

**Appendix from Gaskill et al., “Shared gene expression patterns in mesenchymal progenitors derived from lung and epidermis in pulmonary arterial hypertension: identifying key pathways in pulmonary vascular disease”
(Pulm. Circ., vol. 6, no. 4, p. 483)**

Table S1. Reagent information

Gene/protein	Human qRT-PCR primer: forward	Human qRT-PCR primer: reverse	Antibody
<i>DKK1</i>	Hs00183740_m1	(Taqman)	
<i>WISP1</i>	AGGAACTGCATAGCCTACACA	TGGTACACAGCCAGACACTTC	
<i>TNC</i>	TGCGAAGAAGGCTTCACA	TACACATTTGCCCTCGACAC	
<i>NEO1</i>	GGAGCCGGTGGATACACTCT	TGGCGTCGATCATCTGATACTA	
<i>RGS5</i>	CGGAGGCTCCTAAAGAGGTG	CAAAGCGAGGCAGAGAATCC	
<i>SPON2</i>	CGGCCAAATACAGCATCACC	CCCAGCAGCGAAGACCACT	
<i>WLS</i>	ATGAGGGCCGTTACTATGAATGT	CCTTGGTGAAGCCTCCATTTTG	
<i>LRP6</i>	ACGATTGTAGTTGGAGGCTTG	ATGGCTTCTTCGCTGACATCA	
<i>PTGS2</i>	Hs00153133_m1	(Taqman)	
<i>PEAR1</i>	Hs01378394_m1	(Taqman)	
<i>PDK4</i>	Hs01037712_m1	(Taqman)	
LRP6			Santa Cruz SC-25317
DKK1			Santa Cruz SC-374574

Note: qRT-PCR: quantitative reverse transcription polymerase chain reaction.

