

Table S5. Reference list of 150 genes for primary embryonic lineages. The 150 genes were included in our list based on the criteria; 1) previous reports show the gene playing a possible functional role in any of the three primary germ layers or in the trophoctodermal lineage during development and 2) each gene was reliably detected at significant levels in our RNA-seq dataset.

Gene_Symbol	Ensgene_id	Refseq_id	Lineage	References
<i>Egr2</i>	ENSG00000122877	NM_000399	Ectoderm	[1,2]
<i>Fgf5</i>	ENSG00000138675	NM_004464	Ectoderm	[3,4]
<i>Foxj3</i>	ENSG00000198815	NM_001198850	Ectoderm	[5]
<i>Gbx2</i>	ENSG00000168505	NM_001485.2	Ectoderm	[4,6]
<i>Lhx5</i>	ENSG00000089116	NM_022363	Ectoderm	[7]
<i>Lmx1a</i>	ENSG00000162761	NM_001033507	Ectoderm	[8]
<i>Meis1</i>	ENSG00000143995	NM_002398	Ectoderm	[9,10]
<i>Meis2</i>	ENSG00000134138	NM_170677	Ectoderm	[9,10]
<i>Nes</i>	ENSG00000132688	NM_006617	Ectoderm	[11]
<i>Pard6b</i>	ENSG00000124171	NM_032521	Ectoderm	[12]
<i>Pax2</i>	ENSG00000075891	NM_000278	Ectoderm	[13-16]
<i>Pax6</i>	ENSG00000007372	NM_000280	Ectoderm	[17-19]
<i>Penk</i>	ENSG00000181195	NM_001135690	Ectoderm	[12]
<i>Rbm27</i>	ENSG00000091009	XM_291128	Ectoderm	[3]
<i>Sox1</i>	ENSG00000182968	NM_005986	Ectoderm	[20]
<i>Tfcp2l1</i>	ENSG00000115112	NM_014553	Ectoderm	[3]
<i>Trim33</i>	ENSG00000197323	NM_015906.3	Ectoderm	[21]
<i>Tubb3</i>	ENSG00000198211	NM_006086	Ectoderm	[22]
<i>Zic1</i>	ENSG00000152977	NM_003412	Ectoderm	[23]
<i>Afp</i>	ENSG00000081051	NM_001134	Endoderm	[24,25]
<i>Calcr</i>	ENSG00000004948	NM_001164737.1	Endoderm	[26,27]
<i>Cckbr</i>	ENSG00000110148	NM_176875.3	Endoderm	[26]
<i>Cer1</i>	ENSG00000147869	NM_005454	Endoderm	[27]
<i>Cxcr4</i>	ENSG00000121966	NM_001008540	Endoderm	[27-30]
<i>Cyp26a1</i>	ENSG00000095596	NM_000783.3	Endoderm	[26]
<i>Dab2</i>	ENSG00000153071	NM_001343	Endoderm	[31,32]
<i>Dkk4</i>	ENSG00000104371	NM_014420	Endoderm	[27]
<i>Dlx3</i>	ENSG00000064195	NM_005220	Endoderm	[33]
<i>Dlx5</i>	ENSG00000105880	NM_005221	Endoderm	[33]
<i>Elf4</i>	ENSG00000102034	NM_001421	Endoderm	[27]
<i>Eya2</i>	ENSG00000064655	NM_005244	Endoderm	[27]

