

Supplementary Table 1. 2F8cis cell-specific variants

Chr	Position	Ref_allele	Alt_allele
1	1:57393454-57393454	A	T
1	1:59852323-59852323	A	T
1	1:64566263-64566263	G	T
1	1:85085099-85085099	G	T
1	1:86529517-86529517	G	T
1	1:90802389-90802389	C	A
1	1:128349354-128349354	A	G
1	1:131929690-131929690	A	C
1	1:151715746-151715746	G	T
1	1:156007060-156007060	C	A
1	1:176774833-176774833	C	T
1	1:179681673-179681673	G	T
1	1:180904474-180904474	G	A
1	1:183316665-183316665	G	T
1	1:190800239-190800239	T	G
1	1:191311489-191311489	C	A
10	10:5086718-5086718	G	T
10	10:36993649-36993649	T	C
10	10:39532098-39532098	G	C
10	10:45092735-45092735	G	T
10	10:59166599-59166599	A	C
10	10:75927408-75927408	T	C
10	10:77096324-77096324	C	A
10	10:79548865-79548865	T	A
10	10:83316081-83316081	C	A
10	10:115401782-115401782	T	C
10	10:117820579-117820579	G	C
10	10:119211764-119211764	T	C
10	10:128365122-128365122	G	C
11	11:3969570-3969570	A	G
11	11:20709660-20709660	T	A
11	11:21148074-21148074	G	A
11	11:22956424-22956424	C	T
11	11:31081484-31081484	G	T
11	11:32250249-32250249	A	G
11	11:40736537-40736537	G	T
11	11:43421134-43421134	T	C
11	11:44548879-44548879	C	T
11	11:51825119-51825119	C	G
11	11:70652909-70652909	C	T
11	11:74900454-74900454	T	A

11 11:75313067-75313067	G	A
11 11:80389117-80389117	A	G
11 11:83946218-83946218	C	A
11 11:83946220-83946220	A	C
11 11:88073727-88073727	G	T
11 11:95384992-95384992	G	A
11 11:97167679-97167679	C	G
11 11:105131619-105131619	A	G
11 11:116354443-116354443	C	T
11 11:119725138-119725138	A	T
12 12:86883316-86883316	C	T
12 12:100403448-100403448	T	C
12 12:110637253-110637253	C	T
13 13:33039769-33039769	A	G
13 13:46686901-46686901	C	A
13 13:58191863-58191863	C	A
13 13:73801080-73801080	C	A
13 13:86046632-86046632	C	G
13 13:96651090-96651090	G	A
13 13:118387089-118387089	G	C
14 14:65856472-65856472	T	C
14 14:120941706-120941706	G	A
14 14:122020006-122020006	G	A
14 14:122020007-122020007	G	T
15 15:38491612-38491612	T	C
15 15:57963852-57963852	G	T
15 15:76174636-76174636	T	G
15 15:76451369-76451369	T	C
15 15:77783405-77783405	A	T
15 15:77790743-77790743	C	A
15 15:81621126-81621126	G	A
15 15:81627114-81627114	C	A
15 15:81627115-81627115	A	T
15 15:102216165-102216165	C	T
15 15:102298912-102298912	G	C
15 15:102298913-102298913	G	A
16 16:10413704-10413704	C	A
16 16:17641391-17641391	G	A
16 16:17641392-17641392	G	C
16 16:18249535-18249535	G	C
16 16:20657531-20657531	A	G
16 16:20680757-20680757	A	T
16 16:21938062-21938062	C	A

