

**Table S1. Antibodies used in this research**

<b>Antibody against</b>	<b>Antibody type</b>	<b>Dilution</b>	<b>Source catalog number</b>
GFR $\alpha$ 1	Rabbit polyclonal antibody IgG	1: 200	Abcam (Cambridge, MA) ab8026
Texas Red (TR)-conjugated goat anti-rabbit IgG	Goat polyclonal antibody IgG	1:100	Santa Cruz Biotechnologies sc-2780
Anti-Mouse MHC Class II (I-A/I-E) PE	Rat monoclonal antibody IgG2b	1:9	eBioscience 12-5321-81
Anti-Mouse CD45 PE	Rat monoclonal antibody IgG2b	1:9	eBioscience 12-0451-81
Anti-Mouse CD11b PE	Rat monoclonal antibody IgG2b	1:9	eBioscience 12-0112-81
Anti-mouse/human CD44 PE	Rat monoclonal antibody IgG2b	1:9	Biolegend 103007
Rat IgG2b K Isotype Control PE	Rat monoclonal antibody IgG2b	1:9	eBioscience 12-4031-81
Anti-Mouse MHC Class I (H-2Db) PE	Mouse monoclonal antibody IgG2a	1:9	eBioscience 12-5999-81
Mouse IgG2a K Isotype Control PE	Mouse monoclonal antibody IgG2a	1:9	eBioscience 12-4724-41

Anti-Mouse Ly-6A/E (Sca-1) PE	Rat monoclonal antibody IgG2a	1:9	eBioscience 12-5981-81
Rat IgG2a K Isotype Control PE	Rat monoclonal antibody IgG2a	1:9	eBioscience 12-4321-41

**Table S2. PCR primers and conditions for gene expression analysis**

Genes	Primer sequences (5'-3', Forward and Reverse)	Annealing temp	Length (bp)	Accession No.
GFRa1	5'TGGACAGGCAGGATGAAATAGAGC3' 5' TACTTGTGCCATTCAGTTCACCTTC 3'	56	421	NM_010279
PLZF	5'CCATACTGGCACGGACAT3' 5' CTGTAGTGCGTCTCCAAC 3'	56	336	NM_001033324
E-cadherin	5'GGCATTCCCTTGTTTCGGCTAT3' 5'AAAACATTGGTTGAGATAAG3'	56	394	NM_009864
NGN3	5'CTTCGCCCCACAACACTACATCT3' 5'TTTCCACTAGCACCCACCAC3'	56	308	NM_009719
LIN28	5'GGGACTCAACTCCTTAGCCT3' 5'AACAGGTAAGGATAAGCCAT3'	56	542	NM_145833
Oct4	5'GTATTCCCAACGAGAAGAGT3' 5'ATGATGAGTGACAGACAGGC3'	57	394	NM_013633
18SRNA	5' GGTTCCCTTTGGTCGCTCGCT3' 5'GCTGCCTTCCTTGGATGTGG3'	58	364	NM_145833