<i>Fgf17</i>	ENSG00000158815	NM_003867.2	Endoderm	[26,27]
<i>Foxa2</i>	ENSG00000125798	NM_153675	Endoderm	[26,34,35]
<i>Foxa3</i>	ENSG00000170608	NM_004497	Endoderm	[35,36]
<i>Foxc1</i>	ENSG00000054598	NM_001453	Endoderm	[27]
<i>Foxg1</i>	ENSG00000176165	NM_005249	Endoderm	[33]
<i>Foxh1</i>	ENSG00000160973	NM_003923	Endoderm	[37,38]
<i>Foxq1</i>	ENSG00000164379	NM_033260	Endoderm	[27]
<i>Gata6</i>	ENSG00000141448	NM_005257	Endoderm	[27,39-42]
<i>Gpc1</i>	ENSG00000063660	NM_002081	Endoderm	[30,43]
<i>Hhex</i>	ENSG00000152804	NM_002729	Endoderm	[27,44]
<i>Id4</i>	ENSG00000172201	NM_001546	Endoderm	[33]
<i>Krt19</i>	ENSG00000171345	NM_002276	Endoderm	[45]
<i>Nts</i>	ENSG00000133636	NM_006183	Endoderm	[27]
<i>Onecut1</i>	ENSG00000169856	NM_004498	Mixed Lineages	[46-48]
<i>Pax9</i>	ENSG00000198807	NM_006194	Endoderm	[33]
<i>Plxna2</i>	ENSG00000076356	NM_025179	Endoderm	[27]
<i>Prdm1</i>	ENSG00000057657	NM_001198.3	Endoderm	[26,49]
<i>Pyy</i>	ENSG00000131096	NM_004160	Endoderm	[50]
<i>Shisa2</i>	ENSG00000180730	NM_001007538	Endoderm	[26,51]
<i>Sox17</i>	ENSG00000164736	NM_022454	Endoderm	[52,53]
<i>Sox7</i>	ENSG00000171056	NM_031439	Endoderm	[54,55]
<i>Sp6</i>	ENSG00000189120	NM_199262	Endoderm	[33]
<i>Tle2</i>	ENSG00000065717	NM_003260	Endoderm	[27]
<i>Trim22</i>	ENSG00000132274	NM_006074	Endoderm	[27]
<i>Tspan7</i>	ENSG00000156298	NM_004615	Endoderm	[30,56,57]
<i>Cxcl12</i>	ENSG00000107562	NM_000609	Mesoderm	[28,29]
<i>Ednrb</i>	ENSG00000136160	NM_000115	Mesoderm	[58]
<i>Foxf1</i>	ENSG00000103241	NM_001451	Mesoderm	[59-61]
<i>Lhx1</i>	ENSG00000132130	NM_005568	Mesoderm	[62-64]
<i>Lmo2</i>	ENSG00000135363	NM_001142315.1	Mesoderm	[26]
<i>Meox1</i>	ENSG00000005102	NM_001040002	Mesoderm	[65,66]
<i>Meox2</i>	ENSG00000106511	NM_005924	Mesoderm	[65,66]
<i>Mesdc2</i>	ENSG00000117899	NM_015154	Mesoderm	[67]
<i>Msx1</i>	ENSG00000163132	NM_002448	Mesoderm	[68-70]
<i>Msx2</i>	ENSG00000120149	NM_002449	Mesoderm	[70,71]
<i>Myl4</i>	ENSG00000198336	NM_001002841	Mesoderm	[72]
<i>Myocd</i>	ENSG00000141052	NM_153604	Mesoderm	[73]
<i>Pbx1</i>	ENSG00000185630	NM_001204961	Mesoderm	[74-76]
<i>Ror2</i>	ENSG00000169071	NM_004560	Mesoderm	[77,78]
<i>Sox6</i>	ENSG00000110693	NM_001145819	Mesoderm	[79,80]
<i>Tbx6</i>	ENSG00000149922	NM_004608	Mesoderm	[81-85]

<i>Tcf15</i>	ENSG00000125878	NM_004609	Mesoderm	[86]
<i>Wnt5a</i>	ENSG00000114251	NM_001256105.1	Mesoderm	[87,88]
<i>Wnt5b</i>	ENSG00000111186	NM_030775.2	Mesoderm	[89]
<i>Wnt8a</i>	ENSG00000061492	NM_058244	Mesoderm	[90-92]
<i>Anxa4</i>	ENSG00000196975	NM_001153	Mixed Lineages	[45]
<i>Bmp2</i>	ENSG00000125845	NM_001200	Mixed Lineages	[93-96]
<i>Bmp4</i>	ENSG00000125378	NM_001202	Mixed Lineages	[93,97,98]
<i>Cdx2</i>	ENSG00000165556	NM_001265	Mixed Lineages	[99-101]
<i>Dkk1</i>	ENSG00000107984	NM_012242	Mixed Lineages	[102-105]
<i>Dsg2</i>	ENSG00000046604	NM_001943	Mixed Lineages	[45]
<i>Eomes</i>	ENSG00000163508	NM_005442	Mixed Lineages	[99,106]
<i>Fgf8</i>	ENSG00000107831	NM_001206389.1	Mixed Lineages	[107-109]
<i>Foxa1</i>	ENSG00000129514	NM_004496	Mixed Lineages	[34,110,111]
<i>Gata3</i>	ENSG00000107485	NM_002051	Mixed Lineages	[112-114]
<i>Gata4</i>	ENSG00000136574	NM_002052	Mixed Lineages	[60,115-118]
<i>Gdf3</i>	ENSG00000184344	NM_020634	Mixed Lineages	[119,120]
<i>Gsc</i>	ENSG00000133937	NM_173849	Mixed Lineages	[30,121-125]
<i>Hand1</i>	ENSG00000113196	NM_004821	Mixed Lineages	[126-129]
<i>Hand2</i>	ENSG00000164107	NM_021973	Mixed Lineages	[127,130-132]
<i>Hnf4a</i>	ENSG00000101076	NM_001030003	Mixed Lineages	[133,134]
<i>Hox1a</i>	ENSG00000105991	NM_005522	Mixed Lineages	[135-137]
<i>Hoxb1</i>	ENSG00000120094	NM_002144	Mixed Lineages	[137-139]
<i>Isl1</i>	ENSG00000016082	NM_002202	Mixed Lineages	[140-142]
<i>Kdr</i>	ENSG00000128052	NM_002253	Mixed Lineages	[143,144]
<i>Mesp1</i>	ENSG00000166823	NM_018670	Mixed Lineages	[145]
<i>Mesp2</i>	ENSG00000188095	NM_001039958	Mixed Lineages	[146]