Table S2. Differential gene expression between PAH and control MPCs

Gene	PAH versus control		Gene	PAH versus control	
	Fold change	<i>P</i> value		Fold change	<i>P</i> value
<i>ABCA8</i>	-5.74566	0.000426918	<i>P4HA3</i>	-3.71075	0.00359561
<i>ACAD11</i>	-3.02428	0.0115302	<i>PAR4</i>	-2.29911	0.0279132
<i>ACSS3</i>	-2.30662	0.00832764	<i>PARP8</i>	-2.05851	0.0108406
<i>ADAM23</i>	-2.53986	0.0426075	<i>PARP9</i>	2.26876	0.00347152
<i>ADAMTS19</i>	-2.26564	0.00381684	<i>PCDHB2</i>	-2.28736	0.0145255
<i>API3</i>	-2.1376	0.0105606	<i>PCDHB5</i>	-2.2907	0.00488807
<i>ARNTL2</i>	2.01563	0.030135	<i>PCOLCE2</i>	-2.75813	0.0368619
<i>ASAH1</i>	-2.04675	0.0021534	<i>PDK4</i>	-2.98576	4.00E-05
<i>BGN</i>	2.44454	0.0365964	<i>PEAR1</i>	2.12031	0.00635016
<i>BMP6</i>	-2.22251	0.00389416	<i>PGM2L1</i>	-2.99221	0.00011248
<i>BRIP1</i>	2.32996	0.0309359	<i>PLAT</i>	-4.53043	0.025726
<i>CCL20</i>	-3.3151	0.00378156	<i>PPP1R3C</i>	-2.64459	0.034272
<i>CCND2</i>	-5.5355	0.0155638	<i>PTGS2</i>	-5.5725	0.040118
<i>CENPI</i>	2.9553	0.0338275	<i>PTHLH</i>	-2.18944	0.00901834
<i>CHN1</i>	2.40679	0.0194867	<i>PTTG1</i>	2.69096	0.0355188
<i>CPE</i>	-2.1992	0.0392921	<i>RELN</i>	-4.75644	0.0329863
<i>CTSC</i>	2.19773	0.020409	<i>RGS5</i>	-3.45307	0.00629714
<i>CXCL10</i>	2.5709	0.00461782	<i>ROBO2</i>	-2.38973	0.000585671
<i>DKK1</i>	-2.27936	0.0201554	<i>SAT1</i>	-2.70967	0.0129793
<i>DOCK10</i>	2.32133	0.00869289	<i>SATB1</i>	-2.99009	5.53E-06
<i>DTX3L</i>	2.25824	0.00192234	<i>SCG2</i>	-3.14705	0.000159118
<i>EPGN</i>	-2.73003	0.0125658	<i>SCG5</i>	-2.91574	0.0235747
<i>FAM183B</i>	2.44479	0.00221733	<i>SERPINE2</i>	-3.63115	0.0132981
<i>FGL2</i>	-8.19764	0.0102414	<i>SERPINI1</i>	-2.54572	0.00190024
<i>FLRT2</i>	-2.23673	0.0167511	<i>SESN3</i>	-5.88877	0.000105984
<i>GLB1L</i>	-2.62377	0.00348021	<i>SKA3</i>	3.47573	0.0438041
<i>H2AFZ</i>	2.45075	0.0338116	<i>SLC14A1</i>	2.97187	0.0335797
<i>HAS2</i>	3.04969	0.036305	<i>SLC1A1</i>	-2.66717	0.0492348
<i>HIST1H1E</i>	3.19816	0.0428945	<i>SLC38A11</i>	-2.39641	0.00853225
<i>HIST1H4B</i>	2.22934	0.0499595	<i>SLC39A8</i>	-2.01716	0.0113132
<i>HIST2H2AB</i>	3.21531	0.0231178	<i>SLC40A1</i>	-4.08569	0.045058
<i>HIST2H2BE</i>	-2.35754	0.0185113	<i>SNAP25</i>	-2.17275	0.0364734
<i>HTATSF1P2</i>	3.61831	0.00167649	<i>SNRPN</i>	-2.88561	0.0205426
<i>IFI44</i>	2.36029	0.0123215	<i>SPON2</i>	2.16564	0.0386202
<i>IFIT1</i>	2.81063	0.0300291	<i>STEAP1</i>	2.01976	0.0471408
<i>IFIT3</i>	2.14972	0.00241179	<i>TCF19</i>	2.35564	0.0330562
<i>KIAA0101</i>	2.78886	0.0499342	<i>TCF19</i>	2.2882	0.0348311
<i>KIAA1377</i>	-2.36545	0.0383475	<i>TNC</i>	3.29154	0.00975554
<i>KLF4</i>	-2.16152	0.04311	<i>TNFRSF1B</i>	-2.30988	0.0317549
<i>LBR</i>	2.40004	0.0060019	<i>TNXA</i>	-3.03839	0.00362081
<i>LGMN</i>	-2.35556	0.00652633	<i>TNXB</i>	-3.07654	0.00396426

Table S2 (Continued)

Gene	PAH versus control		Gene	PAH versus control	
	Fold change	P value		Fold change	P value
<i>LIPH</i>	-3.34977	0.0131982	<i>TOX2</i>	2.31942	1.62E-05
<i>LPHN2</i>	-3.71932	0.0229826	<i>TRHDE</i>	2.18208	0.0415992
<i>MAOA</i>	-3.75233	0.0194706	<i>TRPV2</i>	2.65022	0.00301275
<i>MEDAG</i>	-6.02268	0.0290316	<i>TYMS</i>	3.46746	0.0325237
<i>MME</i>	2.74555	0.0151204	<i>VCAN</i>	-2.77318	0.00759963
<i>NEO1</i>	2.37015	0.0329007	<i>WLS</i>	-2.07564	0.0328988
<i>NRM</i>	2.15887	0.0399557	<i>XAF1</i>	2.22607	0.00747729
<i>NUF2</i>	3.26221	0.047235			
<i>NXF3</i>	-2.02669	0.0166706			

Note: MPCs: mesenchymal progenitor cells; PAH: pulmonary arterial hypertension.

