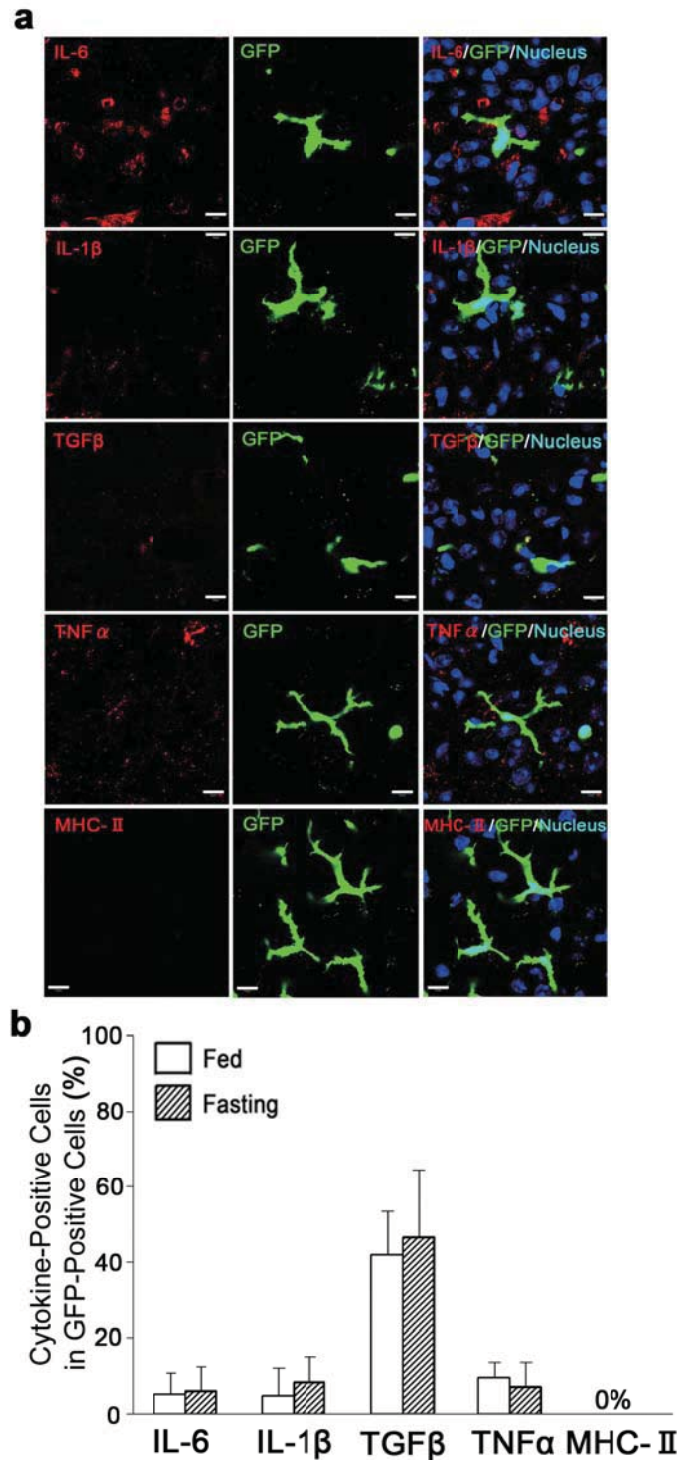


Haematopoietic cells produce BDNF and regulate appetite
upon migration to the hypothalamus