16 16:21938063-21938063	C	T
16 16:92606056-92606056	G	T
16 16:96002530-96002530	A	C
17 17:13810466-13810466	C	A
17 17:24573514-24573514	G	T
17 17:35524507-35524507	G	C
17 17:45674137-45674137	A	C
17 17:46194214-46194214	T	G
17 17:46194215-46194215	C	T
17 17:65833089-65833089	A	G
17 17:74649731-74649731	G	T
17 17:74668837-74668837	A	C
17 17:74668841-74668841	G	T
18 18:7905461-7905461	A	G
18 18:10594335-10594335	A	C
18 18:56432300-56432300	A	T
19 19:3352588-3352588	G	T
19 19:4105426-4105426	G	C
19 19:4105427-4105427	A	T
19 19:5943570-5943570	A	C
19 19:6908084-6908084	A	C
19 19:24100872-24100872	A	C
19 19:37961083-37961083	C	A
19 19:40929257-40929257	G	A
19 19:40952373-40952373	G	A
19 19:46259201-46259201	G	T
19 19:46307435-46307435	G	T
19 19:46307436-46307436	G	T
19 19:46551672-46551672	G	A
2 2:6440591-6440591	G	T
2 2:25206171-25206171	G	T
2 2:25211191-25211191	G	A
2 2:25527531-25527531	T	A
2 2:25938298-25938298	C	A
2 2:25938299-25938299	C	A
2 2:30825493-30825493	A	G
2 2:130422666-130422666	C	A
2 2:130986783-130986783	A	G
2 2:140168073-140168073	C	T
2 2:160720945-160720945	G	A
2 2:163629188-163629188	C	A
3 3:5561188-5561188	C	G
3 3:36088544-36088544	G	A

3 3:87913119-87913119	A	T
3 3:89409120-89409120	C	A
3 3:97741309-97741309	G	T
3 3:102165455-102165455	C	A
3 3:104653496-104653496	G	C
3 3:113629882-113629882	A	T
3 3:131248453-131248453	T	G
3 3:132983149-132983149	T	A
4 4:32801203-32801203	C	A
4 4:32801206-32801206	G	T
4 4:66839913-66839913	A	G
4 4:80953845-80953845	T	C
4 4:101177738-101177738	C	T
4 4:115759989-115759989	A	C
4 4:116692959-116692959	G	T
4 4:126318031-126318031	C	A
4 4:147931698-147931698	C	T
4 4:149644016-149644016	G	A
5 5:5740540-5740540	G	T
5 5:35974422-35974422	G	A
5 5:44473424-44473424	T	A
5 5:65392377-65392377	A	T
5 5:72941423-72941423	T	A
5 5:77407730-77407730	C	G
5 5:103579740-103579740	A	C
5 5:125386156-125386156	C	T
5 5:137501684-137501684	G	C
5 5:137747516-137747516	G	T
5 5:143715791-143715791	A	G
5 5:145096084-145096084	G	A
6 6:17286929-17286929	T	G
6 6:33442018-33442018	A	G
6 6:39359988-39359988	C	G
6 6:40476489-40476489	A	T
6 6:71953061-71953061	G	C
6 6:81962125-81962125	C	G
6 6:113341917-113341917	G	T
6 6:113736401-113736401	T	C
6 6:119937804-119937804	G	A
6 6:126836248-126836248	C	A
6 6:138147673-138147673	A	G
7 7:16564548-16564548	T	A
7 7:28962140-28962140	G	C

	7 7:34257392-34257392	C	A
	7 7:45720437-45720437	G	A
	7 7:80393441-80393441	A	C
	7 7:97712662-97712662	G	T
	7 7:99479968-99479968	G	T
	7 7:119785432-119785432	G	A
	7 7:132949920-132949920	G	A
	7 7:141458741-141458741	C	A
	8 8:22535369-22535369	T	G
	8 8:39046562-39046562	G	A
	8 8:78509611-78509611	A	T
	8 8:88317969-88317969	A	C
	8 8:94582918-94582918	C	T
	8 8:106884768-106884768	G	A
	8 8:106885604-106885604	T	C
	8 8:119095346-119095346	G	T
	8 8:119242247-119242247	G	A
	9 9:21795558-21795558	T	A
	9 9:21795559-21795559	C	T
	9 9:44715375-44715375	A	C
	9 9:49061147-49061147	G	A
	9 9:53460909-53460909	C	A
	9 9:53460910-53460910	T	A
	9 9:66542535-66542535	T	C
	9 9:80143694-80143694	G	T
	9 9:90205171-90205171	C	G
	9 9:100834528-100834528	C	A
	9 9:108480439-108480439	A	T
	9 9:110173957-110173957	G	A
	9 9:120131419-120131419	A	G
X	X:94209619-94209619	C	A
X	X:160123845-160123845	T	A