Table S3. Gene expression common in lung and skin mesenchymal progenitor cells relative to lung fibroblasts

Gene	Adjusted P value	Gene	Adjusted P value	Gene	Adjusted P value
<i>KARS</i>	0.003754665	<i>CCND2</i>	0.0118961	<i>SHROOM3</i>	0.003670784
<i>EIF3F</i>	0.000481415	<i>CRACR2A</i>	0.013054831	<i>NFKB1</i>	0.00966527
<i>GDI2</i>	0.003475123	<i>GNS</i>	0.010886852	<i>USP53</i>	0.008091899
<i>HNRNPD</i>	0.001742548	<i>EEA1</i>	0.003672702	<i>MSMO1</i>	0.00427293
<i>HINT1</i>	0.001521358	<i>AKAP11</i>	0.006968455	<i>SH3D19</i>	0.012597167
<i>MCTP2</i>	0.002305372	<i>MIPEP</i>	0.000413416	<i>DMXL1</i>	0.019848346
<i>TCEB2</i>	0.00540237	<i>FLRT2</i>	0.016810132	<i>PRDM6</i>	0.005593715
<i>YY1</i>	0.004252223	<i>GPHB5</i>	0.032152095	<i>CSNK1G3</i>	0.008915714
<i>RNPS1</i>	0.015067654	<i>TRIP11</i>	0.00427293	<i>GM2A</i>	0.02849702
<i>KARS</i>	0.004654451	<i>MAP2K5</i>	0.019951227	<i>SQSTM1</i>	0.003618116
<i>FNTA</i>	0.000287202	<i>SPG11</i>	0.013480302	<i>HMGCS1</i>	0.040399444
<i>NPM1</i>	0.008771686	<i>CNOT6L</i>	0.043797907	<i>COL4A3BP</i>	0.008843249
<i>IK</i>	0.00051101	<i>VPS13C</i>	0.011734291	<i>HOMER1</i>	0.017509619
<i>EIF4G2</i>	0.007731736	<i>SLC9A3R2</i>	0.018675918	<i>CCDC112</i>	0.003205645
<i>PRPF8</i>	0.00427293	<i>MT1X</i>	0.012356098	<i>GNPDA1</i>	0.007003414
<i>EIF3D</i>	0.016390177	<i>SLC12A4</i>	0.005607752	<i>DPYSL3</i>	0.002353872
<i>OAZ1</i>	0.014613998	<i>LCAT</i>	0.005607752	<i>DUSP1</i>	0.012619233
<i>TAF10</i>	0.005327146	<i>CTNS</i>	0.003076261	<i>ZFP62</i>	0.004509464
<i>SART3</i>	0.013316994	<i>KRTAP9-1</i>	0.01081735	<i>EDN1</i>	0.000368188
<i>SART1</i>	0.02965512	<i>WNK4</i>	0.002765411	<i>ACOT13</i>	0.004396663
<i>ILF2</i>	0.007557336	<i>SPHK1</i>	0.000307472	<i>PHF3</i>	0.014245617
<i>CBX3</i>	0.009759887	<i>ABR</i>	0.030489212	<i>FIG4</i>	0.000782556
<i>HINT1</i>	0.00328246	<i>VAT1</i>	0.027011742	<i>GJA1</i>	0.013136088

Table S3 (Continued)