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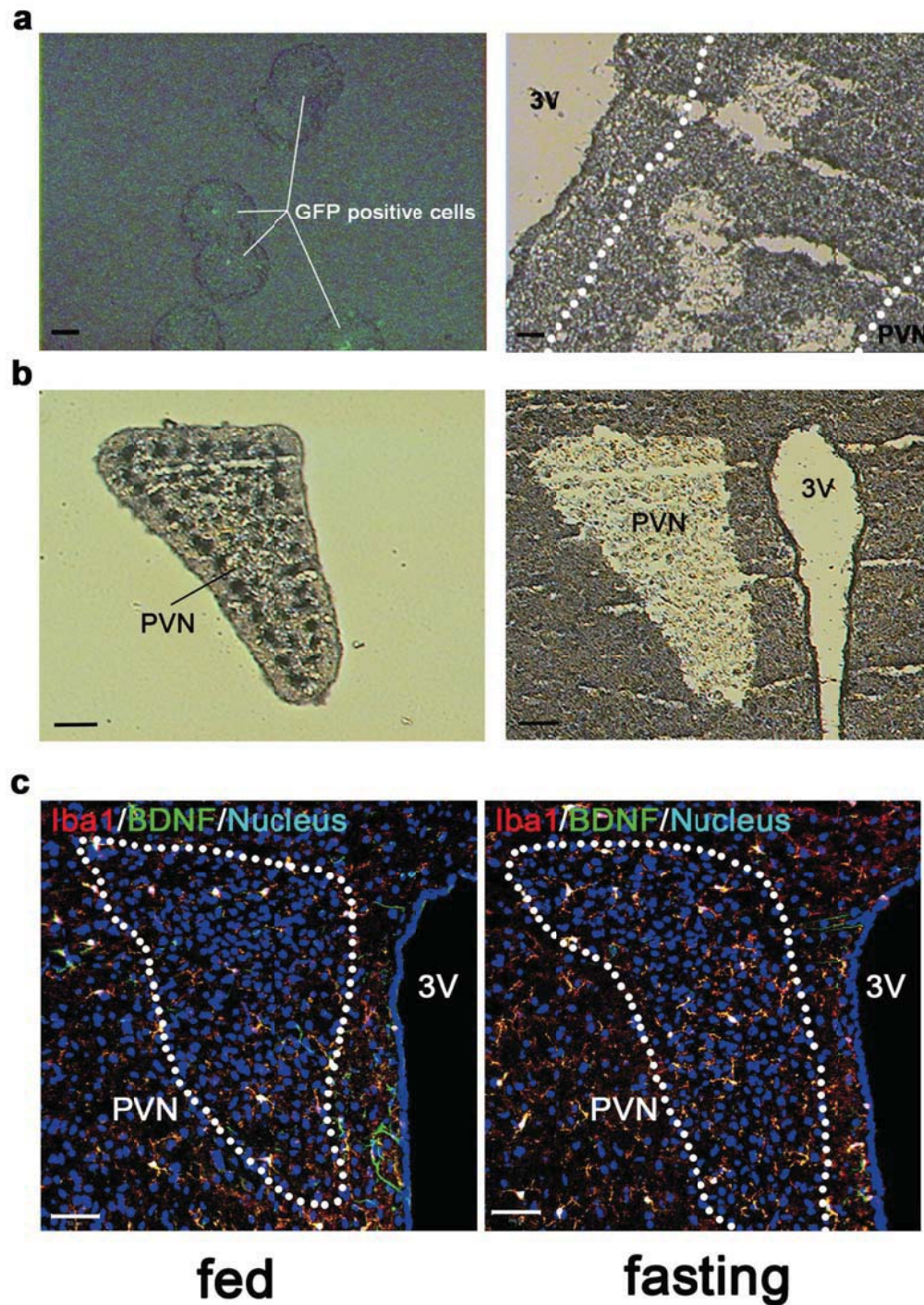
Supplementary figures

Supplementary Fig. S1. Cytokine expression of bone marrow-derived cells.



