.6	0.0	-13.6	6.9E-229	6.8E-225
<i>ZIC3</i>	ENSG00000156925	1282.7	0.1	3780.5	0.0	-15.2	2.7E-209	2.0E-205
<i>SOX2</i>	ENSG00000181449	2431.0	0.8	7163.5	0.0	-13.1	1.4E-208	8.2E-205
<i>LIN28B</i>	ENSG00000187772	1301.6	0.3	3835.6	0.0	-13.6	1.3E-201	6.4E-198
<i>L1TD1</i>	ENSG00000240563	3806.7	3.2	11213.8	0.0	-11.8	1.0E-192	4.3E-189
<i>LIN28A</i>	ENSG00000131914	11676.9	15.9	34385.1	0.0	-11.1	8.2E-186	2.7E-182
<i>PTPRZ1</i>	ENSG00000106278	1559.7	2.0	4593.2	0.0	-11.2	3.9E-181	1.2E-177
<i>SLC7A3</i>	ENSG00000165349	1945.2	2.8	5727.6	0.0	-11.0	7.2E-177	1.9E-173
<i>LECT1</i>	ENSG00000136110	550.8	0.6	1622.2	0.0	-11.3	1.2E-166	2.5E-163
Amniocytes vs ESC_(high in Amniocytes)								
Gene symbol	Ensgene id	baseMean	Amniocyt mean	hESC mean	Fold Change	log2Fold Change	pval	padj
<i>NNMT</i>	ENSG00000166741	7082.3	10718.5	1.3	7990.2	13.0	1.09E-106	4.01E-104
<i>IGFBP7</i>	ENSG00000163453	5600.8	8476.4	1.0	8100.9	13.0	6.08E-94	1.42E-91
<i>PAX8</i>	ENSG00000125618	2585.9	3913.4	0.8	4746.4	12.2	6.62E-94	1.54E-91
<i>HOXA3</i>	ENSG00000105997	580.9	879.2	0.0	1000000.0	19.9	1.35E-86	2.72E-84
<i>HOXA9</i>	ENSG00000078399	457.3	692.2	0.0	1000000.0	19.9	8.06E-83	1.40E-80
<i>HOXB9</i>	ENSG00000170689	757.9	1146.7	0.6	1993.2	11.0	2.87E-80	4.58E-78
<i>HOXB6</i>	ENSG00000108511	372.3	563.5	0.0	26420.0	14.7	1.63E-78	2.47E-76
<i>ANKRD1</i>	ENSG00000148677	11249.0	17016.4	17.9	952.7	9.9	5.93E-78	8.70E-76
<i>HOXA7</i>	ENSG00000122592	400.3	605.7	0.2	2599.6	11.3	4.69E-76	6.41E-74
<i>LRRN4</i>	ENSG00000125872	1490.0	2253.7	2.7	821.1	9.7	5.54E-76	7.49E-74
Amniocytes vs iPSC_(high in iPSC)								
Gene symbol	Ensgene id	baseMean	Amniocyt mean	iPSC mean	Fold Change	log2Fold Change	pval	padj
<i>LIN28A</i>	ENSG00000131914	7848.4	16.0	31998.4	0.0	-11.0	>E-306	>E-306
<i>PTPRZ1</i>	ENSG00000106278	1053.0	2.0	4293.5	0.0	-11.1	>E-306	>E-306
<i>ADCY2</i>	ENSG00000078295	965.4	1.5	3937.2	0.0	-11.3	>E-306	>E-306
<i>L1TD1</i>	ENSG00000240563	2717.9	3.2	11088.1	0.0	-11.8	>E-306	>E-306
<i>DPPA4</i>	ENSG00000121570	7298.4	2.0	29795.7	0.0	-13.9	>E-306	>E-306
<i>LIN28B</i>	ENSG00000187772	1165.3	0.3	4757.2	0.0	-13.9	>E-306	>E-306