Consequence	MGI gene symbol	Uniprot ID	Amino_acids
missense_variant	Tyw5	A2RSX7	L/I
missense_variant	Bmpr2	O35607	E/D
missense_variant	Creb1	Q01147	S/I
missense_variant	A530032D15Rik	E9Q422	Q/K
missense_variant	Ptma	P26350	G/V
missense_variant	Col6a3	J3QQ16	A/S
missense_variant	Mcm6	P97311	F/S
missense_variant	Nucks1	Q80XU3	K/Q
missense_variant	Fam129a	Q3UW53	E/D
missense_variant	Tor1aip1	Q921T2	K/N
missense_variant	Cep170	H7BX26	E/K
missense_variant	Sccpdh	Q8R127	G/V
missense_variant	Pycr2	Q922Q4	G/D
synonymous_variant	Aida	Q8C4Q6	G
missense_variant	Rps6kc1	E9QMX4	K/T
missense_variant	Nenf	Q9CQ45	G/V
missense_variant	Syne1	-	P/T
synonymous_variant	Hdac2	-	F
synonymous_variant	Fyn	P39688	A
missense_variant	Prep	Q9QUR6	A/S
synonymous_variant	Sept10	-	V
missense_variant	Mmp11	Q02853	T/A
synonymous_variant	Col18a1	P39061	G
missense_variant	Mier2	Q3U3N0	E/D
missense_variant	Slc41a2	Q8BYR8	A/S
missense_variant	Zfc3h1	B2RT41	Y/H
missense_variant	Rap1b	Q99JI6	D/E
missense_variant	Cand1	Q6ZQ38	D/G
missense_variant	Coq10a	E9Q3H6	S/R
missense_variant	Pes1	Q9EQ61	K/R
missense_variant	Aftph	Q80WT5	K/M
missense_variant	Peli1	Q8C669	A/T
missense_variant	Commd1	Q8K4M5	G/E
missense_variant	Asb3	Q9WV72	G/V
synonymous_variant	Nprl3	Q8VIJ8	C
missense_variant	Nudcd2	Q9CQ48	D/Y
missense_variant	Pttg1	Q9CQJ7	K/E
synonymous_variant	Rnf145	Q5SWK7	T
missense_variant	Jade2	Q6ZQF7	A/P
missense_variant	Pfn1	P62962	G/D
missense_variant	Tsr1	Q5SWD9	N/K

missense_variant	Rpa1	Q5SWN2	P/L
synonymous_variant	Zfp207	Q9JMD0	P
synonymous_variant	Ddx52	Q8K301	L
missense_variant	Ddx52	Q8K301	Q/P
missense_variant	Vezf1	Q5SXC4	S/I
missense_variant	Slc35b1	E0CZ89	D/N
missense_variant	Kpnb1	P70168	V/L
missense_variant	Mettl2	Q8BMK1	I/V
synonymous_variant	Rnf157	A2AAN9	R
synonymous_variant	Rptor	A2ACM0	T
synonymous_variant	Irf2bpl	Q8K3X4	Q
missense_variant	Ttc7b	E9Q6P5	D/G
missense_variant	Dync1h1	Q9JHU4	P/S
missense_variant	Serpinb9b	Q9DAV6	I/V
missense_variant	Nup153	E9Q3G8	G/V
missense_variant	Ubqln1	Q8R317	A/S
missense_variant	Slc12a7	Q9WVL3	A/D
missense_variant	Cox7c	P17665	R/P
synonymous_variant	Hmgcr	Q01237	G
missense_variant	Mrps30	Q9D0G0	A/G
missense_variant	Ccdc25	Q78PG9	L/P
synonymous_variant	Ipo5	Q8BKC5	K
synonymous_variant	Ubac2	Q8R1K1	R
missense_variant	Ubac2	Q8R1K1	A/S
missense_variant	Azin1	O35484	S/G
missense_variant	Tbc1d31	Q6NXY1	A/S
synonymous_variant	Plec	Q9QXS1	A
missense_variant	Mroh1	E0CZ22	L/P
synonymous_variant	Myh9	Q8VDD5	S
missense_variant	Myh9	Q8VDD5	A/S
missense_variant	Ep300	B2RWS6	R/Q
synonymous_variant	Ep300	B2RWS6	S
missense_variant	Ep300	B2RWS6	S/C
missense_variant	Itgb7	P26011	D/N
missense_variant	Espl1	P60330	Q/H
missense_variant	Espl1	P60330	A/T
missense_variant	Nubp1	Q9R060	A/E
synonymous_variant	Smpd4	Q6ZPR5	Q
missense_variant	Smpd4	Q6ZPR5	A/P
missense_variant	Trmt2a	Q3UYU2	S/T
missense_variant	Psmd2	Q8VDM4	E/G
missense_variant	Eif4g1	Q6NZJ6	N/Y
missense_variant	Tmem41a	Q9D8U2	W/C

