

Additional file 1: SNP Name, Reference Sequence, Chromosome and Position (Chr_Pos), window coded number by GenSel in physical map order, description of the genes (Symbol, database search, name, HGNC_id, genome which were mapped) mapped to the 58 SNP markers selected from the GWAS analysis.

SNP_Name	SNP_RefSeq	Chr_Pos	Window	Gene_Symbol	Database	Gene_Name	HGNC_ID	Genome_map	Samp. ¹
BTB-01301015	rs42429246	1_147255491	147	PCBP3	Ensembl	poly(rC) binding protein 3	HGNC:8651	Bos taurus	5
BTB-00077766	rs43285940	2_4619367	163	POLR2D	Ensembl	polymerase (RNA) II (DNA directed) polypeptide D	HGNC:9191	Bos taurus	5
				AMMECR1L	Ensembl	AMMECR1-like	HGNC:28658	Bos taurus	
				WDR33	Ensembl	WD repeat domain 33	HGNC:25651	Bos taurus	
BTB-00082871	rs43293394	2_20699862	179	HOXD3	Ensembl	homeobox D3	HGNC:5137	Bos taurus	8
				MTX2	Ensembl	metaxin 2	HGNC:7506	Bos taurus	
				HOXD4	Ensembl	homeobox D4	HGNC:5138	Bos taurus	
				bta-mir-10b	Ensembl	miRBase		Bos taurus	
				HOXD1	Ensembl	homeobox D1	HGNC:5132	Bos taurus	
ARS-BFGL-NGS-111213	rs110504727	2_55308672	214	LRP1B	NCBI	low density lipoprotein receptor-related protein 1B	HGNC:6693	Bos taurus	7
BTB-01165311	rs42320860	2_55283216	214	LRP1B	NCBI	low density lipoprotein receptor-related protein 1B	HGNC:6693	Bos taurus	6
Hapmap36094- SCAFFOLD96944_22403	rs29026592	2_102214656	261	SNORA11	Ensembl	small nucleolar RNA, H/ACA box 11	HGNC:32599	Bos taurus	4
BTA-92857-no-rs	rs41662298	2_102723466	261	SPAG16	NCBI	sperm associated antigen 16	HGNC:23225	Bos taurus	3
ARS-BFGL-NGS-102874	rs109276708	2_123152276	282	SDC3	Ensembl	syndecan 3	HGNC:10660	Bos taurus	4
				PUM1	Ensembl	pumilio RNA-binding family member 1	HGNC:14957	Bos taurus	
				SNORD103	Ensembl	Small nucleolar RNA SNORD103/SNORD85		Bos taurus	
BTB-00117780	rs43328895	2_131393741	290	CDC42	Ensembl	cell division cycle 42	HGNC:1736	Bos taurus	5
				U6	Ensembl	RNA, U6 small nuclear 1	HGNC:10227	Bos taurus	
				WNT4	Ensembl	wingless-type MMTV integration site family, member 4	HGNC:12783	Bos taurus	
				U6	Ensembl	RNA, U6 small nuclear 50, pseudogene	HGNC:10229	Bos taurus	
				CELA3B	Ensembl	chymotrypsin-like elastase family, member 3B	HGNC:15945	Bos taurus	
ARS-BFGL-NGS-113378	rs43319306	2_134486603	293	PAX7	Ensembl	paired box 7	HGNC:8621	Bos taurus	6
				TAS1R2	Ensembl	taste receptor, type 1, member 2	HGNC:14905	Bos taurus	

¹ Sampling number of each SNP within those ten cross-validation subsets proposed after GWAS and tag SNP selection strategy.