<i>VRTN</i>	ENSG00000133980	543.8	0.1	2220.1	0.0	-14.2	>E-306	>E-306
<i>ZIC3</i>	ENSG00000156925	917.5	0.1	3746.3	0.0	-15.1	>E-306	>E-306
<i>TDGF1</i>	ENSG00000241186	3719.8	0.2	15188.7	0.0	-16.5	>E-306	>E-306
<i>ITM2A</i>	ENSG00000078596	1254.4	4.0	5109.8	0.0	-10.3	1.8E-306	4.4E-303
Amniocytes vs iPSC_(high in Amniocytes)								
Gene symbol	Ensgene id	baseMean	Amniocyt mean	iPSC mean	Fold Change	log2Fold Change	pval	padj
<i>NNMT</i>	ENSG00000166741	8096.1	10721.7	0.3	38988.1	15.3	4.7E-152	9.5E-150
<i>PAX8</i>	ENSG00000125618	2956.8	3915.6	0.4	9721.0	13.2	2.1E-130	3.1E-128
<i>MVP</i>	ENSG00000013364	4493.7	5950.5	1.8	3336.2	11.7	1.3E-128	1.8E-126
<i>HOXB9</i>	ENSG00000170689	866.0	1146.8	0.1	13380.1	13.7	6.3E-109	5.8E-107

<i>KCNS3</i>	ENSG00000170745	343.9	36.2	1292.8	0.0	-5.2	1.4E-108	1.3E-106
<i>HOXA7</i>	ENSG00000122592	457.8	606.3	0.0	1000000.0	19.9	2.3E-97	1.7E-95
<i>HOXA9</i>	ENSG00000078399	523.0	692.6	0.2	4160.7	12.0	4.2E-97	3.2E-95
<i>HOXA3</i>	ENSG00000105997	664.3	879.7	0.2	3557.3	11.8	1.7E-96	1.3E-94
<i>BMP1</i>	ENSG00000168487	3506.7	4639.3	14.6	318.1	8.3	6.0E-93	4.1E-91
<i>HOXC10</i>	ENSG00000180818	358.9	475.3	0.0	1000000.0	19.9	2.4E-92	1.6E-90
Gestational age (High in Early GA)								
Gene symbol	Ensgene id	baseMean	Mean early	Mean late	Fold Change	log2Fold Change	pval	padj
<i>IGF2BP1</i>	ENSG00000159217	1190.8	1832.1	514.0	3.6	1.8	8.6E-14	1.2E-10
<i>Tbx18</i>	ENSG00000112837	55.8	87.2	22.6	3.9	2.0	5.6E-11	3.9E-08
<i>COL25A1</i>	ENSG00000188517	362.9	584.2	129.3	4.5	2.2	2.6E-10	1.5E-07
<i>DSC3</i>	ENSG00000134762	501.7	868.3	114.8	7.6	2.9	2.0E-08	5.4E-06
<i>HIF1A</i>	ENSG00000100644	8355.9	12065.4	4440.3	2.7	1.4	5.3E-08	1.2E-05
<i>FOXP2</i>	ENSG00000128573	39.6	61.1	16.9	3.6	1.9	7.3E-08	1.6E-05
<i>WDR38</i>	ENSG00000136918	5.2	9.2	0.9	10.7	3.4	9.2E-08	1.9E-05
<i>Gata6</i>	ENSG00000141448	567.2	820.8	299.5	2.7	1.5	1.2E-07	2.3E-05
<i>LTBP1</i>	ENSG00000049323	1857.6	2812.5	849.8	3.3	1.7	1.3E-07	2.6E-05
<i>BACH1</i>	ENSG00000156273	1103.3	1567.8	612.9	2.6	1.4	1.8E-07	3.2E-05
Gestational age (High in Late GA)								
Gene symbol	Ensgene id	baseMean	Mean early	Mean late	Fold Change	log2Fold Change	pval	padj
