

Supplementary Table 1: The top 50 marker genes for each VSMC subcluster

cluster	gene	avg_log2FC	p_val_adj	pct.1	pct.2
VSMC_0	Ccn3	2.089	6.84E-157	0.638	0.285
VSMC_0	Ogn	1.919	4.2E-262	0.879	0.519
VSMC_0	Prlr	1.533	1.15E-35	0.273	0.121
VSMC_0	Ccn1	1.286	8.83E-25	0.489	0.381
VSMC_0	BC051019	1.246	4.04E-51	0.443	0.228
VSMC_0	Ptgs2	1.230	2.11E-22	0.407	0.279
VSMC_0	Optc	1.219	6.16E-13	0.289	0.204
VSMC_0	Pkdcc	1.193	1.43E-33	0.422	0.272
VSMC_0	Fos	1.153	7.07E-100	0.867	0.756
VSMC_0	mt-Nd4l	1.138	0	0.988	0.987
VSMC_0	Gm13861	1.125	1E-121	0.778	0.423
VSMC_0	Hey2	1.105	1.31E-34	0.436	0.273
VSMC_0	Vldlr	1.101	2.86E-26	0.37	0.236
VSMC_0	Selenop	1.037	2.61E-17	0.328	0.219
VSMC_0	Gstt1	1.019	8.72E-17	0.297	0.187
VSMC_0	Higd1a	1.014	8.49E-163	0.956	0.902
VSMC_0	Pdgfd	0.993	1.07E-08	0.266	0.195
VSMC_0	Hspa2	0.990	6.59E-114	0.85	0.653
VSMC_0	Olfml2b	0.966	4.4E-16	0.341	0.234
VSMC_0	Phpt1	0.940	3.08E-17	0.303	0.187
VSMC_0	Cbr2	0.933	9.97E-32	0.55	0.422
VSMC_0	Gstm1	0.922	4.76E-27	0.442	0.289
VSMC_0	Trnp1	0.910	3.54E-37	0.582	0.459
VSMC_0	Klhl7	0.909	1.03E-17	0.369	0.257
VSMC_0	mt-Atp8	0.906	8.37E-105	0.861	0.748
VSMC_0	Apoe	0.904	6.95E-12	0.494	0.432
VSMC_0	B230118H 07Rik	0.903	1.07E-13	0.337	0.242
VSMC_0	Gem	0.874	2.38E-33	0.717	0.645
VSMC_0	Chchd10	0.866	1.65E-30	0.506	0.337
VSMC_0	Ost4	0.865	3.11E-60	0.732	0.618
VSMC_0	Alx1	0.863	2.26E-18	0.385	0.268
VSMC_0	Chuc1	0.857	1.7E-35	0.565	0.431
VSMC_0	Adamts11	0.855	1.6E-22	0.34	0.191
VSMC_0	Epb41	0.845	1.43E-06	0.291	0.221
VSMC_0	Gm11627	0.833	4.97E-31	0.471	0.299
VSMC_0	Pkia	0.816	3.14E-15	0.443	0.362
VSMC_0	Inpp4a	0.803	1.82E-13	0.426	0.344
VSMC_0	Fmc1	0.799	8.07E-31	0.544	0.407
VSMC_0	Plekho1	0.795	6.31E-24	0.568	0.461

VSMC_0	Rab28	0.793	2.61E-14	0.394	0.297
VSMC_0	Zfp36	0.791	2E-29	0.675	0.571
VSMC_0	Hmgn2	0.789	1.35E-16	0.331	0.212
VSMC_0	Rap1a	0.785	2.2E-152	0.971	0.902
VSMC_0	Btg2	0.785	6.67E-73	0.848	0.726
VSMC_0	Smim26	0.769	9.01E-08	0.271	0.197
VSMC_0	Cox17	0.769	1.66E-54	0.737	0.607
VSMC_0	Ccdc107	0.768	1.43E-74	0.856	0.733
VSMC_0	Pi15	0.767	1.35E-28	0.463	0.29
VSMC_0	Ssbp1	0.758	1.01E-07	0.308	0.238
VSMC_0	Il11ra1	0.747	2.35E-19	0.51	0.423
VSMC_1	Gask1b	4.729	3.79E-241	0.406	0.014
VSMC_1	Col15a1	4.011	7.77E-265	0.472	0.027
VSMC_1	Scx	3.990	6.71E-244	0.441	0.025
VSMC_1	Itga5	3.785	0	0.898	0.158
VSMC_1	Aqp1	3.570	3.65E-148	0.293	0.018
VSMC_1	Dtnb	3.527	2.98E-186	0.361	0.022
VSMC_1	Igfbp2	3.515	0	0.823	0.264
VSMC_1	Sgcg	3.381	4.72E-139	0.295	0.024
VSMC_1	Aebp1	3.290	0	0.765	0.112
VSMC_1	Ltbp2	3.234	1.35E-144	0.358	0.049
VSMC_1	S100a4	3.164	3.07E-181	0.464	0.074
VSMC_1	Fn1	3.056	0	0.983	0.501
VSMC_1	Loxl2	2.991	3.49E-244	0.549	0.073
VSMC_1	Cd44	2.984	1.19E-162	0.358	0.035
VSMC_1	Lgals3	2.904	1.31E-200	0.503	0.077
VSMC_1	Hebp2	2.896	3.39E-106	0.265	0.031
VSMC_1	Uchl1	2.882	1.21E-240	0.56	0.08
VSMC_1	Angptl2	2.831	7.34E-199	0.512	0.084
VSMC_1	Creb5	2.818	6.24E-104	0.253	0.028
VSMC_1	Ccdc80	2.801	7.55E-270	0.651	0.113
VSMC_1	Sulf1	2.785	0	0.841	0.206
VSMC_1	Pdgfb	2.745	6.21E-153	0.342	0.033
VSMC_1	Dbp	2.741	3.26E-124	0.326	0.046
VSMC_1	Hspb7	2.722	0	0.835	0.219
VSMC_1	Vwa1	2.701	2.25E-157	0.407	0.06
VSMC_1	Gent4	2.673	3.95E-113	0.278	0.032
VSMC_1	Col5a2	2.669	8.11E-292	0.714	0.146
VSMC_1	Nav2	2.613	9.44E-178	0.412	0.047
VSMC_1	Loxl1	2.571	0	0.755	0.154
VSMC_1	Col6a3	2.567	7.09E-101	0.307	0.055
VSMC_1	Crlf1	2.516	6.46E-295	0.849	0.331
VSMC_1	Cd248	2.472	9.73E-140	0.378	0.057
VSMC_1	Fgf2	2.406	4.7E-228	0.636	0.134