stop_gained	Tmem41a	Q9D8U2	W/*
missense_variant	Runx1	Q3UM65	R/S
missense_variant	Brwd1	Q921C3	L/V
missense_variant	Afdn	Q9QZQ1	T/N
missense_variant	Pkd1	O08852	A/S
missense_variant	Cchcr1	Q8K2I2	G/A
missense_variant	Tmem63b	Q3TWI9	F/V
missense_variant	Polh	Q9JJN0	T/P
synonymous_variant	Polh	Q9JJN0	E
missense_variant	Ppp4r1	E9QPR5	N/D
missense_variant	Birc6	O88738	L/F
missense_variant	Birc6	O88738	T/P
missense_variant	Birc6	O88738	G/V
missense_variant	Wac	Q924H7	Y/C
missense_variant	Esco1	Q69Z69	I/S
missense_variant	Gramd3	Q9D2W5	E/V
missense_variant	Cpt1a	P97742	G/V
missense_variant	Pitpnm1	O35954	D/H
missense_variant	Pitpnm1	O35954	D/V
synonymous_variant	Pola2	P33611	S
missense_variant	Prdx5	P99029	F/L
missense_variant	Tjp2	Q9Z0U1	L/V
missense_variant	Myof	Q69ZN7	R/S
synonymous_variant	Blnk	Q9QUN3	H
synonymous_variant	Blnk	Q9QUN3	S
missense_variant	Gbf1	Q6DFZ1	G/V
missense_variant	Nfkb2	Q9WTK5	R/M
missense_variant	Nfkb2	Q9WTK5	R/S
synonymous_variant	Arl3	Q9WUL7	S
missense_variant	Usp6nl	Q80XC3	G/W
missense_variant	Nelfb	-	P/T
missense_variant	Nelfb	-	L/F
missense_variant	Traf2	P39429	R/S
missense_variant	Camsap1	-	G/V
missense_variant	Camsap1	-	G/C
missense_variant	Asb6	Q91ZU1	L/P
synonymous_variant	Pced1a	Q6P1Z5	G
missense_variant	Atrn	Q9WU60	T/A
synonymous_variant	Esf1	Q3V1V3	E
synonymous_variant	Top1	Q04750	K
missense_variant	Serinc3	Q9QZI9	Q/H
missense_variant	Pex2	Q91YZ5	G/A
missense_variant	Acad9	Q8JZN5	R/Q