<i>MRPL33</i>	ENSG00000243147	2736.3	1208.1	4349.4	0.3	-1.8	3.5E-12	3.9E-09
<i>RPS21</i>	ENSG00000171858	8517.5	3807.0	13489.7	0.3	-1.8	3.9E-12	4.1E-09
<i>RPS29</i>	ENSG00000213741	16486.1	7562.2	25905.7	0.3	-1.8	1.1E-11	1.1E-08
<i>C3orf78</i>	ENSG00000168273	705.7	327.2	1105.3	0.3	-1.8	2.4E-11	2.1E-08
<i>C22orf26</i>	ENSG00000182257	45.5	19.5	73.0	0.3	-1.9	3.4E-11	2.6E-08
<i>NDUFB1</i>	ENSG00000183648	2039.1	1005.6	3129.9	0.3	-1.6	2.9E-10	1.6E-07
<i>SNRPG</i>	ENSG00000143977	2762.2	1392.3	4208.2	0.3	-1.6	3.4E-10	1.9E-07
<i>FAM36A</i>	ENSG00000203667	532.8	273.3	806.7	0.3	-1.6	4.1E-10	2.2E-07
<i>HoxD4</i>	ENSG00000170166	107.0	52.9	164.1	0.3	-1.6	4.1E-10	2.2E-07
<i>FOLR1</i>	ENSG00000110195	39.4	7.0	73.6	0.1	-3.4	1.4E-09	6.4E-07
Culture time (High in Time 1)								
Gene symbol	Ensgene id	baseMean	Mean Time_1	Mean Time_3	Fold Change	log2Fold Change	pval	padj
<i>CA3</i>	ENSG00000164879	30.0	57.2	2.8	20.7	4.4	2.8E-13	8.2E-09
<i>PLBD1</i>	ENSG00000121316	60.2	106.4	14.1	7.5	2.9	1.2E-12	1.2E-08
<i>CPXM1</i>	ENSG00000088882	114.0	209.1	18.8	11.1	3.5	1.8E-12	1.3E-08
<i>E2F2</i>	ENSG00000007968	40.2	76.1	4.2	18.2	4.2	3.9E-12	2.3E-08
<i>KCNE3</i>	ENSG00000175538	13.7	24.3	3.1	7.9	3.0	1.4E-11	4.9E-08
<i>SFXN2</i>	ENSG00000156398	134.7	220.1	49.3	4.5	2.2	1.6E-11	4.9E-08
<i>HAAO</i>	ENSG00000162882	9.5	18.1	0.8	21.9	4.5	7.0E-11	1.6E-07

<i>FAM111B</i>	ENSG00000189057	78.9	150.7	7.0	21.4	4.4	1.4E-10	2.9E-07
<i>BRCA2</i>	ENSG00000139618	59.8	108.3	11.2	9.7	3.3	2.2E-10	4.3E-07
<i>ORC1</i>	ENSG00000085840	98.3	180.5	16.1	11.2	3.5	9.9E-10	1.8E-06
Culture Time (High in Time3)								
Gene symbol	Ensgene id	baseMean	Mean Time_1	Mean Time_3	Fold Change	log2Fold Change	pval	padj
<i>CDKN2A</i>	ENSG00000147889	2214.8	775.3	3654.3	0.2	-2.2	6.3E-13	9.3E-09
<i>FBXL16</i>	ENSG00000127585	52.1	17.2	86.9	0.2	-2.3	4.9E-12	2.4E-08
<i>C21orf7</i>	ENSG00000156265	1169.0	362.3	1975.8	0.2	-2.4	9.9E-12	4.2E-08
<i>EEF1A2</i>	ENSG00000101210	2254.2	581.5	3927.0	0.1	-2.8	1.7E-11	4.9E-08
<i>SPRN</i>	ENSG00000203772	153.6	56.7	250.5	0.2	-2.1	5.1E-11	1.3E-07
<i>OXTR</i>	ENSG00000180914	1614.3	574.8	2653.8	0.2	-2.2	3.3E-09	4.3E-06
