

**Supplemental Materials to the manuscript: Functional analyses of a low-penetrance risk variant rs6702619/1p21.2 associating with colorectal cancer in Polish population**

**Supplementary Table 1. List of oligonucleotides used in this study.**

pGL3-AgeI	F: 5' CTACAAATGTGGTAAAATCGATAAGaccggtGATCTGAACGATGGAGCGGAGAAG R: 5' CATTCTCCGCTCCATCGTTCAGATCaccggtCTTATCGATTTTACCACATTTGTAG
β-Globin insulator	F: 5' -TATATAaccggtTCCAAACTCATCAATGTATCTTA R: 5' -TATATAaccggtGACTTTCACCTTTCTCTATCACT
chr1:100,045,980-100,046,473 (rs6702619)	F: 5' -TATATAaccggtGTTTTCTCCTTTGGTCTCTGC R: 5' -TATATAaccggtATATGTCTTCTGCTTTGTCCTG
Primers used in inverse PCR, in bold target sequence	5' <u>CCATCTCATCCCTGCGTGTCTCCGACTCAGCTAAGGTAACCTATCCTTCATGGACCCTAATCA</u> 5' CCTCTCTATGGGCAGTCGGTGAT <b>CTGTTGCTGTCAACCTTCTGT</b>  CCATCTCATCCCTGCGTGTCTCCGACTCAG A-key sequence CCTCTCTATGGGCAGTCGGTGAT - P1-key-c PCR primer CTAAGGTAAC - indexing sequence from 01 Barcode

Gene/localization	Sequence 5'- 3'	Orientation	Assay
Egr1 Hs -811 R	CTCGATCTATGGCACGGTGTC	rev	ChIP
Egr1 Hs -811 F	AGTGGCCGTGACTTCCATATCC	fwd	ChIP
EGR1 15kb CTCF R	ATATGGCACCGTTTCAGGCA	rev	ChIP
EGR1 15kb CTCF F	TCTCCCTCTCTGAGCTGGGT	fwd	ChIP
Gapdh Hs -12 R	TCGAACAGGAGGAGCAGAGAG	rev	ChIP
Gapdh Hs -12 F	CGCCCCGGTTTCTATAAAT	fwd	ChIP
HBB prom R	GACAGGTACGGCTGTCAATCA	rev	ChIP
HBB prom F	GCAATAGATGGCTCTGCCCT	fwd	ChIP
rs CTCF A	TTCCTATCCTTCATGGACCCT	rev	ChIP
rs CTCF A	GACGGCACTAGAAAGGTTGC	fwd	ChIP
rs CTCF B	CTGATCCACAGGAGATCCGC	rev	ChIP
rs CTCF B	TGGAATCCACCCTGTCTCAG	fwd	ChIP
rs CTCF C	GGTTTGGGCAAAGAGATGG	rev	ChIP
rs CTCF C	CTCTCTGCACCCAACCCAG	fwd	ChIP
LPPR4	ACAGTGCAATTCCTCCTCCT	rev	RT
LPPR4	GCGGGCTAACACGGATAACT	fwd	RT
PALMD	TGGATCTGGTGCTGGTCTTG	rev	RT
PALMD	GCCTTGAGGGAGAAATGGCT	fwd	RT
YWHAZ	AGCAGATGGCTCGAGAATACA	rev	RT

YWHAZ	GAAGCATTGGGGATCAAGAA	fwd	RT
TUBA1B	GCCTCCTAATCCCTAGCCAC	rev	RT
TUBA1B	TCCAGGCAGTAGAGCTCCC	fwd	RT
ACTB	AAGGTAGTTTCGTGGATGCC	rev	RT
ACTB	AGAGCTACGAGCTGCCTGAC	fwd	RT
HPRT1	CGAGCAAGACGTTACAGTCCT	rev	RT
HPRT1	GGCGTCGTGATTAGTGATGAT	fwd	RT
ALAS1	CCTCATCCACGAAGGTGATT	rev	RT
ALAS1	CTGCAAAGATCTGACCCCTC	fwd	RT
GNAS	ATCGCTCGGCACATAGTCAG	rev	RT
GNAS	CTACGAACGCTCCAACGAGT	fwd	RT
GNAS-As	AGGTTTTTCAGAGTCTGGTAGCC	rev	RT
GNAS-As	AGAGGGCTTACTGCGAGGAG	fwd	RT

**Supplementary Table 2.** List of 3C-Seq interactions between rs6702619 region and distant regions detected in the two independent experiments.