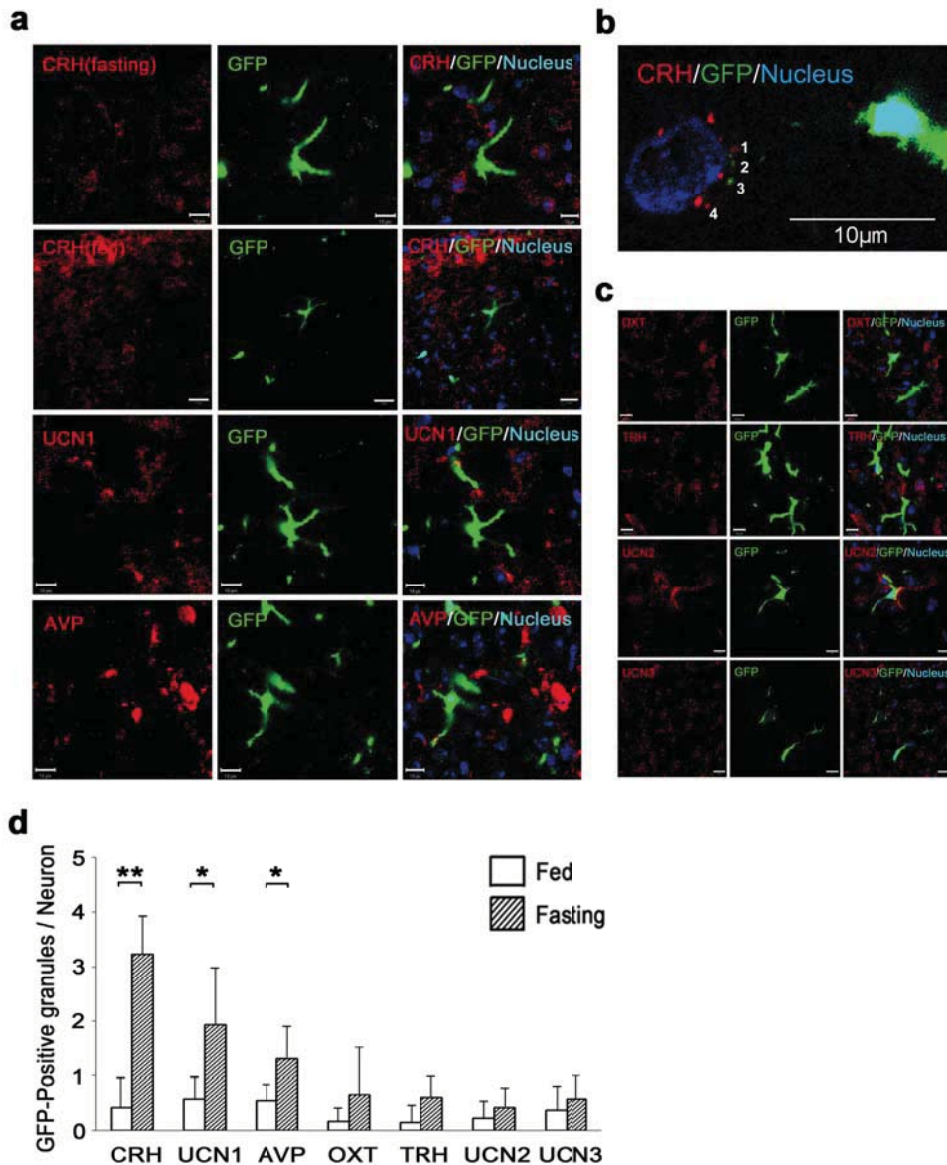
a, Co-localization analysis of GFP-positive cells and immunostaining of cytokines (IL-6, IL-1 β , TGF β , TNF α and MHC-II) in the PVN from BM-chimeric mice. Scale bars = 10 μ m. Red: IL-6, IL-1 β , TGF β , TNF α , and MHC-II, green: GFP, blue: Nucleus. **b**, The percentage of cytokine-positive cells within the population of GFP-positive BMDCs in the PVN of fed or fasting (16h) BM-chimeric mice (n=3-5 in each group). Results are presented as means \pm SD. IL-6: interleukin-6, IL-1 β : interleukin-1 β , TGF β : transforming growth factor β , TNF α : tumour necrosis factor α , MHC-II: major histocompatibility complex-II.

Supplementary Fig. S2. Laser capture microdissection (LCM) and immunohistochemistry for the determination of microglial BDNF production.



