

A Rare Variant in *ERF* (rs144812092) Predisposes to Prostate and Bladder Cancers in an Extended Pedigree

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Table S1. 152 rare candidate bladder cancer predisposition variants concordant between at least one sequenced pair of bladder cancer-affected cousins.

Chr	Start	End	Ref	Alt	Gene_refGene	ExonicFunc_refGene	ExAC_ALL
1	1133010	1133010	A	G	TTL10	nonsynonymous SNV	1.00E-04
1	1391656	1391656	G	A	ATAD3C	nonsynonymous SNV	0.004
1	3413835	3413835	C	A	MEGF6	nonsynonymous SNV	8.00E-04
1	43316723	43316723	T	C	ZNF691	nonsynonymous SNV	.
1	52867839	52867839	C	G	ORC1	nonsynonymous SNV	0.0041
1	65124401	65124401	C	A	CACHD1	nonsynonymous SNV	.
1	1.86E+08	1.86E+08	C	T	TPR	nonsynonymous SNV	0.0036
1	2.03E+08	2.03E+08	C	T	CHIT1	nonsynonymous SNV	3.20E-03
1	2.04E+08	2.04E+08	C	T	LAX1	nonsynonymous SNV	0.0028
1	2.04E+08	2.04E+08	C	A	PIK3C2B	nonsynonymous SNV	.
1	2.34E+08	2.34E+08	A	C	KIAA1804	nonsynonymous SNV	0.0024
2	24302345	24302345	A	G	TP53I3	nonsynonymous SNV	0.00001647
2	33764243	33764243	C	A	RASGRP3	nonsynonymous SNV	1.11E-05
2	39025499	39025499	G	A	DHX57	nonsynonymous SNV	0.0042
2	47709944	47709944	C	-	MSH2	frameshift deletion	.
2	1.39E+08	1.39E+08	G	A	SPOPL	nonsynonymous SNV	0.0048
2	1.93E+08	1.93E+08	T	C	SDPR	nonsynonymous SNV	0.0013
2	2.28E+08	2.28E+08	A	G	MFF	nonsynonymous SNV	0.0001
3	405040	405040	C	T	CHL1	nonsynonymous SNV	3.31E-05
3	48802779	48802779	G	A	PRKAR2A	nonsynonymous SNV	0.00001988
3	1.97E+08	1.97E+08	G	A	PIGZ	nonsynonymous SNV	4.00E-04
4	515738	515738	C	T	PIGG	nonsynonymous SNV	0.0000661
4	946221	946221	G	A	TMEM175	nonsynonymous SNV	0.0022
4	1389003	1389003	G	C	CRIPAK	nonsynonymous SNV	0.0000688
4	15004992	15004992	C	T	CPEB2	nonsynonymous SNV	3.20E-03
5	35779248	35779248	A	G	SPEF2	nonsynonymous SNV	0.0021
5	38481703	38481703	G	T	LIFR	nonsynonymous SNV	0.0018
5	52403014	52403014	G	A	MOCS2	nonsynonymous SNV	0.0005
5	54558723	54558723	G	A	DHX29	nonsynonymous SNV	.
5	90059182	90059182	G	T	ADGRV1	nonsynonymous SNV	1.00E-03
5	1.14E+08	1.14E+08	T	C	TRIM36	nonsynonymous SNV	0.0005
5	1.4E+08	1.4E+08	G	C	PCDHA10	nonsynonymous SNV	0.0006
5	1.4E+08	1.4E+08	A	G	PCDHB3	nonsynonymous SNV	.
5	1.81E+08	1.81E+08	T	C	TRIM41	nonsynonymous SNV	.
6	41029294	41029294	C	A	APOBEC2	nonsynonymous SNV	0.005
6	42231009	42231009	G	A	TRERF1	nonsynonymous SNV	0.00002782
6	42905566	42905566	C	A	CNPY3	nonsynonymous SNV	0.000008241
6	65301693	65301693	C	T	EYS	nonsynonymous SNV	.
6	1.14E+08	1.14E+08	C	T	MARCKS	nonsynonymous SNV	0.0006
6	1.14E+08	1.14E+08	T	C	HS3ST5	nonsynonymous SNV	0.0003
6	1.19E+08	1.19E+08	C	T	MCM9	nonsynonymous SNV	0.00006528

