

Supplementary Table S1: List of some of the down-regulated genes in WNIN-Ob rat retina

Symbol	Description	Genbank	Fold Change
Grk1	G protein-coupled receptor kinase 1	NM_031096	17.87
Dp111_predicted	deleted in polyposis 1-like 1 (predicted)	AI070350	15.67
Slc24a1	solute carrier family 24 (sodium/potassium/calcium exchanger), member 1	NM_020090	13.73
Gnb1	guanine nucleotide binding protein, beta 1	AI230669	13.54
Hk2	hexokinase 2	BI294137	13.36
Kcnj14	potassium inwardly-rectifying channel, subfamily J, member 14	AI717104	13.36
RGD1308116_predicted	similar to hypothetical protein MGC42105 (predicted)	BG375383	12.29
Pde6a_predicted	phosphodiesterase 6A, cGMP-specific, rod, alpha (predicted)	BG374465	12.21
Ppap2c	phosphatidic acid phosphatase type 2c	AA893191	10.79
Rp1_predicted	retinitis pigmentosa 1 (autosomal dominant) (predicted)	AI577591	10.4
Orc4l	origin recognition complex, subunit 4-like (<i>S. cerevisiae</i>)	AI070558	9.91
Wwp2_predicted	WW domain containing E3 ubiquitin protein ligase 2 (predicted)	BG375500	9.84
Mrc2_predicted	mannose receptor, C type 2 (predicted)	BF289229	9.31
Agpat3_predicted	1-acylglycerol-3-phosphate O-acyltransferase 3 (predicted)	BI290161	9.12
Pax4	paired box gene 4	AF053102	8.81
Dyrk2_predicted	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 2 (predicted)	BM388710	8.28
Polg2_predicted	polymerase (DNA directed), gamma 2, accessory subunit (predicted)	BM390747	8.16
Hmmr	hyaluronan mediated motility receptor	AI171185	8.11
Arf4l_predicted	ADP-ribosylation factor 4-like (predicted)	AI030650	8.05
Faim	Fas apoptotic inhibitory molecule	NM_080895	7.78
Hmmr	hyaluronan mediated motility receptor	AF336825	7.72
Cngb1	cyclic nucleotide gated channel beta 1	AF068572	7.72
Nt5	5 nucleotidase	BI289470	7.67
Cnga1	cyclic nucleotide-gated cation channel	NM_053497	7.62
Icmt	isoprenylcysteine carboxyl	BI293227	7.56

	methyltransferase		
Fscn2_predicted	fascin homolog 2, actin-bundling protein, retinal (Strongylocentrotus purpuratus) (predicted)	AI717493	7.26
Agpat3_predicted	1-acylglycerol-3-phosphate O-acyltransferase 3 (predicted)	AW533203	7.21
Dp111_predicted	deleted in polyposis 1-like 1 (predicted)	BG376982	7.06
Aqp1	aquaporin 1	AA891661	7.01
RGD:1359702	solute carrier family 25, member 30	BG378609	6.82
Cngb1	cyclic nucleotide gated channel beta 1	AJ224680	6.82
RGD1310383_predicted	similar to T-cell activation protein phosphatase 2C (predicted)	BE096680	6.82
RGD1306344_predicted	similar to Ab1-133 (predicted)	AI073208	6.77
Susd3_predicted	sushi domain containing 3 (predicted)	AI407337	6.68
Crx	cone-rod homeobox protein	NM_021855	6.54
Cds1	CDP-diacylglycerol synthase 1	NM_031242	6.49
Rtbnd_predicted	retbindin (predicted)	AI763817	6.45
Kcnb1	potassium voltage gated channel, Shab-related subfamily, member 1	NM_013186	6.32
RGD1307393_predicted	similar to hypothetical protein MGC9907 (predicted)	AI171174	6.23
Galnt7	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 7 (GalNAc-T7)	AI716589	6.14
Pde6b_predicted	phosphodiesterase 6B, cGMP, rod receptor, beta polypeptide (predicted)	AI575628	6.10
Zbtb8_predicted	zinc finger and BTB domain containing 8 (predicted)	AA963583	6.06
Txnl6_predicted	thioredoxin-like 6 (predicted)	BE108041	6.02
Ric8b	resistance to inhibitors of cholinesterase 8B (C. elegans)	AI009591	5.97
Abca4_predicted	ATP-binding cassette, sub-family A (ABC1), member 4 (predicted)	AI602131	5.97
Als2cr4_predicted	amyotrophic lateral sclerosis 2 (juvenile) chromosome region, candidate 4 (predicted)	BG378932	5.85
Zdhhc2	zinc finger, DHHC domain containing 2	AF228917	5.85
Rdh11_predicted	retinol dehydrogenase 11 (predicted)	BG374035	5.77
Nt5	5 nucleotidase	NM_0215	5.61