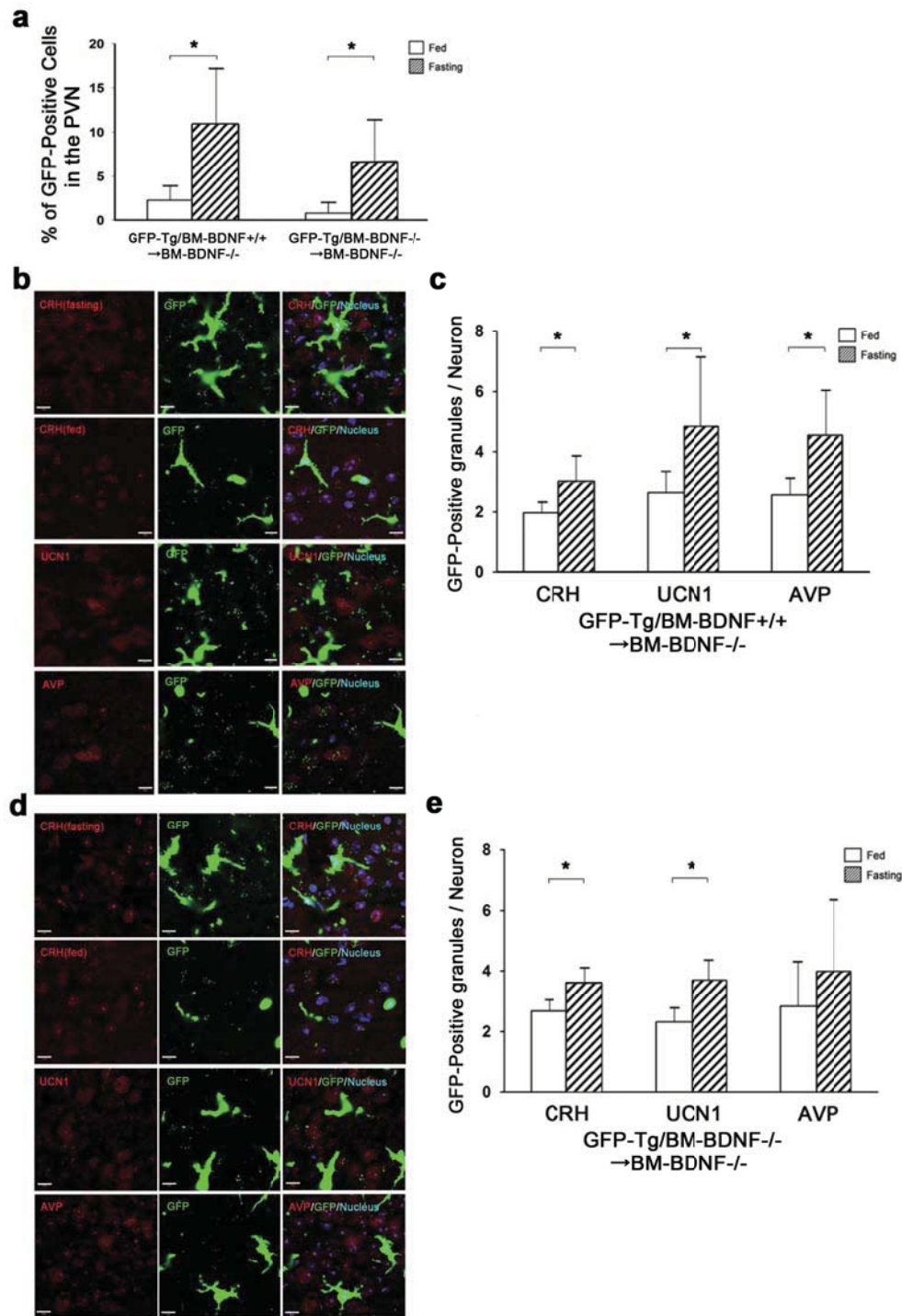
a, Fluorescence and light microscopy of GFP-positive cells in the PVN captured by LCM. Left panel shows captured GFP-positive cells under fluorescence microscopy and right panel shows residual PVN after capture of GFP-positive cells under light microscopy. Dotted lines delineate the PVN. Scale bars = 10 μm . **b**, Light microscopy of PVN captured by LCM. Left panel shows the captured PVN and the right panel shows the residual hypothalamic region after capture of the PVN. Scale bars = 50 μm . 3V: 3rd ventricle. **c**, Immunostaining of Iba1 and BDNF in the PVN from fed or fasting (16h) C57BL/6J mice. Red: Iba1, green: BDNF, blue: Nucleus. Scale bars = 50 μm . Iba1: ionized calcium binding adaptor molecule 1.

