

**Table S2.** Eighty-eight common DEGs in G1 and G2 for LRFI (p≤0.05).

Gene Name	Gene Symbol	Genetic group 1			Genetic group 2		
		Fold change (log2)*	P-value	padj	Fold change (log2)*	P-value	padj
Ankyrin Repeat y SOCS Box Protein 8	<i>ASB8</i>	- 0.1495	0.0253	0.571	- 0.1683	0.0056	0.308
ATP Binding Cassette Subfamily F Member 3	<i>ABCF3</i>	- 0.1319	0.0412	0.571	- 0.1681	0.0056	0.308
Vascular cell adhesion molecule 1-like	<i>LOC534578</i>	0.8064	0.0011	0.571	0.4097	0.0253	0.445
Integral Membrane Protein 2B	<i>ITM2B</i>	0.1688	0.0025	0.571	0.1242	0.0308	0.462
Contactin 4	<i>CNTN4</i>	0.9359	0.0066	0.571	0.6749	0.0472	0.51
Pleckstrin Homology Domain Containing B2	<i>PLEKHB2</i>	0.3896	0.0078	0.571	0.1984	0.0323	0.468
Zinc finger protein 665	<i>ZNF286A</i>	- 0.2862	0.0085	0.571	- 0.1821	0.0373	0.483
Transmembrane And Coiled-Coil Domain Family 1	<i>TMCC1</i>	-0.2	0.0093	0.571	- 0.2596	0.0009	0.22
Adenylosuccinate Synthase 2	<i>ADSS</i>	0.276	0.0097	0.571	0.1704	0.0267	0.451
Methionine Adenosyltransferase 2B	<i>MAT2B</i>	0.2139	0.0097	0.571	0.1131	0.0435	0.5
Major histocompatibility complex, class II, DR alpha	<i>BoLA-DRB3</i>	0.4489	0.0098	0.571	0.3182	0.0262	0.45
Cyclin B3	<i>STX7</i>	0.2613	0.0106	0.571	0.1475	0.0479	0.51
TNF Alpha Induced Protein 8	<i>TNFAIP8</i>	0.3635	0.0107	0.571	0.2624	0.009	0.35
F-Box Protein 15	<i>FBXO15</i>	- 0.4387	0.0108	0.571	- 0.4727	0.0367	0.48
LRR Binding FLII Interacting Protein 1	<i>LRRFIP1</i>	0.327	0.0108	0.571	0.2132	0.0062	0.312
Toll Like Receptor 5	<i>TLR5</i>	0.5309	0.0112	0.571	0.8541	0.0159	0.394
Joining Chain Of Multimeric IgA And IgM	<i>JCHAIN</i>	0.5275	0.0124	0.571	0.3372	0.0146	0.387
Uncharacterized	<i>LOC515089</i>	- 0.2801	0.0124	0.571	- 0.3338	0.0054	0.306
Cyclin B3	<i>CCNB3</i>	- 0.3393	0.0131	0.571	-0.437	0.0166	0.396
Annexin A1	<i>ANXA1</i>	0.3743	0.0136	0.571	0.2777	0.0171	0.401
Inositol Polyphosphate-5-Phosphatase K	<i>INPP5K</i>	- 0.1223	0.0138	0.571	- 0.1309	0.0405	0.494
Adhesion G Protein-Coupled Receptor A3	<i>ADGRA3</i>	- 0.1803	0.0139	0.571	- 0.1609	0.0074	0.333
Zinc Finger CCHC-Type Containing 7	<i>ZCCHC7</i>	- 0.2154	0.0143	0.571	- 0.2452	0.0201	0.425
Lymphocyte Cytosolic Protein 1	<i>LCPI1</i>	0.5266	0.0145	0.571	0.4347	0.0078	0.338
Major Histocompatibility Complex, Class II, DR Alpha	<i>BoLA-DRA</i>	0.4832	0.0157	0.571	0.2185	0.0499	0.512
CD74 Molecule	<i>CD74</i>	0.5054	0.0158	0.571	0.2425	0.0213	0.432
Transmembrane Protein 50A	<i>TMEM50A</i>	0.1392	0.016	0.571	0.1724	0.0416	0.497
Mannose Receptor C Type 2	<i>MRC2</i>	0.5687	0.0169	0.571	0.3	0.0424	0.5
Uncharacterized	<i>LOC788175</i>	0.5953	0.0178	0.571	0.3008	0.027	0.451