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SNP_Name	SNP_RefSeq	Chr_Pos	Window	Gene_Symbol	Database	Gene_Name	HGNC_ID	Genome_map	Samp. ¹
ARS-BFGL-NGS-119309	rs110043221	3_33691011	329	EPS8L3	Ensembl	EPS8-like 3	HGNC:21297	Bos taurus	1
				GSTM1	Ensembl	glutathione S-transferase mu 1	HGNC:4632	Bos taurus	
				GSTM3	Ensembl	glutathione S-transferase mu 3 (brain)	HGNC:4635	Bos taurus	
				CSF1	Ensembl	colony stimulating factor 1 (macrophage)	HGNC:2432	Bos taurus	
				bta-mir-2413	Ensembl	bta-mir-2413 (miRBase)		Bos taurus	
ARS-BFGL-NGS-33433	rs109299452	3_68207361	364	LOC102724799	NCBI	uncharacterized LOC102724799		Homo sapiens	3
BTB-00169573	rs43385164	4_24209956	442						4
Hapmap45129-BTA-72713	rs41587961	4_24932445	442	ISPD	Ensembl	isoprenoid synthase domain containing	HGNC:37276	Bos taurus	4
				ISPD	Ensembl	isoprenoid synthase domain containing	HGNC:37276	Bos taurus	
				SOSTDC1	Ensembl	sclerostin domain containing 1	HGNC:21748	Bos taurus	
ARS-BFGL-NGS-36591	rs43403429	4_66830563	484	FKBP14	Ensembl	FK506 binding protein 14, 22 kDa	HGNC:18625	Bos taurus	4
				WIPF3	Ensembl	WAS/WASL interacting protein family, member 3	HGNC:22004	Bos taurus	
				SCRN1	Ensembl	secernin 1	HGNC:22192	Bos taurus	
				PLEKHA8	Ensembl	pleckstrin homology domain containing, family A (phosphoinositide binding specific) member 8	HGNC:30037	Bos taurus	
Hapmap25270-BTA-142450	rs109082916	4_97015274	515	PLEX2	Ensembl	PLEX2 (Bos taurus plexin A4 (PLXNA4), mRNA)		Bos taurus	4
Hapmap22875-BTA-155031	rs110223270	4_113721793	531	ZNF775	Ensembl	zinc finger protein 775	HGNC:28501	Bos taurus	8
				GIMAP8	Ensembl	GTPase, IMAP family member 8	HGNC:21792	Bos taurus	
				GIMAP7	Ensembl	GTPase, IMAP family member 7	HGNC:22404	Bos taurus	
Hapmap52967-rs29017027	rs29017027	5_14044364	553	DNAH5	NCBI	dynein, axonemal, heavy chain 5		Homo sapiens	8
Hapmap30881-BTA-159706	rs110661345	6_3994395	664	QRFPR	Ensembl	pyroglutamylated RFamide peptide receptor	HGNC:15565	Bos taurus	4
				U6	Ensembl	RNA, U6 small nuclear 1	HGNC:10227	Bos taurus	
				U6	Ensembl	RNA, U6 small nuclear 50, pseudogene	HGNC:10229	Bos taurus	
BTB-01280976	rs42404150	6_4193024	665	QRFPR	Ensembl	pyroglutamylated RFamide peptide receptor	HGNC:15565	Bos taurus	5
BTB-02002785	rs43106284	6_49130874	710	LOC100421158	NCBI	piggyBac transposable element derived 4 pseudogene		Homo sapiens	9
ARS-BFGL-NGS-111257	rs110116877	7_13426119	794	CACNA1A	Ensembl	calcium channel, voltage-dependent, P/Q type, alpha 1A subunit	HGNC:1388	Bos taurus	4

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SNP_Name	SNP_RefSeq	Chr_Pos	Window	Gene_Symbol	Database	Gene_Name	HGNC_ID	Genome_map	Samp. ¹
ARS-BFGL-NGS-109534	rs109115115	7_13608935	794	TRMT1	Ensembl	tRNA methyltransferase 1 homolog (S. cerevisiae)	HGNC:25980	Bos taurus	4
				NFIX	Ensembl	nuclear factor I/X (CCAAT-binding transcription factor)	HGNC:7788	Bos taurus	
				STX10	Ensembl	syntaxin 10	HGNC:11428	Bos taurus	
				NACC1	Ensembl	nucleus accumbens associated 1	HGNC:20967	Bos taurus	
				LYL1	Ensembl	lymphoblastic leukemia associated hematopoiesis regulator 1	HGNC:6734	Bos taurus	
				IER2	Ensembl	immediate early response 2	HGNC:28871	Bos taurus	
BTB-01398754	rs42522770	8_50525859	944	LOC100422267	NCBI	coagulation factor III (thromboplastin, tissue factor) pseudogene		Homo sapiens	7
Hapmap40677-BTA-121871	rs41622905	8_107821440	1001	ASTN2	NCBI	astrotactin 2	HGNC:17021	Bos taurus	6
ARS-BFGL-NGS-107048	rs109728630	10_18395377	1132	THSD4	NCBI	thrombospondin, type I, domain containing 4	HGNC:25835	Bos taurus	4
Hapmap32096-BTA-150413	rs110820714	10_46199529	1159	HERC1	Ensembl	HECT and RLD domain containing E3 ubiquitin protein ligase family member 1	HGNC:4867	Bos taurus	7
				DAPK2	Ensembl	death-associated protein kinase 2	HGNC:2675	Bos taurus	
ARS-BFGL-NGS-60054	rs110382174	10_46571563	1159	USP3	Ensembl	ubiquitin specific peptidase 3	HGNC:12626	Bos taurus	8
Hapmap58695-rs29019899	rs29019899	10_51735816	1164	LIPC	Ensembl	lipase, hepatic	HGNC:6619	Bos taurus	10
				ADAM10	Ensembl	ADAM metallopeptidase domain 10	HGNC:188	Bos taurus	
				5S_rRNA	Ensembl	5S_rRNA (5S ribosomal RNA)		Bos taurus	
ARS-BFGL-NGS-111871	rs109034555	10_77105887	1190	PLEKHG3	Ensembl	pleckstrin homology domain containing, family G (with RhoGef domain) member 3	HGNC:20364	Bos taurus	1
				SPTB	Ensembl	spectrin, beta, erythrocytic	HGNC:11274	Bos taurus	
				PPP1R36	Ensembl	protein phosphatase 1, regulatory subunit 36	HGNC:20097	Bos taurus	
BTB-00464454	rs43669951	11_21242337	1239	MORN2	Ensembl	MORN repeat containing 2	HGNC:30166	Bos taurus	5
				SOS1	Ensembl	son of sevenless homolog 1 (Drosophila)	HGNC:11187	Bos taurus	
				ARHGEF33	Ensembl	Rho guanine nucleotide exchange factor (GEF) 33	HGNC:37252	Bos taurus	
				DHX57	Ensembl	DEAH (Asp-Glu-Ala-Asp/His) box polypeptide 57	HGNC:20086	Bos taurus	
				GEMIN6	Ensembl	gem (nuclear organelle) associated protein 6	HGNC:20044	Bos taurus	