Gene	Adjusted <i>P</i> value	Gene	Adjusted <i>P</i> value	Gene	Adjusted <i>P</i> value
<i>USP22</i>	0.007769826	<i>ARHGAP28</i>	0.018510553	<i>CGA</i>	0.042434217
<i>EIF4G2</i>	0.001317398	<i>MIB1</i>	0.005214734	<i>GPNMB</i>	0.041949672
<i>DAD1</i>	0.002940223	<i>CCDC130</i>	0.018938761	<i>EIF4B</i>	0.007142088
<i>HNRNPK</i>	0.012513294	<i>ZNF766</i>	0.011302949	<i>INSIG1</i>	0.043790577
<i>NPM1</i>	0.001737272	<i>ZNF845</i>	0.002027839	<i>SEMA3C</i>	0.00230772
<i>ANAPC5</i>	0.017192235	<i>ZNF135</i>	0.018938761	<i>SLC25A40</i>	0.011560029
<i>SEPT2</i>	0.004029966	<i>C3</i>	0.035174269	<i>NAMPT</i>	0.010432597
<i>GDI2</i>	0.000324036	<i>ZNF850</i>	0.005995346	<i>WNT2</i>	0.031797392
<i>CANX</i>	0.015166734	<i>ZNF780B</i>	0.014920479	<i>SDCBP</i>	0.011473718
<i>CAPNS1</i>	0.03020659	<i>SERTAD1</i>	0.003998191	<i>OXR1</i>	0.027256608
<i>KAT7</i>	0.016235184	<i>TAF1B</i>	0.016549637	<i>EMC2</i>	0.007226713
<i>GUK1</i>	0.002504509	<i>EHBP1</i>	0.012115039	<i>DENND3</i>	0.018085302
<i>SEPT14</i>	0.018830105	<i>FER1L5</i>	0.018675918	<i>LONRF1</i>	0.020935755
<i>IFI16</i>	0.011560029	<i>GYPC</i>	0.003761691	<i>PSD3</i>	0.006978096
<i>DDR2</i>	0.003672702	<i>ACVR2A</i>	0.036192987	<i>RB1CC1</i>	0.003244456
<i>ZC3H11A</i>	0.011542988	<i>ADII</i>	0.00540237	<i>GEM</i>	0.001479204
<i>GPR137B</i>	0.004349162	<i>NBAS</i>	0.01179363	<i>HRSP12</i>	0.014240025
<i>RRAGC</i>	0.018146601	<i>SMC6</i>	0.034521649	<i>EIF3E</i>	0.001739213
<i>OMA1</i>	0.00911309	<i>LDAH</i>	0.002524608	<i>JAK2</i>	0.015096052
<i>ZNHIT6</i>	0.003244456	<i>LRPPRC</i>	0.001444187	<i>SCAI</i>	0.001135774
<i>CDC42SE1</i>	0.0118961	<i>LYPD1</i>	0.004571177	<i>PDK3</i>	0.012591566
<i>S100A10</i>	0.020134342	<i>GTDC1</i>	0.01584706	<i>MAOB</i>	0.026924674
<i>FMOD</i>	0.011432404	<i>TGM2</i>	0.018692484	<i>XAGE3</i>	0.014986484
<i>LEFTY2</i>	0.020300959	<i>SLC5A3</i>	0.007068372	<i>MORC4</i>	0.011396562
<i>CELF2</i>	0.004066829	<i>APOL6</i>	0.016328036	<i>GPC4</i>	0.000108718
<i>IFIT2</i>	0.000147613	<i>TCEA1</i>	0.010128669	<i>GPSM3</i>	0.011473718
<i>EXOC6</i>	0.000118809	<i>C3orf14</i>	0.02523779	<i>RASA4</i>	0.00427293
<i>SCD</i>	0.004288013	<i>GXYLT2</i>	0.009005018	<i>MRGPRX3</i>	0.008692386
<i>MARCH8</i>	0.01999115	<i>DTX3L</i>	0.00993769	<i>SLC25A52</i>	0.001521358
<i>JMJD1C</i>	0.005612215	<i>CLDN11</i>	0.001555164	<i>SLC25A51</i>	0.001521358
<i>PPA1</i>	0.001250116	<i>ARMC10</i>	0.003796911	<i>KARS</i>	0.003754665
<i>ANO1</i>	0.031546574	<i>CFAP44</i>	0.001237906	<i>EIF3F</i>	0.000481415
<i>RNF169</i>	0.004265815	<i>BCHE</i>	0.000813023	<i>GDI2</i>	0.003475123