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Csda	cold shock domain protein A	AA866458	5.54
Slc31a2_predicted	solute carrier family 31, member 2 (predicted)	BF417391	5.54
Rbp3	retinol binding protein 3, interstitial	AI575415	5.46
Rgs9	regulator of G-protein signaling 9	AI070376	5.42
RGD1306344_predicted	similar to Ab1-133 (predicted)	BE097728	5.42
Rabgef1_predicted	RAB guanine nucleotide exchange factor (GEF) 1 (predicted)	AI575052	5.42
Tdrd7	tudor domain containing 7	AB030644	5.31
Gtf2f2	general transcription factor IIF, polypeptide 2	NM_031042	5.31
Smarcd1_predicted	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 1 (predicted)	BG380270	5.27
Pter	phosphotriesterase related	AW523562	5.09
Rcvrn	recoverin	NM_080901	5.09
RGD1310578_predicted	similar to cerebellar degeneration-related 2 (predicted)	BG671589	5.09
Slc31a2_predicted	solute carrier family 31, member 2 (predicted)	BE101666	5.06
Map1b	microtubule-associated protein 1b	BG672052	5.02
RGD1306592_predicted	similar to Agrin (predicted)	AI144872	4.99
Impg2	interphotoreceptor matrix proteoglycan 2	U76717	4.85
Optn	optineurin	BI294994	4.78
Impg1	interphotoreceptor matrix proteoglycan 1	NM_023958	4.78
Hspa1a	heat shock 70kD protein 1A	NM_031971	4.75
Prc1_predicted	protein regulator of cytokinesis 1 (predicted)	BI284262	4.72
Mhc2ta	MHC class II transactivator	AI045321	4.72
RGD:1303151	adiponectin receptor 1	BI289063	4.69
Aipl1	aryl hydrocarbon receptor-interacting protein-like 1	NM_021590	4.65
Kif20a_predicted	kinesin family member 20A (predicted)	BE100584	4.65
Txnl6_predicted	thioredoxin-like 6 (predicted)	BI274269	4.62
Cacnb2	calcium channel, voltage-dependent, beta 2	BG37397	4.62