**Table S3. miRNAs highly expressed in mouse SSCs**

<b>miRNAs</b>	<b>ESCs</b>	<b>SSCs</b>	<b>MSCs</b>	<b>STs</b>	<b>GCs</b>
mmu-let-7g*	0.141	0.47	0	0.169	0
mmu-miR-101b*	1.265	5.447	0.093	0.169	0.142
mmu-miR-10a	589.36	8229.64	3607.16	3293.475	77.585
mmu-miR-1195	7.241	31.928	0.093	0	0.142
mmu-miR-129-2-3p	6.468	28.454	12.011	1.742	0.142
mmu-miR-146b	772.642	8203.159	303.343	1650.138	114.671
mmu-miR-153	0.633	1.315	0	0.225	0.047
mmu-miR-155	26.083	164.431	3.445	55.419	0.854
mmu-miR-155*	0	1.503	0	0.112	0
mmu-miR-184	134	537.242	0.652	20.684	226.212
mmu-miR-190*	0.07	0.282	0	0	0
mmu-miR-190b	1.898	5.447	0.931	0.843	0.427
mmu-miR-1930	0.07	0.376	0.093	0	0.047
mmu-miR-195	92.239	456.294	1.583	46.482	8.631
mmu-miR-195*	0.562	12.396	0.186	0.393	0.047
mmu-miR-196b	70.374	318.908	64.337	63.006	3.367
mmu-miR-201*	0	0.094	0	0	0
mmu-miR-203	173.792	1063.779	0.186	60.983	5.975
mmu-miR-203*	0.352	3.756	0	0	0.047
mmu-miR-215	3.234	31.271	1.862	4.215	0.285
mmu-miR-216b	0	1.127	0.186	0	0
mmu-miR-222*	4.078	21.974	10.428	5.621	0.142
mmu-miR-224	14.623	72.872	20.763	14.726	0.379
mmu-miR-26b*	0.773	2.817	0	0.281	0.047
mmu-miR-297a*	10.616	27.233	1.024	0	0.047
mmu-miR-297a-5*	1.758	5.447	0	0	0.142
mmu-miR-297b-3p	10.616	27.233	5.307	0	0.047
mmu-miR-297c	13.85	30.426	5.307	0.056	0.095
mmu-miR-297c*	10.616	27.233	0.279	0	0.047
mmu-miR-29c*	0.352	2.066	0.652	0.731	0.047
mmu-miR-3065	0	0.376	0	0.112	0
mmu-miR-3065*	0	0.188	0	0.056	0
mmu-miR-3082-5p	0	0.094	0	0	0
mmu-miR-3083	0	0.47	0	0.112	0
mmu-miR-3084*	1.687	5.541	0.186	1.574	0.142
mmu-miR-3086-3p	0	0.47	0.093	0	0
mmu-miR-3096-3p	2.039	10.987	1.49	0.337	0.664
mmu-miR-3096b-3p	1.969	10.705	0	0.337	0.664
mmu-miR-30b	66.297	356.471	10.521	103.137	7.967

mmu-miR-30c	274.397	760.741	20.949	252.588	22.621
mmu-miR-31*	4.921	46.86	11.08	0.955	0.427
mmu-miR-3102-3p.2	0	0.282	0.093	0.112	0
mmu-miR-3105-3p	0.07	0.376	0	0	0
mmu-miR-3105-5p	0.211	0.657	0	0	0
mmu-miR-3107	5.554	47.799	5.586	1.63	2.988
mmu-miR-3107*	0.07	4.695	0	0	0.095
mmu-miR-339-5p	9.843	26.951	2.235	1.855	0.427
mmu-miR-340-3p	4.71	24.698	0	3.934	0.427
mmu-miR-340-5p	70.374	290.642	15.083	49.124	11.809
mmu-miR-344	5.765	13.992	6.331	2.642	0.047
mmu-miR-344d	0.844	1.784	0.466	0.506	0.047
mmu-miR-346	0.281	2.348	0	0	0
mmu-miR-346*	0	0.094	0	0	0
mmu-miR-3470a	19.755	92.686	0.652	2.136	6.45
mmu-miR-3470b	25.309	96.067	0.745	2.023	12.188
mmu-miR-350*	0.773	2.535	0.372	0.169	0
mmu-miR-3572	0	0.188	0	0.056	0
mmu-miR-377	7.944	16.152	0.838	4.215	0
mmu-miR-463	0.844	958.697	0	0.112	7.256
mmu-miR-463*	0.422	457.327	0	0	2.419
		26396.15			
mmu-miR-465a-3p	71.288	2	0.093	2.304	178.741
mmu-miR-465a-5p	9.561	7398.469	0	0.45	64.212
		26325.34			
mmu-miR-465b-3p	71.218	6	0.093	2.248	174.141
mmu-miR-465c-3p	70.867	26171.15	0.093	2.248	173.287
mmu-miR-465c-5p	15.889	8864.922	0	0.843	55.249
mmu-miR-466a-3p	280.232	611.992	14.339	0.843	3.794
mmu-miR-466b-3p	297.176	640.54	14.711	0.955	3.984
mmu-miR-466c-3p	297.176	640.54	14.711	0.955	3.984
mmu-miR-466e-3p	297.316	640.634	14.804	0.955	3.984
mmu-miR-466j	0.07	0.657	0	0	0
mmu-miR-466p-3p	296.191	640.165	14.618	0.955	3.984
mmu-miR-466q	0	0.094	0	0	0
mmu-miR-467e	42.534	103.58	19.459	0.45	0.854
mmu-miR-470	28.122	19619.16	0	2.698	96.46
mmu-miR-470*	0.07	115.787	0	0	0.996
mmu-miR-471-3p	0	83.108	0	0	0.664
mmu-miR-471-5p	0.281	206.22	0	0.056	2.703
mmu-miR-483	2.953	14.18	0	0	0.047
mmu-miR-483*	0.281	3.475	0	0	0.047
mmu-miR-486	5.695	47.611	5.586	1.63	3.035