Supplementary Fig. S3. Contact of BMDCs with neurons.



a, Localization of GFP-positive cells and neurons positive for CRH, UCN1 or AVP within the PVN of GFP-BM chimeric mice. Red: immunostaining for CRH, UCN1, or AVP, green: GFP, blue: Nucleus. Scale bars = 10 μ m. Fasting: fasting for 16 hours. **b**, Enlarged figure of CRH-positive neuron. Number showed the count of GFP-positive granules (dots) in single CRH-positive neuron. Scale bars = 10 μ m. **c**, Localization of GFP-positive cells and neurons positive for OXT, TRH, UCN2 and UCN3 within the PVN of GFP-BM chimeric mice. Red: Immunostaining of OXT, TRH, UCN2 or UCN3, green: GFP, blue: Nucleus. Scale bars = 10 μ m. **d**, The average number of GFP-positive granules associated with each neuropeptide-positive neuron within the PVN of fed and fasting (16h) mice (n=5-6 in each group, *P<0.05). Results are presented as means \pm SD. The average number of GFP-positive granules on one neuron positive for CRH, UCN1, AVP, OXT, TRH, UCN2 or UCN3. The numbers of granules associated with CRH, UCN1 and AVP neurons were increased by fasting as shown in **a**, whereas those associated with the other markers were not, as shown in **b**. CRH: corticotropin-releasing hormone, UCN: urocortin, AVP: arginine vasopressin, OXT: oxytocin, TRH: thyrotropin releasing hormone.

Supplementary Fig. S4. Effect of BMT on the contact between BMDCs and neurons in the PVN of BM-BDNF^{-/-} mice.



a, The number of GFP-positive cells in BM-BDNF^{-/-} mice that received BMT from GFP-TG/BM-BDNF^{+/+} or GFP-TG/BM-BDNF^{-/-} mice (n=6-7 in each group). **b** and **c**, Analysis of GFP-positive granules in samples stained for various peptides: CRH in fed or fasting, UCN1 in fasting, and AVP in fasting in the mice with BMT from GFP-TG/BM-BDNF^{+/+}. **d** and **e**, Analysis of GFP-positive granules in samples stained for various peptides similar to **b** in the mice with BMT from GFP-TG/BM-BDNF^{-/-} mice. Scale bars = 10 μ m in **b** and **d**. All data represent the means \pm S.D. *P<0.05. CRH: corticotropin-releasing hormone, UCN: urocortin, AVP: arginine vasopressin.

Supplementary Table S1. The expression of microglia-related genes (LCM of GFP-positive cells).