missense_variant	Hdgf	P51859	K/M
missense_variant	Flad1	Q8R123	R/L
missense_variant	Pde4dip	Q80YT7	L/M
missense_variant	Vangl1	Q80Z96	A/S
missense_variant	Slc16a1	P53986	M/I
missense_variant	Rnpc3	Q3UZ01	L/Q
missense_variant	Hadh	Q61425	N/H
missense_variant	Gstcd	Q5RL51	Q/H
missense_variant	Lym2	Q8R033	L/I
missense_variant	Lym2	Q8R033	A/S
synonymous_variant	Tlr4	Q9QUK6	A
synonymous_variant	Lurap1l	Q8K2P1	L
missense_variant	Jak1	B1ASP2	E/K
missense_variant	Efcab14	Q6PCQ6	R/S
missense_variant	Prdx1	P35700	A/S
missense_variant	Adprhl2	Q8CG72	V/L
synonymous_variant	Plod1	Q9R0E2	K
missense_variant	Clstn1	Q9EPL2	G/D
missense_variant	Steap1	Q9CWR7	A/E
synonymous_variant	Afap1	Q80YS6	R
missense_variant	Ldb2	O55203	Q/L
missense_variant	Lias	Q99M04	Q/L
missense_variant	Slain2	Q8CI08	L/H
missense_variant	Igfbp7	E9Q5D9	K/N
missense_variant	Ptpn13	G5E8B1	E/A
synonymous_variant	Ubc	P0CG50	E
missense_variant	Pop7	Q9DCH2	A/G
missense_variant	Tsc22d4	Q3U1U6	G/V
synonymous_variant	Usp42	B2RQC2	L
missense_variant	Arpc1a	Q9R0Q6	V/I
missense_variant	Cav2	Q9WVC3	M/R
missense_variant	Exoc4	O35382	S/G
missense_variant	Slc37a3	-	G/R
missense_variant	Ssbp1	Q9CYR0	S/C
missense_variant	Polr1a	O35134	G/R
missense_variant	Mrpl19	Q9D338	R/P
missense_variant	Camk1	Q91YS8	Q/K
synonymous_variant	Sec13	Q9D1M0	G
missense_variant	Wnk1	P83741	A/V
missense_variant	Ndufa9	Q9DC69	R/M
missense_variant	Mgst1	E9QJW0	E/G
synonymous_variant	Arhgap35	Q91YM2	V
missense_variant	Actn4	P57780	P/R

synonymous_variant	4931406P16Rik	Q8C5X1	G
synonymous_variant	Rpl18	P35980	E
missense_variant	Furin	P23188	Y/D
missense_variant	Clns1a	Q923F1	A/S
missense_variant	Rps3	P62908	S/Y
synonymous_variant	Eri2	Q5BKS4	A
missense_variant	Zranb1	Q7M760	R/K
missense_variant	Pnpla2	Q8BJ56	P/T
missense_variant	Slc20a2	Q80UP8	V/G
synonymous_variant	Tusc3	Q8BTV1	R
missense_variant	Slc10a7	Q5PT53	M/L
synonymous_variant	Adcy7	P51829	R
missense_variant	Fam192a	Q91WE2	A/T
missense_variant	Chtf8	P0CG14	A/V
synonymous_variant	Chtf8	P0CG14	L
missense_variant	Cdh13	Q9WTR5	A/S
missense_variant	Cdh13	Q9WTR5	D/N
stop_gained	Kank2	Q8BX02	K/*
synonymous_variant	Kank2	Q8BX02	E
missense_variant	Phldb1	Q6PDH0	L/R
synonymous_variant	Zw10	O54692	Q
missense_variant	Atm	Q62388	S/I
missense_variant	Atm	Q62388	S/C
missense_variant	Usp3	Q91W36	R/G
missense_variant	Senp6	F6Z9A1	W/C
missense_variant	Tbc1d2b	Q3U0J8	Q/H
missense_variant	Stag1	Q9D3E6	T/N
missense_variant	Lamb2	Q61292	S/C
missense_variant	Smarcc1	P97496	D/N
synonymous_variant	Rpsa	P14206	P
missense_variant	Eif2s3x	Q9Z0N1	A/S
missense_variant	Pdha1	P35486	S/C