<i>CALY</i>	ENSG00000130643	28.2	9.3	47.1	0.2	-2.3	5.9E-09	6.7E-06
<i>CCND2</i>	ENSG00000118971	2812.5	1245.0	4380.1	0.3	-1.8	6.2E-09	6.8E-06
<i>PDE1C</i>	ENSG00000154678	876.9	343.7	1410.1	0.2	-2.0	6.9E-09	7.2E-06
<i>SULT4A1</i>	ENSG00000130540	38.1	15.7	60.6	0.3	-1.9	2.9E-08	1.9E-05
Gender (High in Male)								
Gene symbol	Ensgene id	baseMean	mean_M	Mean F	Fold Change	log2Fold Change	pval	padj
<i>RPS4Y1</i>	ENSG00000129824	1194.0	4015.0	0.5	8092.3	13.0	5.0E-239	1.5E-234
<i>KDM5D</i>	ENSG00000012817	137.5	462.4	0.0	1048576.0	20.0	1.3E-166	2.0E-162
<i>TTY15</i>	ENSG00000233864	139.8	470.3	0.0	14841.2	13.9	1.4E-157	1.3E-153
<i>CYorf15A.1</i>	ENSG00000099749	61.1	205.2	0.1	1662.2	10.7	1.6E-126	1.2E-122
<i>UTY</i>	ENSG00000183878	66.6	218.8	2.3	96.7	6.6	7.5E-92	3.7E-88
<i>NLGN4Y</i>	ENSG00000165246	122.5	407.5	1.9	216.5	7.8	8.6E-87	3.6E-83
<i>DDX3Y</i>	ENSG00000067048	282.7	943.7	3.0	312.4	8.3	2.9E-79	9.7E-76
<i>USP9Y</i>	ENSG00000114374	144.9	482.1	2.2	217.6	7.8	2.8E-79	9.7E-76
<i>EIF1AY</i>	ENSG00000198692	388.2	1297.9	3.4	386.9	8.6	3.5E-69	1.0E-65
<i>TTY14</i>	ENSG00000176728	11.3	37.9	0.0	1048576.0	20.0	3.2E-57	8.5E-54
<i>CYorf15B.1</i>	ENSG00000131002	38.0	127.6	0.2	813.4	9.7	3.5E-57	8.5E-54
Gender (High in Female)								
Gene symbol	Ensgene id	baseMean	Mean M	Mean F	Fold Change	log2Fold Change	pval	padj
<i>XIST</i>	ENSG00000229807	2903.1	0.2	4131.3	0.0	-14.3	2.9E-117	1.7E-113
<i>TFAP2B</i>	ENSG00000008196	50.4	0.5	71.5	0.0	-7.1	5.9E-07	6.4E-04
<i>CYBA</i>	ENSG00000051523	8507.9	4038.7	10398.8	0.4	-1.4	5.7E-06	4.4E-03
<i>GPC4</i>	ENSG00000076716	664.5	330.2	805.9	0.4	-1.3	6.9E-06	5.3E-03
<i>PCDHA4</i>	ENSG00000204967	5.7	1.1	7.6	0.1	-2.7	9.9E-06	6.3E-03
<i>TMEM139</i>	ENSG00000178826	270.5	117.3	335.3	0.3	-1.5	1.1E-05	6.7E-03
<i>FAM36A</i>	ENSG00000203667	532.8	231.6	660.2	0.4	-1.5	1.4E-05	7.9E-03
<i>MPZL3</i>	ENSG00000160588	226.1	114.0	273.5	0.4	-1.3	1.5E-05	8.0E-03
<i>NCF2</i>	ENSG00000116701	935.0	415.8	1154.7	0.4	-1.5	1.6E-05	8.1E-03

HBQ1	ENSG00000086506	22.5	8.8	28.3	0.3	-1.7	1.8E-05	8.9E-03
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