Table S4. Differential gene expression between ABCG2-expressing skin and lung mesenchymal progenitor cells

Gene	Fold change	Gene	Fold change
<i>ABCA1</i>	-7.140379375	<i>KCNJ2</i>	-11.17813985
<i>ACTC1</i>	95.9064689	<i>LAMA1</i>	-6.744129897
<i>ADA</i>	4.141622168	<i>LGR4</i>	2.714392814
<i>ADAMTS12</i>	-3.258729977	<i>LIFR</i>	-3.810556211
<i>ADGRA3</i>	-3.822489543	<i>LRP4</i>	2.558093918
<i>ADGRG6</i>	-12.13024322	<i>LURAP1L</i>	-3.804082107
<i>ADRA2C</i>	3.255290428	<i>MCAM</i>	6.967111342
<i>AKAP6</i>	10.28542192	<i>MSX1</i>	5.22209982
<i>BCHE</i>	-5.487451706	<i>NCALD</i>	5.594113689
<i>C5orf30</i>	6.225149585	<i>NCAM1</i>	6.92291223
<i>CADPS</i>	3.087142808	<i>NCKAP5</i>	-3.099513479
<i>CCL2</i>	-20.1807767	<i>NRN1</i>	72.7478546
<i>CDH10</i>	4.813123244	<i>NTF4</i>	3.876836386
<i>CDH18</i>	5.362029696	<i>OLFML2B</i>	3.951511144
<i>CFH</i>	-29.66566966	<i>PDE5A</i>	-16.36720262
<i>COMP</i>	12.8007186	<i>PERP</i>	-3.618870672
<i>CTSC</i>	-8.547382511	<i>PLAC8</i>	5.083368648
<i>DKK1</i>	5.50202578	<i>PODXL</i>	22.77536965
<i>DUSP2</i>	5.766688863	<i>PRRX2</i>	3.70223168
<i>EMCN</i>	7.616999049	<i>RASD2</i>	7.94451159
<i>EMX2</i>	5.806593483	<i>RCAN2</i>	3.082643063
<i>ERG</i>	6.475541649	<i>RIMS1</i>	3.079968681
<i>EXOC6</i>	-5.861872829	<i>RTN4RL1</i>	3.90925993
<i>FRAS1</i>	4.465130742	<i>SCN9A</i>	-25.38799166
<i>GCLC</i>	-5.092460846	<i>SDPR</i>	-4.349046474
<i>GDF15</i>	-9.364839758	<i>SFRP1</i>	-9.129036858
<i>GK</i>	-9.841969507	<i>SHC3</i>	-5.652915738
<i>GPC4</i>	15.38302986	<i>SIMI</i>	4.173372549
<i>HGF</i>	-38.06457212	<i>SLC7A8</i>	18.1691909
<i>HOXA9</i>	7.436936653	<i>SMAD6</i>	3.728750848
<i>HOXD10</i>	11.51907568	<i>SVIP</i>	-3.662563103
<i>HOXD11</i>	2.998537142	<i>TBX15</i>	9.499693723
<i>HSPA4L</i>	-6.417888004	<i>TBX18</i>	5.023753737
<i>HTR1F</i>	5.230995929	<i>TGFB2</i>	-8.750447068
<i>HTR2A</i>	3.224492221	<i>TIAM2</i>	3.641838934
<i>IFIT2</i>	-3.09684411	<i>TNFSF15</i>	-3.208561644
<i>IFITM10</i>	3.017262095	<i>TOM1L1</i>	-3.559699575
<i>IGFBP5</i>	-83.6131559	<i>TSPAN18</i>	6.53260725
<i>IL11RA</i>	2.752604431	<i>ZIC1</i>	8.165245944
<i>ITGA8</i>	4.471799319	<i>ZNF385D</i>	5.732989384