mmu-miR-486*	0.422	21.786	1.583	0.562	0.19
mmu-miR-497	13.217	38.408	4.376	5.789	0.664
mmu-miR-497*	0.562	1.503	0	0.056	0.047
mmu-miR-499*	0	0.094	0	0	0
mmu-miR-5103	0.07	0.282	0	0	0
mmu-miR-5106	0	0.188	0	0	0
mmu-miR-511-3p	1.898	24.979	0	10.735	0.19
mmu-miR-5121	1.898	5.071	0	0.112	0
mmu-miR-547	0	0.282	0	0	0.047
mmu-miR-592	0.422	2.442	0	0	0
mmu-miR-664	0.703	7.7	1.49	3.71	0.047
mmu-miR-668	2.039	4.226	0.093	1.967	0
mmu-miR-669c*	0.211	0.563	0.093	0	0
mmu-miR-669i	0	0.188	0	0	0
mmu-miR-669m-3p	1.476	3.568	0.466	0	0
mmu-miR-671-5p	18.701	43.009	0.745	16.187	0.379
mmu-miR-674	13.92	32.304	5.866	3.991	0.379
mmu-miR-678	0	0.094	0	0	0
mmu-miR-680	0	0.094	0	0	0
mmu-miR-682	0.07	0.188	0	0	0
mmu-miR-684	0	0.188	0	0	0
mmu-miR-692	0.141	1.784	0	0	0.047
mmu-miR-741	16.381	15663.888	0	5.058	138.335
mmu-miR-741*	0.562	154.008	0	0	1.612
mmu-miR-742	0	24.51	0	0	0.332
mmu-miR-742*	0	11.457	0	0	0
mmu-miR-743a	3.867	8072.909	0	1.237	60.276
mmu-miR-743a*	0.352	223.311	0	0	1.328
mmu-miR-743b-3p	1.969	1840.954	0	0.393	20.867
mmu-miR-743b-5p	0.07	77.379	0	0.056	0.427
mmu-miR-871-3p	62.43	47916.648	0	7.194	296.589
mmu-miR-871-5p	0.844	1991.769	0	0.056	14.607
mmu-miR-872*	124.016	277.683	14.99	28.777	1.66
mmu-miR-873	0.07	4.508	0.186	0.056	0.047
mmu-miR-873*	0	0.094	0	0	0
mmu-miR-875-5p	0	0.094	0	0	0
mmu-miR-878-3p	2.109	1298.547	0	0.169	7.351
mmu-miR-878-5p	83.803	20216.409	0	5.002	137.15
mmu-miR-879	0.352	0.939	0	0.056	0.047
mmu-miR-879*	0	0.188	0	0	0

mmu-miR-880	17.646	9533.634	0	1.405	60.94
mmu-miR-880*	0	0.094	0	0	0
mmu-miR-881	8.507	5107.887	0	1.405	52.403
mmu-miR-881*	0.422	236.646	0	0.056	1.802
mmu-miR-883a-3p	0.211	424.46	0	0	3.557
mmu-miR-883a-5p	0.07	141.424	0	0	0.854
mmu-miR-883b-3p	0	100.574	0	0	0.569
mmu-miR-883b-5p	0.07	240.684	0	0	1.565