	subunit	3	
Rorb_predicted	RAR-related orphan receptor beta (predicted)	BF386897	4.59
Dpysl5	dihydropyrimidinase-like 5	BI300588	4.59
Gng3	guanine nucleotide binding protein (G protein), gamma 3	BM390252	4.56
Mpdz	multiple PDZ domain protein	NM_019196	4.53
Tbc1d12_predicted	TBC1D12: TBC1 domain family, member 12 (predicted)	BF389489	4.46
B4galt1	UDP-Gal:betaGlcNAc beta 1,4-galactosyltransferase, polypeptide 1	BI286141	4.46
Mgat1	Alpha-1,3-mannosyl-glycoprotein 2-beta-N-acetylglucosaminyltransferase	NM_030861	4.43
Gnat1_predicted	guanine nucleotide binding protein, alpha transducing 1 (predicted)	AI412496	4.43
Dusp14_predicted	dual specificity phosphatase 14 (predicted)	AI236997	4.40
Rho	rhodopsin	AI716022	4.40
RGD1308472_predicted	similar to E130103I17Rik protein (predicted)	BE110675	4.40
Rhot2	MIRO2 protein	AI233243	4.40
RGD1308215_predicted	similar to hypothetical protein DKFZp434I2117 (predicted)	BG381537	4.40
Tead3_predicted	TEA domain family member 3 (predicted)	BG372018	4.40
Slco4a1	solute carrier organic anion transporter family, member 4a1	AI180349	4.40
Herc3_predicted	hect domain and RLD 3 (predicted)	BI295026	4.31
Bbs7_predicted	Bardet-Biedl syndrome 7 (predicted)	AI170730	4.31
Bbs5_predicted	Bardet-Biedl syndrome 5 (predicted)	BE105572	4.31
Stk22s1	serine/threonine kinase 22 substrate 1	AI717642	4.28
Sellh	Sell (suppressor of lin-12) 1 homolog (C. elegans)	BM391570	4.28
Rom1_predicted	rod outer segment membrane protein 1 (predicted)	AA892855	4.28
Pcdh21	MT-protocadherin	NM_053572	4.25
Rpl31	ribosomal protein L31	AA818474	4.25
Acadm	acetyl-Coenzyme A dehydrogenase, medium chain	NM_016986	4.25
Slc1a2	solute carrier family 1 (glial high affinity glutamate transporter), member 2	NM_017215	4.25
Eml1_predicted	echinoderm microtubule associated protein	BI289762	4.25

	like 1 (predicted)		
Osbp2_predicted	oxysterol binding protein 2 (predicted)	AW534345	4.22
Plekhf2_predicted	pleckstrin homology domain containing, family F (with FYVE domain) member 2 (predicted)	AI103367	4.22
Ptp4a3_predicted	protein tyrosine phosphatase 4a3 (predicted)	AI104546	4.16
RGD1311320_predicted	similar to MGC31683 protein (predicted)	BF565034	4.16
Slc4a7	solute carrier family 4, sodium bicarbonate cotransporter, member 7	AF070475	4.16
Hcn1	hyperpolarization-activated cyclic nucleotide-gated potassium channel 1	NM_053375	4.14
Tyki_predicted	thymidylate kinase family LPS-inducible member (predicted)	BF282370	4.11
Myh6	myosin heavy chain, polypeptide 6	NM_017239	4.11
Cerk_predicted	ceramide kinase (predicted)	AW525194	4.08
Podxl	podocalyxin-like	AF109393	4.08
Ptpn21	protein tyrosine phosphatase 2E	NM_133545	4.08
Raly_predicted	hnRNP-associated with lethal yellow (predicted)	BM389226	4.05
RGD:1359241	similar to dJ862K6.2.2 (splicing factor, arginine/serine-rich 6 (SRP55-2)(isoform 2))	AI177866	4.02
Grtp1_predicted	GH regulated TBC protein 1 (predicted)	BE099056	4.02
Hspa1a	heat shock 70kD protein 1A	BI278231	4.00
Gucal1a_predicted	guanylate cyclase activator 1a (retina) (predicted)	AI716086	4.00
Mpp4	membrane protein, palmitoylated 4 (MAGUK p55 subfamily member 4)	NM_021265	4.00
Hmgb2	high mobility group box 2	NM_017187	4.00
Mapk1	mitogen activated protein kinase 1	BI282894	4.00
Lass4_predicted	longevity assurance homolog 4 (S. cerevisiae) (predicted)	BE111727	3.97
Alpl	alkaline phosphatase, tissue-nonspecific	Y00714	3.97
Eml1_predicted	echinoderm microtubule associated protein like 1 (predicted)	BI289642	3.94
Ccnd2	cyclin D2	L09752	3.94
Bbs4_predicted	Bardet-Biedl syndrome 4 (predicted)	AI502357	3.91
Zfp143_predicted	zinc finger protein 143 (predicted)	AI170262	3.91