VSMC_1	Cdh13	2.398	4.15E-118	0.351	0.06
VSMC_1	Qsox1	2.379	0	0.857	0.256
VSMC_1	Nes	2.359	2.08E-245	0.679	0.147
VSMC_1	Hpcal1	2.332	2.46E-114	0.31	0.043
VSMC_1	Scube3	2.286	2.01E-168	0.474	0.082
VSMC_1	Sod3	2.252	5.99E-156	0.609	0.206
VSMC_1	Uhrf1bp11	2.239	2.39E-147	0.427	0.074
VSMC_1	Slc6a6	2.165	1.05E-192	0.634	0.164
VSMC_1	Capg	2.146	7.61E-103	0.293	0.044
VSMC_1	Col12a1	2.138	4.62E-136	0.4	0.07
VSMC_1	Flnc	2.137	6.16E-137	0.476	0.107
VSMC_1	Col6a1	2.131	2.3E-157	0.495	0.101
VSMC_1	Nr1d1	2.079	1.92E-123	0.403	0.081
VSMC_1	Rora	2.071	4.97E-192	0.702	0.217
VSMC_1	Col5a1	2.070	1.29E-172	0.558	0.124
VSMC_1	S100a6	2.068	1.38E-255	0.943	0.539
VSMC_1	Neb1	2.017	1.77E-85	0.284	0.054
VSMC_2	Foxf1	4.541	3.62E-126	0.264	0.024
VSMC_2	Mt2	3.115	4.6E-131	0.428	0.093
VSMC_2	Apold1	3.098	4.13E-183	0.584	0.145
VSMC_2	AW011738	3.054	3.87E-92	0.35	0.089
VSMC_2	Rrm1	2.724	6.8E-76	0.376	0.127
VSMC_2	Mt1	2.620	6.55E-225	0.922	0.466
VSMC_2	Ccr12	2.568	8.44E-42	0.333	0.152
VSMC_2	Ncapd3	2.547	1.41E-74	0.384	0.133
VSMC_2	Ncf2	2.509	6.94E-87	0.377	0.109
VSMC_2	Rasl11a	2.426	6.78E-156	0.847	0.504
VSMC_2	Vps37b	2.404	1.22E-162	0.788	0.477
VSMC_2	Cenpl	2.306	9.59E-58	0.37	0.144
VSMC_2	Rasd1	2.195	2.58E-131	0.679	0.307
VSMC_2	Mzt2	2.166	9.47E-58	0.416	0.187
VSMC_2	Adamts4	2.151	6.05E-75	0.455	0.175
VSMC_2	Cwc25	2.126	3.92E-50	0.421	0.213
VSMC_2	Trmt61b	2.040	2.6E-45	0.485	0.284
VSMC_2	Cdkn1c	1.974	1.2E-69	0.464	0.205
VSMC_2	Sowahc	1.973	2.16E-26	0.288	0.143
VSMC_2	Cdk11b	1.953	1.01E-61	0.619	0.448
VSMC_2	Slc9a3r1	1.930	4.17E-50	0.472	0.279
VSMC_2	Txndc11	1.928	7.76E-71	0.55	0.285
VSMC_2	Siah2	1.916	1.01E-54	0.511	0.301
VSMC_2	Cstb	1.914	7.41E-48	0.67	0.591
VSMC_2	Bcr	1.905	1.1E-58	0.56	0.349
VSMC_2	Higd1b	1.901	3.16E-12	0.287	0.198