**Table S5. endogenous retrovirus 1,2,3-derived repeats for piRNAs increased in developing GCs**

ESC		SSC		GCs	
Repeats	Relative Frequency %	Repeats	Relative Frequency %	Repeats	Relative Frequency %
DNAtransposon	9.62	CR1	15.61	CR1	8.88
ERV3	0.34	DNAtransposon	2.06	DNAtransposon	1.08
Pseudogene	86.63	ERV1	1.07	ERV1	0.73
SINE1/7SL	7.17	ERV2	1.88	ERV2	2.72
rRNA	0.72	ERV3	26.26	ERV3	48.60
tRNA	5.05	L1	2.27	Gypsy	0.00
		Mariner/Tc1	0.18	L1	2.56
		Pseudogene	22.09	Mariner/Tc1	0.17
		RMER1A	0.01	Pseudogene	0.00
		RTEX	0.72	RMER1A	0.00
		SINE	7.04	RTEX	1.74
		SINE1/7SL	8.09	SINE	9.91
		SINE2/tRNA	8.75	SINE1/7SL	9.50
		Satellite	0.04	SINE2/tRNA	9.25
		SimpleRepeat	0.61	Satellite	0.04
		TransposableElement	0.04	SimpleRepeat	0.72
		hAT	2.50	TransposableElement	0.01
		rRNA	0.04	hAT	3.71
		snRNA	0.29	rRNA	0.01
		tRNA	0.45	snRNA	0.37