Pkp2_predicted	plakophilin 2 (predicted)	BE113268	3.89
Mrpl14_predicted	mitochondrial ribosomal protein L14 (predicted)	BE113348	3.86
Prom1	prominin 1	NM_021751	3.86
RGD1306405_predicted	similar to 1-acylglycerolphosphate acyltransferase-epsilon (predicted)	BF556812	3.81
Xpmc2h_predicted	XPMC2 prevents mitotic catastrophe 2 homolog (<i>Xenopus laevis</i>) (predicted)	AI237143	3.81
RGD1308111_predicted	similar to zinc finger protein Cezanne, cellular zinc finger anti-NF-kappaB Cezanne (predicted)	BF396260	3.75
Soc	socius	AA964950	3.75
Tnip2_predicted	TNFAIP3 interacting protein 2 (predicted)	BF545192	3.73
Zbtb8_predicted	zinc finger and BTB domain containing 8 (predicted)	BF559709	3.73
Sag	retinal S-antigen	AW529689	3.70
Osbp2_predicted	oxysterol binding protein 2 (predicted)	AI112698	3.70
Zfp143_predicted	zinc finger protein 143 (predicted)	BM383283	3.70
Slc17a7	solute carrier family 17 (sodium-dependent inorganic phosphate cotransporter), member 7	NM_053859	3.68
Glrx2_predicted	glutaredoxin 2 (thioltransferase) (predicted)	BG671304	3.65
Sgk	serum/glucocorticoid regulated kinase	NM_019232	3.63
Ppp2r2b	protein phosphatase 2 (formerly 2A), regulatory subunit B (PR 52), beta isoform	NM_022209	3.60
Pacsin2	protein kinase C and casein kinase substrate in neurons 2	AI407930	3.60
Htr1f	5-hydroxytryptamine (serotonin) receptor 1F	NM_021857	3.58
Scarb1	scavenger receptor class B, member 1	AF071495	3.58
Mef2d	myocyte enhancer factor 2D	AW526160	3.58
Sellh	Sell (suppressor of lin-12) 1 homolog (<i>C. elegans</i>)	BI285936	3.55
Kif3b_predicted	kinesin family member 3B (predicted)	BI300933	3.55
Map4k3	mitogen-activated protein kinase kinase kinase 3	BG664160	3.53
Stard7_predicted	START domain containing 7 (predicted)	BI282011	3.50
Col5a3	collagen, type V, alpha 3	NM_021760	3.50

Chsy1_predicted	carbohydrate (chondroitin) synthase 1 (predicted)	AI406533	3.50
Miox	myo-inositol oxygenase	AF230096	3.50
Sellh	Sell (suppressor of lin-12) 1 homolog (C. elegans)	BF548909	3.48
Crocc_predicted	ciliary rootlet coiled-coil, rootletin (predicted)	BG372724	3.48
RGD1311530_predicted	similar to mucin 7, salivary (predicted)	BI285605	3.48
Tfpi2	tissue factor pathway inhibitor 2	AI179507	3.48
Ric8b	resistance to inhibitors of cholinesterase 8B (C. elegans)	AI454929	3.43
RGD:708530	cytochrome P450-like protein	AA818166	3.43
Drd4	dopamine receptor 4	BI284462	3.41
Pacsin2	protein kinase C and casein kinase substrate in neurons 2	NM_130740	3.41
Mta2_predicted	metastasis-associated gene family, member 2 (predicted)	BM386922	3.41
Arntl	aryl hydrocarbon receptor nuclear translocator-like	AB012600	3.38
Rbms2_predicted	RNA binding motif, single stranded interacting protein 2 (predicted)	BG374052	3.38
Mlf1_predicted	myeloid leukemia factor 1 (predicted)	BI302005	3.36
Pde8a	phosphodiesterase 8A	BG377379	3.34
Arih1_predicted	ariadne ubiquitin-conjugating enzyme E2 binding protein homolog 1 (Drosophila) (predicted)	AI600108	3.34
Anp32e_predicted	acidic (leucine-rich) nuclear phosphoprotein 32 family, member E (predicted)	AI008642	3.31
Tulp1_predicted	tubby like protein 1 (predicted)	AI601965	3.31
Ep300	E1A binding protein p300	BF403191	3.29
Slc29a1	solute carrier family 29 (nucleoside transporters), member 1	NM_031684	3.28
Fabp5	fatty acid binding protein 5, epidermal	U13253	3.27
Madh4	MAD homolog 4 (Drosophila)	AB010954	3.27
RGD1310067_predicted	similar to E3 ubiquitin ligase SMURF2 (predicted)	BF393807	3.27
C11orf8	chromosome 11 open reading frame 8	AW536022	3.23
Jag1	jagged 1	NM_019147	3.23
Pfkl	phosphofructokinase, liver, B-type	AI408151	3.23