6	1.68E+08	1.68E+08	A	G	HGC6.3	nonsynonymous SNV	1.30E-03
7	73183979	73183979	G	A	CLDN3	nonsynonymous SNV	0.0045
7	77166921	77166921	C	T	PTPN12	nonsynonymous SNV	0.00002317
7	81601108	81601108	C	T	CACNA2D1	nonsynonymous SNV	0.0027
7	1.4E+08	1.4E+08	G	A	TBXAS1	nonsynonymous SNV	0.0019
8	1.44E+08	1.44E+08	A	C	THEM6	nonsynonymous SNV	0.00007718
9	6553423	6553423	C	G	GLDC	nonsynonymous SNV	.
9	17462985	17462985	A	C	CNTLN	nonsynonymous SNV	0.0049
9	1.07E+08	1.07E+08	G	T	SMC2	nonsynonymous SNV	3.20E-03
9	1.13E+08	1.13E+08	C	T	AKAP2,PALM2- AKAP2	nonsynonymous SNV	2.00E-04
9	1.3E+08	1.3E+08	C	G	ZBTB43	nonsynonymous SNV	1.10E-03
9	1.41E+08	1.41E+08	G	C	ARRDC1	nonsynonymous SNV	0.001
10	46969292	46969292	G	A	SYT15	nonsynonymous SNV	0.0001
10	95993887	95993887	A	G	PLCE1	nonsynonymous SNV	9.00E-04
10	1.01E+08	1.01E+08	A	C	SLC25A28	nonsynonymous SNV	.
10	1.05E+08	1.05E+08	C	T	CALHM2	nonsynonymous SNV	0.0036
10	1.18E+08	1.18E+08	C	A	PNLIPRP3	nonsynonymous SNV	0.0026
10	1.3E+08	1.3E+08	G	A	MKI67	nonsynonymous SNV	0.0049
11	292060	292060	G	A	ATHL1	nonsynonymous SNV	0.001
11	640112	640112	A	G	DRD4	nonsynonymous SNV	0
11	640174	640174	A	G	DRD4	nonsynonymous SNV	8.00E-04
11	1651182	1651182	T	C	KRTAP5-5	nonsynonymous SNV	0.001
11	9068915	9068915	C	T	SCUBE2	nonsynonymous SNV	0.0015
11	13031880	13031880	A	G	RASSF10	nonsynonymous SNV	0.0009
11	1.03E+08	1.03E+08	G	A	DYNC2H1	nonsynonymous SNV	4.20E-03
11	1.1E+08	1.1E+08	G	A	ZC3H12C	nonsynonymous SNV	2.50E-05
11	1.18E+08	1.18E+08	T	A	MPZL2	nonsynonymous SNV	0.0021
11	1.18E+08	1.18E+08	T	A	KMT2A	nonsynonymous SNV	9.89E-05
11	1.21E+08	1.21E+08	G	A	TBCEL	nonsynonymous SNV	0.00004146
11	1.29E+08	1.29E+08	C	T	ARHGAP32	nonsynonymous SNV	0.0012
11	1.3E+08	1.3E+08	C	T	ADAMTS8	nonsynonymous SNV	0.0044
12	7354399	7354399	G	C	PEX5	nonsynonymous SNV	0.0023
12	91445287	91445287	C	T	KERA	nonsynonymous SNV	0.000008316
12	1.02E+08	1.02E+08	C	T	CHPT1	nonsynonymous SNV	0.0018
12	1.23E+08	1.23E+08	T	G	PITPNM2	nonsynonymous SNV	.
12	1.24E+08	1.24E+08	C	T	ATP6V0A2	nonsynonymous SNV	0.0004
12	1.32E+08	1.32E+08	G	A	MMP17	nonsynonymous SNV	1.80E-03
13	46952078	46952078	T	C	KIAA0226L	nonsynonymous SNV	0.0045
13	96540168	96540168	G	A	UGGT2	nonsynonymous SNV	0.0008
13	1.03E+08	1.03E+08	T	C	CCDC168	nonsynonymous SNV	0.0035
14	71209128	71209128	C	T	MAP3K9	nonsynonymous SNV	1.20E-03
14	94845944	94845944	C	A	SERPINA1	nonsynonymous SNV	0.0023
14	1.01E+08	1.01E+08	C	G	RTL1	nonsynonymous SNV	.
14	1.03E+08	1.03E+08	C	T	TECPR2	nonsynonymous SNV	0.00001681
14	1.05E+08	1.05E+08	C	G	C14orf79	nonsynonymous SNV	0.0017
15	29561606	29561606	T	C	NDNL2	nonsynonymous SNV	0.0011
15	65116504	65116504	C	G	PIF1	nonsynonymous SNV	0.0026
15	78390805	78390805	C	T	SH2D7	nonsynonymous SNV	0.00003318
16	1273558	1273558	C	T	TPSG1	nonsynonymous SNV	0.002
16	2042912	2042912	A	G	SYNGR3	nonsynonymous SNV	.
16	30000929	30000929	A	G	TAOK2	nonsynonymous SNV	0.0002
17	8093324	8093324	C	G	C17orf59	nonsynonymous SNV	0.0036