r	Symbol	Description	Genbank No.
4.9889	Cxcl1	chemokine (C-X-C motif) ligand 1	BB554288
4.5911	Cd47	CD47 antigen	BM942688
4.2652	Prkcd	protein kinase C, delta	AF251036
4.2469	Prkcd	protein kinase C, delta	BB541041
4.1481	Cd163	CD163 antigen	NM_053094
4.0033	Cd1d1	CD1d1 antigen	NM_007639
3.6197	Hr	hairless	AV231755
3.3931	Agtr1a	angiotensin II receptor, type 1a	AI551199
3.3071	Mef2d	Myocyte enhancer factor 2D	AW912756
3.0660	Myoc	myocilin	AW125804
2.9207	Bid	BH3 interacting domain death agonist	NM_007544
2.7819	Itns1	Intersectin 1 (SH3 domain protein 1A)	AW125345
2.7036	Cdkn1a	cyclin-dependent kinase inhibitor 1A (P21)	AK007630
2.6790	Cnbp	cellular nucleic acid binding protein	BM237919
2.6364	Calcr	calcitonin receptor	NM_007588
2.5439	Fgfr2	fibroblast growth factor receptor 2	NM_010207
2.5250	Ucp2	uncoupling protein 2 (mitochondrial, proton carrier)	AW108044
2.5205	Tanc2	Tetratricopeptide repeat, ankyrin repeat and coiled-coil containing 2	BB345595
2.5047	Sirpa	signal-regulatory protein alpha	AB018194
2.4705	Prkcc	protein kinase C, gamma	BM215011
2.4561	Chrna4	cholinergic receptor, nicotinic, alpha polypeptide 4	BB748443
2.4545	Pias4	protein inhibitor of activated STAT 4	NM_021501
2.4231	Stch	stress 70 protein chaperone, microsome-associated, human homolog	AK021006
2.4216	Ucp2	uncoupling protein 2 (mitochondrial, proton carrier)	BC012697
2.4031	Prkca	Protein kinase C, alpha	BB389420
2.3724	Cxcl1	chemokine (C-X-C motif) ligand 1	BB554288
2.3684	Tollip	toll interacting protein	BB400304
2.3556	Slbp	stem-loop binding protein	AK016826
2.3443	Casp8	caspase 8	BC006737
2.2641	Actb	Actin, beta, cytoplasmic	BG071386
2.2203	Chrm1	cholinergic receptor, muscarinic 1, CNS	BE947522
2.2116	Glul	glutamate-ammonia ligase (glutamine synthetase)	AI391218
2.2045	Bdnf	brain derived neurotrophic factor	AY057913
2.2044	Il6ra	interleukin 6 receptor, alpha	X53802
2.1902	Prep	prolyl endopeptidase	BM118423
2.1771	MGC73635	similar to histone 2a	W91024
2.1580	Ck1f	chemokine-like factor	AY047360
2.1301	Hsf2	heat shock factor 2	BB548474
2.1225	Il1rap	interleukin 1 receptor accessory protein	BE945253
2.1165	Xdh	xanthine dehydrogenase	AV286265
2.0909	Clic5	chloride intracellular channel 5	BB028501
2.0631	Chrna3	cholinergic receptor, nicotinic, alpha polypeptide 3	BB460687
2.0544	Clcc1	chloride channel CLIC-like 1	BI412445
2.0351	Racgap1	Rac GTPase-activating protein 1	NM_012025
2.0272	Rpo1-3	RNA polymerase 1-3	BC024394
2.0257	Opr1	opioid receptor-like 1	X91813
2.0243	Fcgr2b	Fc receptor, IgG, low affinity IIb	BM224327
2.0088	Pparbp	peroxisome proliferator activated receptor binding protein	AV100992

r	Symbol	Description	Genbank No.
0.0430	Car3	carbonic anhydrase 3	NM_007606
0.1577	H2-Eb1	histocompatibility 2, class II antigen E beta	NM_010382
0.2431	Adra1a	adrenergic receptor, alpha 1a	BB188444
0.2585	Procr	protein C receptor, endothelial	NM_011171
0.2950	Traf1	Tnf receptor-associated factor 1	BB218245

0.2967	Prg4	proteoglycan 4	NM_021400
0.2986	Prlr	prolactin receptor	BC005555
0.3100	Crebbp	CREB binding protein	AW060274
0.3289	H2-Aa	Histocompatibility 2, class II antigen A, alpha	AV018723
0.3383	Creb1	cAMP responsive element binding protein 1	AV016085
0.3397	Egr2	early growth response 2	X06746
0.3423	Cxcr4	chemokine (C-X-C motif) receptor 4	D87747
0.3471	Egr2	early growth response 2	X06746
0.3525	Tanc2	Tetratricopeptide repeat, ankyrin repeat and coiled-coil containing 2	BG076325
0.3547	Prkar2b	protein kinase, cAMP dependent regulatory, type II beta	BI695530
0.3560	Pltp	phospholipid transfer protein	AI591480
0.3578	Nrp2	neuropilin 2	BQ176723
0.3614	Anxa1	annexin A1	NM_010730
0.3640	Hfe	hemochromatosis	AJ306425
0.3748	Crabp2	cellular retinoic acid binding protein II	BC018397
0.4065	Oprk1	opioid receptor, kappa 1	L11065
0.4089	Lepr	leptin receptor	BM124366
0.4114	Prkca	Protein kinase C, alpha	BB114415
0.4152	Cd44	CD44 antigen	AW146109
0.4157	Esr1	estrogen receptor 1 (alpha)	AI646838
0.4253	Hdc	histidine decarboxylase	BG072171
0.4263	Itgb1bp1	Integrin beta 1 binding protein 1	AI594688
0.4318	Nrp2	neuropilin 2	BB752129
0.4344	Cd55	CD55 antigen	NM_010016
0.4354	Nt5e	5' nucleotidase, ecto	AV273591
0.4371	Cmkor1	chemokine orphan receptor 1	BC015254
0.4438	Igfbp2	insulin-like growth factor binding protein 2	AK011784
0.4483	Cd74	CD74 antigen	BC003476
0.4490	Fabp7	fatty acid binding protein 7, brain	NM_021272
0.4491	H2-Aa	Histocompatibility 2, class II antigen A, alpha	AV086906
0.4492	Carf	calcium response factor	AF454947
0.4498	Esr1	estrogen receptor 1 (alpha)	AI646838
0.4548	Indo	indoleamine-pyrrole 2,3 dioxygenase	NM_008324
0.4600	Pdcd4	Programmed cell death 4	BB732233
0.4602	Hspa14	heat shock protein 14	NM_015765
0.4625	Cd80	CD80 antigen	BQ175573
0.4647	Acvr1l	activin A receptor, type II-like 1	BC014291
0.4695	Ryk	receptor-like tyrosine kinase	M98547
0.4708	Nupr1	nuclear protein 1	NM_019738
0.4766	Cnn2	calponin 2	BI663014
0.4785	Lamb2	laminin, beta 2	BC026051
0.4786	Vim	vimentin	AV147875
0.4801	Alcam	Activated leukocyte cell adhesion molecule	AU041266
0.4805	Col8a2	procollagen, type VIII, alpha 2	BG229308
0.4824	Vim	vimentin	AV147875
0.4831	Lyzs	lysozyme	AW208566
0.4851	Ntsr1	neurotensin receptor 1	NM_018766
0.4874	Marcks	myristoylated alanine rich protein kinase C substrate	AW546141
0.4920	Tnfsf13	tumor necrosis factor (ligand) superfamily, member 13	NM_023517
0.4998	Prlr	prolactin receptor	AW554594