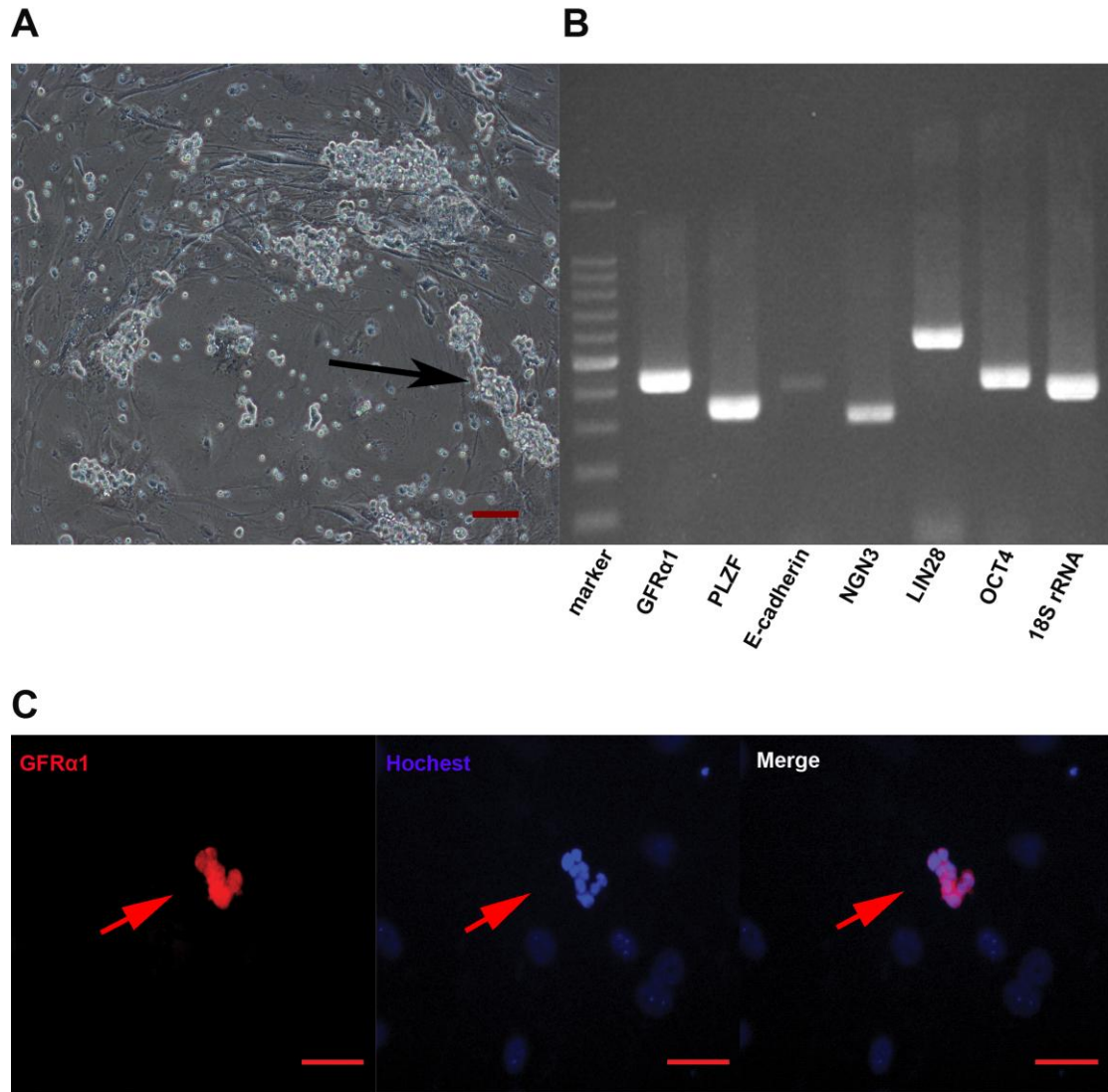


Figure S1

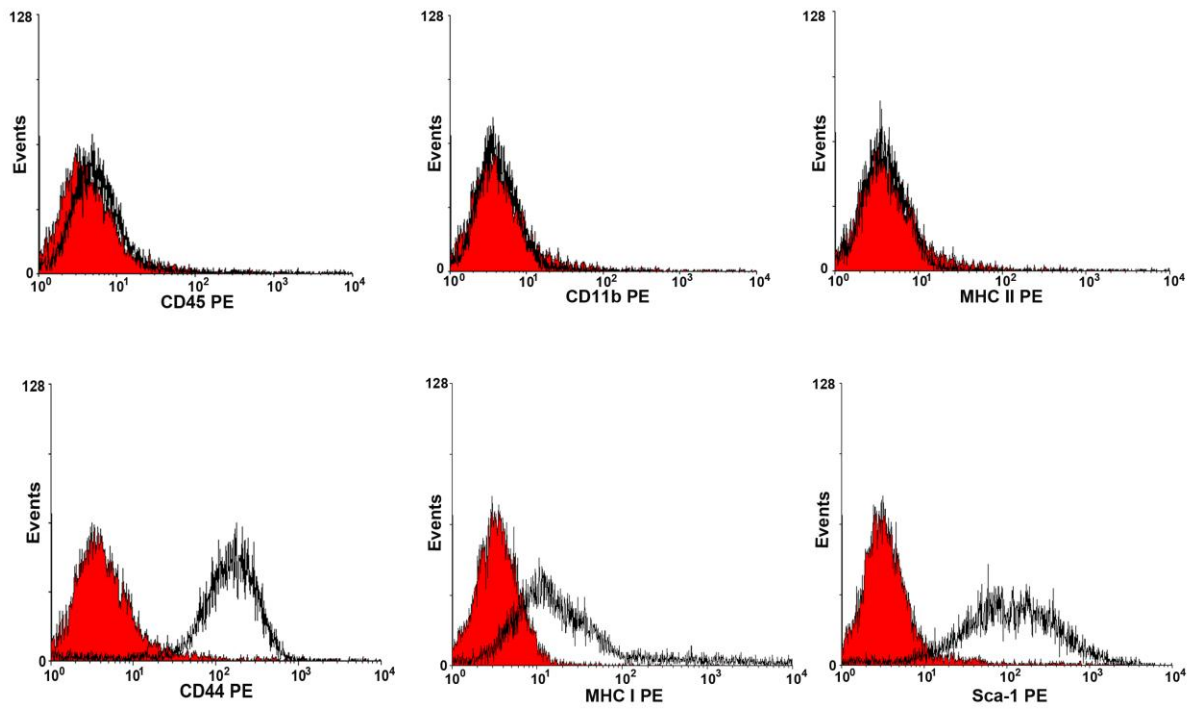


Figure S2

Figure S3