chromosome	Peak Start	Peak End	Peak span	Gene start	Gene end	Nearest gene	Strand	Peak distance from nearest gene
chr1	28772014	28772187	173	28696064	28826881	PHACTR4	+	0
chr1	40798524	40798732	208	40766162	40782939	COL9A2	-	15586
chr1	52331267	52331342	75	52254865	52343712	NRDC	-	0
chr1	67463541	67463782	241	67465014	67520080	SLC35D1	-	1233
chr1	68642908	68642995	87	68297970	68668670	GNG12-AS1	+	0
chr1	68642908	68642995	87	68564141	68698229	WLS	-	0
chr1	69420631	69420702	71	69521580	69650685	LINC01707	+	100879
chr1	75973313	75973568	255	75667815	76076799	SLC44A5	-	0
chr1	82849697	82849950	253	82165454	82459616	ADGRL2	+	390082
chr1	84384247	84384386	139	84330714	84464870	TTL7	-	0
chr1	88519012	88519154	142	89003195	89150887	PKN2-AS1	-	484042
chr1	90670625	90670814	189	90460653	90501089	ZNF326	+	169537
chr1	91467297	91467541	244	91380856	91487065	ZNF644	-	0
chr1	92354409	92354646	237	92145899	92371559	TGFBR3	-	0
chr1	94919523	94919748	225	94883932	94944260	ABCD3	+	0
chr1	95651574	95651825	251	95558072	95663161	TMEM56	+	0
chr1	95651574	95651825	251	95583478	95710509	TMEM56-RWDD3	+	0
chr1	95651574	95651825	251	95628774	95699538	LOC101928118	-	0
chr1	96016888	96016990	102	95975671	95981020	LOC100996635	+	35869
chr1	96225125	96225216	91	96457623	96488436	LOC102723661	+	232408
chr1	96627191	96627388	197	96719624	96839681	LINC01787	-	92237
chr1	97148774	97148843	69	97187160	97280605	PTBP2	+	38318
chr1	97608717	97608830	113	97543299	98386615	DPYD	-	0

chr1	97608717	97608830	113	97561478	97788511	DPYD-AS1	+	0
chr1	98393523	98393774	251	98399029	98407296	LINC01930	-	5256
chr1	98556299	98556547	248	98453555	98515249	MIR137HG	-	41051
chr1	98598496	98598645	149	98676266	98738214	LINC01776	+	77622
chr1	98974478	98974658	180	99127235	99226056	SNX7	+	152578
chr1	99338279	99338729	450	99355800	99470449	PLPPR5	-	17072
chr1	99519504	99519749	245	99469831	99614408	LOC100129620	+	0
chr1	99679767	99679989	222	99729847	99775138	PLPPR4	+	49859
chr1	99871540	99871895	355	99937975	99953360	LINC01708	-	66081
chr1	100034994	100035156	162	100111430	100160097	PALMD	+	76275
chr1	100164075	100164313	238	100154610	100178513	MIR548AA1	+	0
chr1	100174423	100174558	135	100174258	100231349	FRRS1	-	0
chr1	100274287	100274466	179	100315639	100389579	AGL	+	41174
chr1	100425825	100425999	174	100435344	100492534	SLC35A3	+	9346
chr1	100507407	100507580	173	100503788	100548929	MFSD14A	+	0
chr1	100570649	100570850	201	100549100	100598651	SASS6	-	0
chr1	100605950	100606075	125	100598705	100616054	TRMT13	+	0
chr1	100614527	100614792	265	100614003	100643829	LRRRC39	-	0
chr1	100672610	100672884	274	100652477	100715409	DBT	-	0
chr1	100747610	100747863	253	100731713	100758325	RTCA	+	0
chr1	100807363	100807487	124	100810570	100965021	CDC14A	+	3084
chr1	100999001	100999223	222	101003727	101007583	GPR88	+	4505
chr1	101057425	101057586	161	101092605	101112560	LINC01349	-	35020
chr1	101153871	101153999	128	101185195	101204601	VCAM1	+	31197
chr1	101285254	101285520	266	101337927	101360735	EXTL2	-	52408
chr1	101390299	101390481	182	101361631	101447311	SLC30A7	+	0
chr1	101505003	101505218	215	101491401	101552935	LOC102606465	+	0
chr1	101678095	101678240	145	101700428	101702084	LOC101928370	-	22189
chr1	101912583	101912782	199	101789392	101842869	LINC01307	+	69715
chr1	102311877	102311967	90	102268122	102312636	OLFM3	-	0
chr1	103053266	103053464	198	103342022	103574052	COL11A1	-	288559
chr1	111622020	111622260	240	111659791	111682838	DRAM2	-	37532
chr1	112370558	112370671	113	112318453	112531777	KCND3	-	0
chr1	114188713	114188987	274	113933474	114228545	MAGI3	+	0
chr1	117863575	117863802	227	117838087	117863958	LINC01525	+	0
chr1	118256342	118256549	207	118148603	118171011	FAM46C	+	85332
chr1	119857878	119857999	121	119870874	119898805	LINC01780	+	12876
chr1	120205031	120205155	124	120161999	120190390	ZNF697	-	14642
chr1	121484384	121484999	615	121260909	121313686	EMBP1	+	170699
chr1	168246197	168246443	246	168250277	168283664	TBX19	+	3835
chr1	212834895	212834993	98	212859758	212873327	BATF3	-	24766
chr1	221475779	221475991	212	221503269	221509638	C1orf140	-	27279
chr10	42396055	42396210	155	42827313	42863493	LOC441666	-	431104