Lamp3_predicted	lysosomal-associated membrane protein 3 (predicted)	BF283924	3.22
Bbs2	Bardet-Biedl syndrome 2 (human)	NM_053618	3.20
Slc16a1	solute carrier family 16 (monocarboxylic acid transporters), member 1	NM_012716	3.24
Stard10_predicted	START domain containing 10 (predicted)	AI104759	3.20
Optn	optineurin	AB069907	3.20
Muc3	mucin 3	BI303846	3.18
Rax	retina and anterior neural fold homeobox	NM_053678	3.18
Herc3_predicted	hect domain and RLD 3 (predicted)	AW524705	3.18
Dlc1	deleted in liver cancer 1	AI176713	3.16
Glp2r	glucagon-like peptide 2 receptor	AI070395	3.16
Prph2	peripherin 2	NM_013021	3.14
RGD:1359117	transmembrane protein vezatin	AI235367	3.14
Ubtd1_predicted	ubiquitin domain containing 1 (predicted)	BI293253	3.12
Pcbp4_predicted	poly(rC) binding protein 4 (predicted)	BF562397	3.12
Mlst2_predicted	male sterility domain containing 2 (predicted)	BM383809	3.12
Rhpn1_predicted	rhophilin, Rho GTPase binding protein 1 (predicted)	BG378261	3.09
Gadd45b_predicted	growth arrest and DNA-damage-inducible 45 beta (predicted)	BI287978	3.09
Catn11_predicted	catenin alpha-like 1 (predicted)	AI555457	3.09
Ppp3r1	protein phosphatase 3, regulatory subunit B, alpha isoform, type 1	NM_017309	3.09
Atp1b2	ATPase, Na ⁺ /K ⁺ transporting, beta 2 polypeptide	U45946	3.09
Slc6a6	solute carrier family 6 (neurotransmitter transporter, taurine), member 6	NM_017206	3.074

Supplementary Table S2: List of the genes that are up-regulated in WNIN-Ob rat retina

Symbol	Description	Genbank	Fold Change
Lgals3	lectin, galactose binding, soluble 3	NM_031832	6.27
Porf1	preoptic regulatory factor 1	AI555295	5.89
Thbs2_predicted	thrombospondin 2 (predicted)	AI406660	4.23
Ass	arginosuccinate synthetase	BF283456	4.17
Chi311	chitinase 3-like 1	AA945643	3.97
Krt2-5	keratin complex 2, basic, gene 5	BI286411	3.95
Gfap	glial fibrillary acidic protein	NM_017009	3.89
Ctss	cathepsin S	NM_017320	3.73
Grm6	glutamate receptor, metabotropic 6	D13963	3.65
Mpeg1	macrophage expressed gene 1	AI170394	3.63
RGD:1302937	type I keratin KA13	BI280282	3.51
Anxa1	annexin A1	NM_012904	3.46
Serping1	serine (or cysteine) peptidase inhibitor, clade G, member 1	AW915763	3.39
RGD:1303044	type I keratin KA15	BM385502	3.25
C1qa_predicted	complement component 1, q subcomponent, alpha polypeptide (predicted)	BF418957	3.22
Cyp26a1	cytochrome P450, family 26, subfamily A, polypeptide 1	NM_130408	3.20
Cp	ceruloplasmin	NM_012532	3.07