Adrenoceptor Alpha 1A	<i>ADRA1A</i>	- 0.2719	0.0193	0.571	- 0.2767	0.0002	0.158
Stathmin 1	<i>STMN1</i>	0.4345	0.0194	0.571	0.2428	0.0382	0.487
Helicase, Lymphoid Specific	<i>HELLS</i>	0.4887	0.0205	0.571	0.4734	0.0255	0.446
IFI30 Lysosomal Thiol Reductase	<i>IFI30</i>	0.4426	0.0206	0.571	0.2357	0.0311	0.463

<b>Mitochondrial Trans-2-Enoyl-CoA Reductase Helicase, lymphoid-specific</b>	<i>MECR</i>	- 0.2213	0.0217	0.571	- 0.2052	0.0095	0.353
<b>DENN Domain Containing 10</b>	<i>FAM45A</i>	0.2852	0.0223	0.571	0.1354	0.027	0.451
<b>Sorting Nexin 2</b>	<i>SNX2</i>	0.214	0.0231	0.571	0.1328	0.0299	0.46
<b>Sorting nexin 6</b>	<i>SNX6</i>	0.1672	0.0234	0.571	0.1112	0.0456	0.508
<b>Rho Guanine Nucleotide Exchange Factor 5</b>	<i>ARHGEF5</i>	- 0.2641	0.024	0.571	- 0.2617	0.04	0.493
<b>Ribosomal Protein S6 Kinase A1</b>	<i>RPS6KA1</i>	0.252	0.025	0.571	0.252	0.025	0.571
<b>Protein Regulator Of Cytokinesis 1</b>	<i>PRC1</i>	0.4199	0.0252	0.571	0.1908	0.023	0.434
<b>Lumican</b>	<i>LUM</i>	0.4358	0.0263	0.571	0.3917	0.039	0.488
<b>Damage Specific DNA Binding Protein 2</b>	<i>DDB2</i>	0.1129	0.0264	0.571	0.2711	0.0081	0.342
<b>FYN Binding Protein 1</b>	<i>FYB1</i>	0.3626	0.0266	0.571	0.192	0.024	0.437
<b>Granulin Precursor</b>	<i>GRN</i>	0.1808	0.0271	0.571	0.1586	0.0036	0.282
<b>Pyruvate Kinase M1/2</b>	<i>PKM</i>	0.3742	0.0274	0.571	0.1707	0.0364	0.479
<b>Tetratricopeptide Repeat Domain 19</b>	<i>TTC19</i>	- 0.1468	0.0278	0.571	- 0.1329	0.0498	0.512
<b>ARV1 Homolog, Fatty Acid Homeostasis Modulator</b>	<i>ARV1</i>	- 0.1859	0.0288	0.571	-0.175	0.0308	0.462
<b>BTB Domain Containing 6</b>	<i>BTBD6</i>	-0.169	0.0291	0.571	- 0.0768	0.0388	0.488
<b>Vimentin</b>	<i>VIM</i>	0.3079	0.0291	0.571	0.3593	0.0085	0.342
<b>Uncharacterized</b>	<i>LOC783680</i>	0.2802	0.0297	0.571	0.1726	0.0247	0.441
<b>NPC Intracellular Cholesterol Transporter 2</b>	<i>NPC2</i>	0.2977	0.0297	0.571	0.3	0.0424	0.5
<b>Kelch Like Family Member 36</b>	<i>KLHL36</i>	- 0.1304	0.0301	0.571	- 0.1356	0.0355	0.474
<b>Lymphocyte Cytosolic Protein 2</b>	<i>LCP2</i>	0.3456	0.0302	0.571	0.2466	0.0003	0.161
<b>Rho GTPase Activating Protein 18</b>	<i>ARHGAP18</i>	0.3437	0.0304	0.571	0.2553	0.0292	0.458
<b>Calpain 2</b>	<i>CAPN2</i>	0.2296	0.031	0.571	0.1569	0.0408	0.495
<b>Thymus, Brain And Testes Associated</b>	<i>TBATA</i>	- 0.4652	0.0319	0.571	- 0.5368	0.0426	0.5
<b>Coactosin Like F-Actin Binding Protein 1</b>	<i>COTL1</i>	0.2718	0.0321	0.571	0.1888	0.0162	0.395
<b>LETM1 Domain Containing 1</b>	<i>LETMD1</i>	- 0.1713	0.0335	0.571	- 0.1957	0.0442	0.504
<b>Toll Like Receptor 2</b>	<i>TLR2</i>	0.3937	0.0337	0.571	0.3998	0.0008	0.204