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SNP_Name	SNP_RefSeq	Chr_Pos	Window	Gene_Symbol	Database	Gene_Name	HGNC_ID	Genome_map	Samp. ¹
Hapmap60779-rs29022104	rs29022104	11_65975590	1283	LOC100420020	NCBI	transmembrane protein 55B pseudogene		Homo sapiens	7
ARS-BFGL-NGS-111179	rs110144789	11_101217080	1319	FIBCD1	Ensembl	fibrinogen C domain containing 1	HGNC:25922	Bos taurus	9
				QRFP	Ensembl	pyroglutamylated RFamide peptide	HGNC:29982	Bos taurus	
				LAMC3	Ensembl	laminin, gamma 3	HGNC:6494	Bos taurus	
				ABL1	Ensembl	ABL proto-oncogene 1, non-receptor tyrosine kinase	HGNC:76	Bos taurus	
Hapmap44228-BTA-34185	rs111003257	13_14814734	1429						7
Hapmap40517-BTA-33731	rs41577070	13_73782308	1488	snoU2_19	Ensembl	Small nucleolar RNA U2-19		Bos taurus	6
				U2	Ensembl	RNA, U2 small nuclear 5, pseudogene	HGNC:10155	Bos taurus	
				U2	Ensembl	RNA, U2 small nuclear 1	HGNC:10142	Bos taurus	
				ADA	Ensembl	adenosine deaminase	HGNC:186	Bos taurus	
				WISP2	Ensembl	WNT1 inducible signaling pathway protein 2	HGNC:12770	Bos taurus	
				U2	Ensembl	RNA, U2 small nuclear 2, pseudogene	HGNC:10152	Bos taurus	
				PKIG	Ensembl	protein kinase (cAMP-dependent, catalytic) inhibitor gamma	HGNC:9019	Bos taurus	
				U2	Ensembl	RNA, U2 small nuclear 4, pseudogene	HGNC:10154	Bos taurus	
				RIMS4	Ensembl	regulating synaptic membrane exocytosis 4	HGNC:16183	Bos taurus	
				KCNK15	Ensembl	potassium channel, two pore domain subfamily K, member 15	HGNC:13814	Bos taurus	
				U2	Ensembl	RNA, U2 small nuclear 3, pseudogene	HGNC:10153	Bos taurus	
				snoU2-30	Ensembl	Small nucleolar RNA U2-30		Bos taurus	
BTA-33938-no-rs	rs41567254	13_80350185	1495	SALL4	Ensembl	spalt-like transcription factor 4	HGNC:15924	Bos taurus	6
				ATP9A	Ensembl	ATPase, class II, type 9A	HGNC:13540	Bos taurus	
ARS-BFGL-NGS-112197	rs110051873	13_80563915	1495	ZFP64	Ensembl	ZFP64 zinc finger protein	HGNC:15940	Bos taurus	6
Hapmap41120-BTA-99310	rs41668729	13_80980304	1495	LOC102724139	NCBI	uncharacterized LOC102724139		Homo sapiens	7
Hapmap57013-rs29019369	rs29019369	13_70790140	1485	CHD6	Ensembl	chromodomain helicase DNA binding protein 6	HGNC:19057	Bos taurus	6
				bta-mir-544b-1	Ensembl	miRBase		Bos taurus	