chr10	76773318	76773555	237	76586170	76792380	KAT6B	+	0
chr10	106307840	106307963	123	106234697	106240033	LOC101927523	-	67808
chr11	51579525	51579674	149	51515281	51516211	OR4C46	+	63315
chr11	59877462	59877540	78	59856136	59865940	MS4A2	+	11523
chr12	75548879	75548997	118	75433857	75603528	KCNC2	-	0
chr13	22148910	22149041	131	22066827	22178355	MICU2	-	0
chr13	113062056	113062189	133	113030650	113089009	SPACA7	+	0
chr14	28566914	28566986	72	27791031	28142427	LOC728755	-	424488
chr14	96212433	96212559	126	96181819	96223116	LOC107984703	+	0
chr15	26457303	26457547	244	26360959	26378184	LINC00929	+	79120
chr15	39432523	39432595	72	39542869	39547043	C15orf54	+	110275
chr15	55224277	55224457	180	55348944	55384371	LOC105370829	+	124488
chr16	12928033	12928289	256	12753655	12897744	CPPED1	-	30290
chr16	61564294	61564555	261	61685914	62070739	CDH8	-	121360
chr17	63470572	63470623	51	63453658	63454526	LINC02563	+	16047
chr18	18518681	18518944	263	18529702	18691812	ROCK1	-	10759
chr18	29978654	29978770	116	29843483	30050447	GAREM1	-	0
chr18	41315650	41315753	103	40847856	40857615	SYT4	-	458036
chr19	27732045	27732289	244	28281400	28284848	LINC00662	-	549112
chr2	67977411	67977585	174	68023185	68052694	LINC01812	-	45601
chr2	69832943	69832994	51	69685126	69870977	AAK1	-	0
chr2	92297872	92298052	180	92129158	92130496	ACTR3BP2	+	167377
chr2	123376127	123376356	229	123823731	123831057	LINC01826	-	447376
chr2	128533696	128533768	72	128461807	128568761	WDR33	-	0
chr2	138830142	138830310	168	138859453	138863475	LINC01832	+	29144
chr20	26318007	26318146	139	26167654	26189869	MIR663AHG	-	128139
chr20	57421692	57421890	198	57393972	57425958	GNAS-AS1	-	0
chr20	57421692	57421890	198	57414772	57486251	GNAS	+	0
chr4	13442416	13442512	96	13369346	13485989	RAB28	-	0
chr4	68265490	68265689	199	68283022	68287718	LOC101927237	-	17334
chr4	105465064	105465332	268	105412121	105618749	CXXC4-AS1	+	0
chr4	190354322	190354399	77	190580759	190582640	LINC01262	+	226361
chr5	49438285	49438361	76	49692030	49737234	EMB	-	253670
chr5	159083274	159083415	141	159203781	159298391	LINC01847	-	120367
chr6	58776739	58776993	254	58246158	58287724	LINC00680-GUSBP4	-	489016
chr6	58776739	58776993	254	58272111	58287724	LINC00680	-	489016
chr6	129992305	129992574	269	129898239	130031370	ARHGAP18	-	0
chr6	153239284	153239356	72	153291653	153304217	FBXO5	-	52298
chr7	57560808	57560902	94	57509882	57533265	ZNF716	+	27544
chr7	61968665	61968926	261	62751669	62764434	ZNF733P	-	782744
chr7	76530795	76530907	112	76610138	76653076	DTX2P1-UPK3BP1-PMS2P11	+	79232
chr7	120041783	120041978	195	119913721	120390387	KCND2	+	0
chr8	75326003	75326198	195	75262617	75279335	GDAP1	+	46669

chr8	85962218	85962298	80	86019322	86058314	LRRCC1	+	57025
chr8	91278779	91278930	151	91233715	91400187	LINC00534	+	0
chr8	101860758	101860899	141	101930803	101962799	YWHAZ	-	69905
chr8	111699905	111699996	91	111949918	112039662	LINC01608	-	249923
chr8	114672923	114672994	71	113235158	114449242	CSMD3	-	223682
chr9	20731284	20731380	96	20658307	20995954	FOCAD	+	0
chr9	66971192	66971414	222	66969462	67030191	LOC101929583	-	0
chr9	66971192	66971414	222	66969462	67030841	LOC101928195	-	0
chr9	67320516	67320738	222	67290450	67334405	LOC102724580	+	0
chr9	90030199	90030411	212	90112142	90323549	DAPK1	+	81732
chr9	101809397	101809525	128	101705994	101833074	COL15A1	+	0
chrX	94667820	94667999	179	94318139	94318225	MIR548M	-	349596