17	17942915	17942915	A	C	GID4	nonsynonymous SNV	.
17	26691491	26691500	CAC- TGAGGTG	-	SEBOX	frameshift deletion	0.0009
17	34091112	34091112	G	A	C17orf50	nonsynonymous SNV	0.0002
17	37262135	37262135	C	A	PLXDC1	nonsynonymous SNV	.
17	37879585	37879585	A	G	ERBB2	nonsynonymous SNV	4.80E-03
17	38975259	38975259	C	T	KRT10	nonsynonymous SNV	1.60E-03
17	39115095	39115095	G	A	KRT39	nonsynonymous SNV	0.0002
17	40318398	40318398	C	T	KCNH4	nonsynonymous SNV	7.00E-04
17	66937004	66937004	G	A	ABCA8	nonsynonymous SNV	6.00E-04
17	72997464	72997464	G	A	CDR2L	nonsynonymous SNV	0.0002
17	74056418	74056418	T	C	SRP68	nonsynonymous SNV	0.0022
17	74382047	74382048	TT	-	SPHK1	frameshift deletion	0.0027
17	76046849	76046849	C	T	TNRC6C	nonsynonymous SNV	1.40E-03
17	79987456	79987456	G	A	LRRC45	nonsynonymous SNV	2.70E-03
17	80395194	80395194	G	A	HEXDC	nonsynonymous SNV	.
17	81052105	81052105	G	A	METRNL	nonsynonymous SNV	0.0005
18	48190630	48190630	C	T	MAPK4	nonsynonymous SNV	0.00004145
18	55365047	55365047	T	C	ATP8B1	nonsynonymous SNV	8.00E-04
18	60646017	60646017	C	G	PHLPP1	nonsynonymous SNV	0.0026
19	1468408	1468408	C	A	APC2	nonsynonymous SNV	0.0008
19	2210451	2210451	C	G	DOT1L	nonsynonymous SNV	3.20E-03
19	2934625	2934625	C	T	ZNF77	nonsynonymous SNV	0.0018
19	8587708	8587708	C	A	MYO1F	nonsynonymous SNV	4.00E-03
19	12800601	12800601	G	A	FBXW9	nonsynonymous SNV	0.0001
19	17534540	17534540	G	T	MVB12A	nonsynonymous SNV	0.0014
19	17945708	17945708	C	G	JAK3	nonsynonymous SNV	4.00E-04
19	19381028	19381028	C	T	TM6SF2	nonsynonymous SNV	3.00E-04
19	19612832	19612832	A	C	GATAD2A	nonsynonymous SNV	0.00005814
19	33465099	33465099	C	T	C19orf40	nonsynonymous SNV	5.00E-03
19	35760880	35760880	C	T	USF2	nonsynonymous SNV	0
19	36018115	36018115	C	T	SBSN	nonsynonymous SNV	0.0001
19	42753218	42753218	G	A	ERF	nonsynonymous SNV	0.0005
19	47910643	47910643	C	T	MEIS3	nonsynonymous SNV	0.0007
19	48305694	48305694	A	G	TPRX1	nonsynonymous SNV	0.00005312
19	50097746	50097746	G	A	PRR12	nonsynonymous SNV	0.0019
19	51329146	51329146	C	T	KLK15	nonsynonymous SNV	2.50E-03
19	51649313	51649313	G	A	SIGLEC7	nonsynonymous SNV	7.41E-05
19	51957493	51957493	T	C	SIGLEC8	nonsynonymous SNV	0.0032
19	51957497	51957497	C	G	SIGLEC8	nonsynonymous SNV	0.0026
19	52000192	52000192	A	G	SIGLEC12	nonsynonymous SNV	0.0028
19	54848826	54848826	C	T	LILRA4	nonsynonymous SNV	0.0038
19	59012675	59012675	C	T	SLC27A5	nonsynonymous SNV	0.0023
20	33508358	33508358	T	C	ACSS2	nonsynonymous SNV	0.0028
20	37632435	37632435	G	A	DHX35	nonsynonymous SNV	0.000008237
20	42694674	42694674	A	C	TOX2	nonsynonymous SNV	.
20	48552981	48552981	C	G	RNF114	nonsynonymous SNV	.
20	51802198	51802198	C	T	TSHZ2	nonsynonymous SNV	0.00008139
20	52774635	52774635	A	G	CYP24A1	nonsynonymous SNV	0.0007
21	16015325	16015325	C	T	LOC388813	nonsynonymous SNV	0.0036
21	34923159	34923159	A	G	SON	nonsynonymous SNV	.
22	21384032	21384032	G	A	SLC7A4	nonsynonymous SNV	0.00003434
22	25124155	25124155	C	T	PIWIL3	nonsynonymous SNV	0.0041

22	29445841	29445841	G	A	ZNRF3	nonsynonymous SNV	0.00007248
22	31032952	31032952	T	G	SLC35E4	nonsynonymous SNV	0.004
22	37964703	37964703	G	A	CDC42EP1	stopgain	0.00005552
22	38129388	38129388	G	A	TRIOBP	nonsynonymous SNV	0.0032
22	38512190	38512190	G	A	PLA2G6	nonsynonymous SNV	.
X	1.09E+08	1.09E+08	C	T	AMMECR1	nonsynonymous SNV	0.0001
X	1.24E+08	1.24E+08	-	A	LOC100129520	frameshift insertion	.-