

Table S3. Ligand-receptor pairs upregulated in pMMR boundaries

	pMMR_n	pMMR_p	pMMR_l	pMMR_s
0	CXCL14_CXCR4	4.27049008088479E-64	3.9079633	16.990816
1	WNT5A_FZD8	3.24761380288992E-52	5.1399674	15.271558
2	EPCAM_EPCAM	2.05186890076352E-34	1.7674549	12.303277
3	TFF3_ACKR3	8.48751275675372E-34	2.2972853	12.168798
4	IHH_PTCH1	1.4388029047119E-32	3.8386319	11.914162
5	IHH_HHIP	5.29167429240897E-24	24.557629	10.12726
6	TDGF1_ACVR1B	2.42191265407207E-19	3.0484436	9.006995
7	WNT5A_FZD5	2.0785290980513E-17	2.3422356	8.504394
8	PF4_LDLR	5.65740021924446E-17	24.138401	8.385314
9	AFDN_EPHB3	8.38362067451247E-16	2.20052	8.063936
10	PDGFA_PDGFR	1.28286095728337E-15	2.6595414	8.008342
11	CALCA_CALCL	7.24013799871495E-14	23.393417	7.4928694
12	BMP7_ACVR2B	1.80260584777958E-13	4.220064	7.369968
13	EFNB1_EPHB3	2.85411484647333E-12	2.1998048	6.9950285
14	MDK_ITGA4	7.15874251811204E-12	2.4608486	6.8625846
15	IHH_CDON	1.19589139936088E-11	23.327991	6.7877464
16	SEMA6A_PLXNA2	1.2752811750694E-11	23.26068	6.7784266
17	CCL20_CXCR3	3.21992711665485E-11	3.7326326	6.6419115
18	AFDN_EPHA7	4.70911823436901E-11	23.2061	6.5862937
19	WNT5A_FZD4	9.31976018385901E-11	2.9078026	6.4833074
20	FAM3D_FPR1	3.57544576717407E-10	3.2928593	6.276347
21	PF4_PROCR	6.4297122000606E-10	22.995586	6.18487
22	GUCA2A_GUCY2C	1.73747815539534E-09	3.249608	6.0247574
23	CALCA_RAMP2	2.48287835352438E-09	22.742292	5.9673944
24	EREG_EGFR	3.03211664660949E-09	2.8245835	5.93415
25	EFNA4_EPHA3	3.43856722103419E-09	4.08803	5.9130282
26	SHH_HHIP	5.21857447826204E-09	22.750914	5.844578
27	WNT5A_FZD1	6.82112323059683E-09	2.094259	5.8014574
28	WNT5A_RYK	1.16223346168617E-08	1.7195154	5.7114124
29	FGF2_FGFR4	2.15228369206542E-08	22.641928	5.6032944
30	WNT5A_FZD7	3.94679802316597E-08	2.9775977	5.4966536
31	PF4_CXCR3	4.33087554188899E-07	22.419064	5.056771
32	AMELX_CD63	4.4901681314368E-07	22.994322	5.0498595
33	RSPO3_LGR5	5.34621281962735E-07	22.58156	5.0163465
34	EFNB2_EPHB3	7.77027428618513E-07	1.4547081	4.9459524
35	IHH_PTCH2	7.81623029788475E-07	2.4708014	4.9429407
36	NGF_SORT1	8.71650612341066E-07	3.5629478	4.920827
37	GZMB_CHRM3	1.1280762683453E-06	2.054667	4.871405
38	RSPO4_LGR5	1.15476852034974E-06	22.585653	4.865893
39	BMP7_ACVR2A	1.23271382718125E-06	3.2151818	4.852786
40	PDGFC_PDGFR	1.32573316005182E-06	1.3691733	4.840637
41	WNT2B_FZD4	1.76929791718862E-06	21.986586	4.7806487
42	WNT5A_FZD2	1.77687314981313E-06	2.7348218	4.7799
43	SHH_PTCH1	2.45132838388398E-06	1.9643359	4.7157693
44	CD177_PECAM1	2.70625816661794E-06	22.061941	4.694326
45	TCTN1_TMEM67	2.97033373466956E-06	3.6782453	4.6747847
46	NTS_SORT1	3.75878249687535E-06	22.042477	4.6265793
47	BMP8A_ACVR2B	4.16634977584113E-06	3.1689584	4.6049914
48	SLPI_PLSCR1	4.9803243326266E-06	1.1016701	4.5700607
49	BMP8A_TGFBR2	5.52994769096083E-06	1.6313268	4.547513
50	BMP7_BMPRI1A	5.55133821138088E-06	1.8339955	4.5460477
51	MMRN2_CLEC14A	5.53098049264254E-06	22.052916	4.5457406
52	PF4_FGFR2	7.65520522673965E-06	22.01491	4.4766846
53	VIP_VIPR1	8.1772180604153E-06	22.064259	4.4625497
54	WNT5A_FZD6	8.73590366832556E-06	1.5402186	4.449669