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SNP_Name	SNP_RefSeq	Chr_Pos	Window	Gene_Symbol	Database	Gene_Name	HGNC_ID	Genome_map	Samp. ¹
BTB-00915241	rs42075995	14_54323858	1553	CSMD3	Ensembl	CUB and Sushi multiple domains 3	HGNC:19291	Bos taurus	10
ARS-BFGL-NGS-5811	rs110197574	15_37534610	1621	RPS15P8	NCBI	ribosomal protein S15 pseudogene 8		Homo sapiens	11
Hapmap51782-BTA-95909	rs41665212	15_37575605	1621	RPS15P8	NCBI	ribosomal protein S15 pseudogene 8		Homo sapiens	9
Hapmap45825-BTA-25376	rs41629346	15_72980544	1656	NEO1	NCBI	neogenin 1		Homo sapiens	4
ARS-BFGL-NGS-40365	rs41257804	16_40059619	1709	MYOC	Ensembl	myocilin, trabecular meshwork inducible glucocorticoid response	HGNC:7610	Bos taurus	8
				VAMP4	Ensembl	vesicle-associated membrane protein 4	HGNC:12645	Bos taurus	
				DNM3	Ensembl	dynamamin 3	HGNC:29125	Bos taurus	
				METTL13	Ensembl	methyltransferase like 13	HGNC:24248	Bos taurus	
BTB-01197909	rs42354418	16_40086288	1709	VAMP4	Ensembl	vesicle-associated membrane protein 4	HGNC:12645	Bos taurus	6
				METTL13	Ensembl	methyltransferase like 13	HGNC:24248	Bos taurus	
				DNM3	Ensembl	dynamamin 3	HGNC:29125	Bos taurus	
Hapmap48746-BTA-40116	rs41583441	16_74283537	1743	KCNH1	Ensembl	potassium channel, voltage gated eag related subfamily H, member 1	HGNC:6250	Bos taurus	3
ARS-BFGL-BAC-27352	rs109822497	17_7756498	1758	DCLK2	Ensembl	doublecortin-like kinase 2	HGNC:19002	Bos taurus	4
Hapmap34041-BES1_Contig298_838	rs43708490	20_17837675	1974	ZSWIM6	Ensembl	zinc finger, SWIM-type containing 6	HGNC:29316	Bos taurus	9
Hapmap28040-BTA-134983	rs109850399	20_19917959	1976	5S_rRNA	Ensembl	5S_rRNA (5S ribosomal RNA)		Bos taurus	5
Hapmap43377-BTA-85612	rs41660483	20_56196291	2013	U6	Ensembl	RNA, U6 small nuclear 50, pseudogene	HGNC:10229	Bos taurus	4
				MYO10	Ensembl	myosin X	HGNC:7593	Bos taurus	
				SNORA9	Ensembl	small nucleolar RNA, H/ACA box 9	HGNC:32597	Bos taurus	
				U6	Ensembl	RNA, U6 small nuclear 1	HGNC:10227	Bos taurus	
ARS-BFGL-NGS-13702	rs109546362	20_71498820	2028	TPPP	Ensembl	tubulin polymerization promoting protein	HGNC:24164	Bos taurus	8
				NKD2	Ensembl	naked cuticle homolog 2 (Drosophila)	HGNC:17046	Bos taurus	
				BRD9	Ensembl	bromodomain containing 9	HGNC:25818	Bos taurus	
				SLC12A7	Ensembl	solute carrier family 12 (potassium/chloride transporter), member 7	HGNC:10915	Bos taurus	
				TRIP13	Ensembl	thyroid hormone receptor interactor 13	HGNC:12307	Bos taurus	

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BTB-00849206	rs42019145	22_45866182	2146	ERC2	NCBI	ELKS/RAB6-interacting/CAST family member 2	HGNC:31922	Bos taurus	5
ARS-BFGL-NGS-84660	rs109886577	25_15365566	2294						4
ARS-BFGL-BAC-37178	rs42066295	25_30062438	2309	AUTS2	Ensembl	autism susceptibility candidate 2	HGNC:14262	Bos taurus	3
Hapmap48932-BTA-88109	rs41663418	28_20480901	2440						6
BTB-01129090	rs43733032	28_20915841	2440						6
Hapmap34915-BES7_Contig278_1082	rs43702480	28_20988266	2440						5
BTA-66199-no-rs	rs43707003	29_48735363	2515	SHANK2	NCBI	SH3 and multiple ankyrin repeat domains 2	HGNC:14295	Bos taurus	4

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