Codons

Tta/Ata
gaA/gaT
aGt/aTt
Caa/Aaa
gGt/gTt
Gct/Tct
tTc/tCc
Aaa/Caa
gaG/gaT
aaG/aaT
Gag/Aag
gGc/gTc
gGt/gAt
ggG/ggT
aAg/aCg
gGa/gTa
Cct/Act
ttT/ttC
gcG/gcC
Gcc/Tcc
gtT/gtG
Acc/Gcc
ggG/ggT
gaA/gaT
Gct/Tct
Tac/Cac
gaC/gaG
gAt/gGt
agC/agG
aAg/aGg
aAg/aTg
Gct/Act
gGa/gAa
gGt/gTt
tgT/tgC
Gat/Tat
Aag/Gag
acC/acT
Gct/Cct
gGc/gAc
aaT/aaA

cCc/cTc
ccA/ccG
ctC/ctA
cAg/cCg
aGt/aTt
Gac/Aac
Gtg/Ctg
Att/Gtt
agG/agA
acA/acT
caG/caA
gAc/gGc
Ccc/Tcc
Att/Gtt
gGc/gTc
Gct/Tct
gCc/gAc
cGt/cCt
ggC/ggT
gCt/gGt
cTg/cCg
aaG/aaA
agG/agA
Gcc/Tcc
Agc/Ggc
Gcc/Tcc
gcA/gcC
cTc/cCc
tcT/tcA
Gcc/Tcc
cGa/cAa
tcC/tcA
Agt/Tgt
Gac/Aac
caG/caC
Gct/Act
gCa/gAa
caG/caA
Gcc/Ccc
aGc/aCc
gAg/gGg
Aat/Tat
tgG/tgT

tGg/tAg
Cgc/Agc
Ttg/Gtg
aCt/aAt
Gcc/Tcc
gGc/gCc
Ttc/Gtc
Act/Cct
gaG/gaA
Aac/Gac
ttG/ttT
Aca/Cca
gGt/gTt
tAc/tGc
aTt/aGt
gAg/gTg
gGc/gTc
Gac/Cac
gAc/gTc
tcT/tcG
ttT/ttG
Tta/Gta
agG/agT
caC/caT
agC/agT
gGt/gTt
aGg/aTg
agG/agT
agC/agT
Ggg/Tgg
Ccc/Acc
Ctc/Ttc
agA/agT
gGc/gTc
Ggc/Tgc
cTc/cCc
ggG/ggT
Acc/Gcc
gaG/gaA
aaG/aaA
caG/caT
gGc/gCc
cGg/cAg

aAg/aTg
cGc/cTc
Ctg/Atg
Gcc/Tcc
atG/atC
cTg/cAg
Aac/Cac
caA/caT
Ctt/Att
Gcc/Tcc
gcA/gcG
Ttg/Ctg
Gaa/Aaa
agA/agC
Gct/Tct
Gta/Tta
aaG/aaA
gGc/gAc
gCg/gAg
cgG/cgA
cAg/cTg
cAg/cTg
cTt/cAt
aaG/aaC
gAa/gCa
gaG/gaA
gCc/gGc
gGc/gTc
Ttg/Ctg
Gtc/Atc
aTg/aGg
Agt/Ggt
Gga/Cga
Agt/Tgt
Ggg/Cgg
cGc/cCc
Cag/Aag
ggA/ggG
gCa/gTa
aGg/aTg
gAg/gGg
gtA/gtT
cCg/cGg

ggG/ggT
gaG/gaA
Tac/Gac
Gcc/Tcc
tCc/tAc
gcC/gcT
aGa/aAa
Cct/Act
gTt/gGt
agG/agA
Atg/Ttg
Agg/Cgg
Gca/Aca
gCt/gTt
ttA/ttG
Gcg/Tcg
Gac/Aac
Aag/Tag
gaG/gaA
cTt/cGt
caG/caA
aGt/aTt
Agt/Tgt
Agg/Ggg
tgG/tgT
caG/caC
aCt/aAt
Agt/Tgt
Gac/Aac
ccA/ccG
Gct/Tct
Agt/Tgt