VSMC_2	Cox4i2	1.879	4.57E-24	0.282	0.146
VSMC_2	Gper1	1.863	1.49E-151	0.866	0.599
VSMC_2	Ldb1	1.852	5.18E-22	0.27	0.143
VSMC_2	Snhg15	1.842	1.36E-63	0.483	0.239
VSMC_2	Pim3	1.829	7.2E-105	0.713	0.445
VSMC_2	Slc16a11	1.812	1.31E-43	0.309	0.121
VSMC_2	Tesc	1.811	1.23E-76	0.523	0.25
VSMC_2	Tdp2	1.804	1.37E-61	0.516	0.275
VSMC_2	Errf1	1.789	3.59E-131	0.875	0.658
VSMC_2	Cog7	1.782	6.7E-105	0.68	0.376
VSMC_2	Nrip2	1.781	3.26E-91	0.619	0.332
VSMC_2	Tspan12	1.770	8.63E-31	0.313	0.157
VSMC_2	Arih1	1.743	1.34E-92	0.731	0.539
VSMC_2	Kcne4	1.726	7.29E-48	0.457	0.248
VSMC_2	Gcc1	1.719	9.5E-30	0.322	0.167
VSMC_2	Ppp1r15a	1.712	3.7E-146	0.934	0.749
VSMC_2	Socs3	1.710	4.85E-97	0.726	0.426
VSMC_2	Myd88	1.702	1.78E-32	0.384	0.224
VSMC_2	Pde5a	1.663	1.68E-81	0.624	0.383
VSMC_2	Tsc22d1	1.655	9.72E-193	0.99	0.844
VSMC_2	Mospd1	1.650	1.71E-16	0.269	0.159
VSMC_2	Zic1	1.615	1.24E-51	0.512	0.313
VSMC_2	Gpr146	1.598	1.83E-31	0.365	0.203
VSMC_2	Ptp4a3	1.593	1.72E-111	0.835	0.685
VSMC_3	Pbk	12.905	0	0.698	0
VSMC_3	Esco2	11.902	0	0.488	0
VSMC_3	Bub1	11.353	0	0.488	0
VSMC_3	Mxd3	11.352	0	0.395	0
VSMC_3	Depdc1a	11.331	0	0.395	0
VSMC_3	Ska1	11.154	0	0.465	0
VSMC_3	Sapcd2	11.025	2.36E-244	0.279	0
VSMC_3	Kif2c	10.987	0	0.395	0
VSMC_3	Melk	10.955	0	0.395	0
VSMC_3	Ckap2l	10.867	0	0.605	0
VSMC_3	Hmmr	10.854	0	0.535	0.001
VSMC_3	Neil3	10.675	1.43E-285	0.326	0
VSMC_3	Ccnb2	10.413	0	0.674	0.001
VSMC_3	Ttk	10.393	0	0.372	0
VSMC_3	Ncapg	10.283	0	0.395	0
VSMC_3	Cdca2	10.268	0	0.372	0
VSMC_3	Birc5	10.265	0	0.767	0.002
VSMC_3	Cdca5	10.203	0	0.512	0
VSMC_3	Cdkn3	10.122	0	0.488	0.001
VSMC_3	Cdk1	10.114	0	0.884	0.002

VSMC_3	Hist1h2ap	10.040	9.32E-224	0.256	0
VSMC_3	Ube2c	9.990	0	0.558	0.003
VSMC_3	Aurkb	9.905	0	0.512	0
VSMC_3	Cenpf	9.900	0	0.581	0.002
VSMC_3	Pimreg	9.767	0	0.581	0.001
VSMC_3	Cep55	9.610	0	0.442	0
VSMC_3	Ccnb1	9.334	0	0.581	0.001
VSMC_3	Prc1	9.247	0	0.767	0.004
VSMC_3	Rrm2	9.218	0	0.581	0.001
VSMC_3	Spag5	9.202	1.8E-245	0.302	0
VSMC_3	Ccna2	9.138	0	0.698	0.001
VSMC_3	Top2a	9.107	0	0.814	0.003
VSMC_3	Nek2	9.033	1.01E-228	0.302	0
VSMC_3	Uhrf1	9.029	0	0.651	0.001
VSMC_3	Cit	8.905	0	0.419	0
VSMC_3	Cdca8	8.883	0	0.721	0.004
VSMC_3	Spc25	8.872	0	0.628	0.002
VSMC_3	Cenpe	8.846	2.44E-286	0.419	0.001
VSMC_3	Gas2l3	8.840	1.39E-220	0.326	0.001
VSMC_3	Kif20a	8.773	0	0.442	0.001
VSMC_3	Diaph3	8.725	0	0.767	0.003
VSMC_3	Cdc25c	8.674	1.7E-208	0.279	0
VSMC_3	Aspm	8.627	0	0.465	0.001
VSMC_3	Cenpm	8.619	0	0.628	0.002
VSMC_3	Mis18bp1	8.610	0	0.488	0.001
VSMC_3	BC030867	8.585	5.94E-225	0.279	0
VSMC_3	Kif11	8.581	0	0.442	0.001
VSMC_3	Pole	8.569	0	0.465	0.001
VSMC_3	Rad51	8.516	0	0.791	0.001