<b>Cytochrome B-245 Beta Chain</b>	<i>CYBB</i>	0.5508	0.0338	0.571	0.4176	0.0248	0.443
<b>Amyloid Beta Precursor Protein Binding Family B Member 1 Interacting Protein</b>	<i>APBB1IP</i>	0.3322	0.034	0.571	0.2228	0.0061	0.31
<b>Uncharacterized</b>	<i>LOC112446800</i>	- 0.5062	0.0343	0.571	- 0.5978	0.0305	0.461
<b>P21 (RAC1) Activated Kinase 1</b>	<i>PAK1</i>	0.318	0.0344	0.571	0.2334	0.0356	0.474
<b>Thymosin Beta 4 X-Linked</b>	<i>TMSB4X</i>	0.3005	0.035	0.571	0.3199	0.0032	0.277
<b>Moesin</b>	<i>MSN</i>	0.3817	0.0356	0.571	0.1346	0.0447	0.506
<b>Nuclear Receptor Subfamily 4 Group A Member 2</b>	<i>NR4A2</i>	0.4061	0.0358	0.571	0.5458	0.0214	0.433
<b>Integrin Subunit Beta 2</b>	<i>ITGB2</i>	0.4358	0.0359	0.571	0.2014	0.0401	0.493
<b>Myosin IF</b>	<i>MYO1F</i>	0.3206	0.0366	0.571	0.1629	0.0369	0.482
<b>GDNF Inducible Zinc Finger Protein 1</b>	<i>GZF1</i>	- 0.1394	0.0369	0.571	- 0.2676	0.0003	0.161
<b>LDL Receptor Related Protein 5</b>	<i>LRP5</i>	- 0.1151	0.038	0.571	- 0.0944	0.0411	0.495
<b>Serine Palmitoyltransferase Small Subunit B</b>	<i>SPTSSB</i>	0.4723	0.04	0.571	0.5892	0.0184	0.413

<b>CD63 Molecule</b>	<i>CD63</i>	0.0771	0.0402	0.571	0.0907	0.0178	0.408
<b>Myosin Binding Protein H</b>	<i>MYBPH</i>	0.9146	0.0402	0.571	0.6306	0.0169	0.399
<b>Marginal Zone B And B1 Cell Specific Protein</b>	<i>MZB1</i>	0.4825	0.0407	0.571	0.57	0.0191	0.418
<b>Lymphocyte Antigen 9</b>	<i>LY9</i>	0.3472	0.0409	0.571	0.3123	0.0053	0.306
<b>SET Domain And Mariner Transposase Fusion Gene</b>	<i>SETMAR</i>	- 0.2426	0.0409	0.571	- 0.2787	0.017	0.399
<b>Cathepsin S</b>	<i>CTSS</i>	0.4946	0.041	0.571	0.3211	0.0209	0.428
<b>Ecotropic Viral Integration Site 2B</b>	<i>EVI2B</i>	0.2939	0.0427	0.571	0.1647	0.0454	0.508
<b>Solute Carrier Family 16 Member 9</b>	<i>SLC16A9</i>	0.5142	0.0431	0.571	0.5586	0.0058	0.308
<b>Parvin Gamma</b>	<i>PARVG</i>	0.3136	0.0454	0.571	0.2878	0.0205	0.427
<b>TATA-Box Binding Protein Associated Factor 5 Like</b>	<i>TAF5L</i>	- 0.1487	0.0454	0.571	- 0.1746	0.0458	0.508
<b>Beta-2-microglobulin</b>	<i>B2M</i>	0.2578	0.046	0.571	0.2057	0.0115	0.365
<b>Tubulin alpha 4a</b>	<i>TUBA4A</i>	- 0.2453	0.0461	0.571	- 0.2353	0.0178	0.408
<b>FGR Proto-Oncogene, Src Family Tyrosine Kinase</b>	<i>FGR</i>	0.3737	0.0462	0.571	0.202	0.0284	0.456
<b>Actin beta</b>	<i>ACTB</i>	0.2713	0.0466	0.571	0.1693	0.0346	0.472
<b>Rho GTPase Activating Protein 30</b>	<i>ARHGAP30</i>	0.299	0.0469	0.571	0.1761	0.0333	0.469
<b>Adaptor Related Protein Complex 4 Subunit Beta 1</b>	<i>AP4B1</i>	- 0.2135	0.0481	0.571	- 0.2169	0.0301	0.46
<b>Death Associated Protein Kinase 1</b>	<i>DAPK1</i>	0.2284	0.0482	0.571	0.2626	0.0192	0.418