<i>Mixl1</i>	ENSG00000185155	NM_031944	Mixed Lineages	[147,148]
<i>Otx1</i>	ENSG00000115507	NM_001199770	Mixed Lineages	[13,149,150]
<i>Otx2</i>	ENSG00000165588	NM_021728.2	Mixed Lineages	[13,149]
<i>Pdgfra</i>	ENSG00000134853	NM_006206	Mixed Lineages	[42,151-153]
<i>Pdgfrb</i>	ENSG00000113721	NM_002609	Mixed Lineages	[154,155]
<i>Ripk4</i>	ENSG00000183421	NM_020639	Mixed Lineages	[45]
<i>T</i>	ENSG00000164458	NM_003181	Mixed Lineages	[81,156-161]
<i>Wnt3a</i>	ENSG00000154342	NM_033131	Mixed Lineages	[81,85,162]
<i>Akr1b1</i>	ENSG00000085662	NM_001628	Trophectoderm	[163]
<i>Ascl2</i>	ENSG00000183734	NM_005170	Trophectoderm	[164-166]
<i>Cebpb</i>	ENSG00000172216	NM_005194	Trophectoderm	[167]
<i>Cgb</i>	ENSG00000104827	NM_000737	Trophectoderm	[168]
<i>Cgb1</i>	ENSG00000204748	NM_033377	Trophectoderm	[169]
<i>Cgb2</i>	ENSG00000104818	NM_033378	Trophectoderm	[169]
<i>Cgb5</i>	ENSG00000189052	NM_033043	Trophectoderm	[170,171]
<i>Cgb7</i>	ENSG00000196337	NM_033142	Trophectoderm	[170]
<i>Cgb8</i>	ENSG00000213030	NM_033183	Trophectoderm	[170]
<i>Csh1</i>	ENSG00000136488	NM_001317	Trophectoderm	[165,172]
<i>Csh2</i>	ENSG00000213218	NM_020991	Trophectoderm	[173]
<i>Ctsc</i>	ENSG00000109861	NM_001814	Trophectoderm	[77]
<i>Cyp19a1</i>	ENSG00000137869	NM_000103	Trophectoderm	[77,174]
<i>Elf5</i>	ENSG00000135374	NM_001422	Trophectoderm	[175-178]
<i>Enpep</i>	ENSG00000138792	NM_001977	Trophectoderm	[77]
<i>Esx1</i>	ENSG00000123576	NM_153448	Trophectoderm	[179]
<i>Ets2</i>	ENSG00000157557	NM_001256295	Trophectoderm	[180,181]
<i>Fgfr1</i>	ENSG00000077782	NM_023108	Trophectoderm	[182]
<i>Gcm1</i>	ENSG00000137270	NM_003643	Trophectoderm	[183,184]
<i>H19</i>	ENSG00000130600	NR_002196	Trophectoderm	[185]
<i>Krt7</i>	ENSG00000135480	NM_005556	Trophectoderm	[186]
<i>Krt8</i>	ENSG00000170421	NM_002273	Trophectoderm	[187]
<i>Lhb</i>	ENSG00000104826	NM_000894	Trophectoderm	[188]
<i>Lhcgr</i>	ENSG00000138039	NM_000233	Trophectoderm	[189]
<i>Lifr</i>	ENSG00000113594	NM_001127671	Trophectoderm	[190]
<i>Plac1</i>	ENSG00000170965	NM_021796	Trophectoderm	[191,192]
<i>Plac2</i>	ENSG00000223573	NR_027064	Trophectoderm	[77]
<i>Psg1</i>	ENSG00000231924	NM_006905	Trophectoderm	[193,194]

<i>Psg11</i>	ENSG00000243130	NM_203287	Trophectoderm	[193]
<i>Psg2</i>	ENSG00000242221	NM_031246	Trophectoderm	[193]
<i>Psg3</i>	ENSG00000221826	NM_021016	Trophectoderm	[194]
<i>Psg4</i>	ENSG00000243137	NM_213633	Trophectoderm	[195]
<i>Psg5</i>	ENSG00000204941	NM_001130014	Trophectoderm	[194]
<i>Psg6</i>	ENSG00000170848	NM_002782	Trophectoderm	[196,197]
<i>Psg7</i>	ENSG00000221878	NM_001206650	Trophectoderm	[194]
<i>Psg8</i>	ENSG00000124467	NM_001130167	Trophectoderm	[198]
<i>Psg9</i>	ENSG00000183668	NM_002784	Trophectoderm	[198]
<i>Rsl1d1</i>	ENSG00000171490	NM_015659	Trophectoderm	[199]
<i>Stra13</i>	ENSG00000169689	NM_144998	Trophectoderm	[200]
<i>Tead4</i>	ENSG00000197905	NM_003213	Trophectoderm	[201-203]
<i>Tfap2c</i>	ENSG00000087510	NM_003222	Trophectoderm	[204]
<i>Thbd</i>	ENSG00000178726	NM_000361	Trophectoderm	[205,206]
<i>Vtcn1</i>	ENSG00000134258	NM_024626	Trophectoderm	[77]

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