Supplementary Table S2. The expression of cytokines and inflammation-related genes (LCM of whole PVN).

r	Symbol	Description	Genbank No.
34.575	Cxcl2	chemokine (C-X-C motif) ligand 2	NM_009140
7.8421	Cxcl1	chemokine (C-X-C motif) ligand 1	NM_008176
5.1009	Folh1	folate hydrolase	NM_016770
4.4933	Chrna4	cholinergic receptor, nicotinic, alpha polypeptide 4	BB557207
4.0524	Agtr1a	angiotensin II receptor, type 1a	AI551199
3.2851	Cbs	cystathionine beta-synthase	BC026595
3.1536	Cxcl1	chemokine (C-X-C motif) ligand 1	BB554288
3.1147	Ppgb	Protective protein for beta-galactosidase	AI481875
3.0831	Plat	plasminogen activator, tissue	NM_008872
3.0219	Lysmd4	LysM, putative peptidoglycan-binding, domain containing 4	AV376944
3.0111	Pgf	placental growth factor	NM_008827
2.9261	Ghitm	Growth hormone inducible transmembrane protein	AI593417
2.8656	Ucp2	uncoupling protein 2	AW108044
2.8457	Pglyrp1	peptidoglycan recognition protein 1	NM_009402
2.8113	Pak3	p21 (CDKN1A)-activated kinase 3	BB468082
2.7859	Wif1	Wnt inhibitory factor 1	BC004048
2.7485	Clptm1	cleft lip and palate associated transmembrane protein 1	BB799287
2.7361	Rarb	retinoic acid receptor, beta	BB266455
2.7325	Efcbp1	EF hand calcium binding protein 1	BB667731
2.7260	Ighmbp2	immunoglobulin mu binding protein 2	AW259474
2.7182	Ccl25	chemokine (C-C motif) ligand 25	NM_009138
2.5873	Ada	adenosine deaminase	NM_007398
2.5537	Chrna1	cholinergic receptor, nicotinic, alpha polypeptide 1	NM_007389
2.5235	Crbn	cereblon	AV156594
2.5185	Hnrpab	heterogeneous nuclear ribonucleoprotein A/B	AK013709
2.5007	Tac1	tachykinin 1	NM_009311
2.4877	Ddit4	DNA-damage-inducible transcript 4	AK017926
2.4859	Adra1a	adrenergic receptor, alpha 1a	BB188444
2.4629	Gss	glutathione synthetase	NM_008180
2.4622	Ucp2	uncoupling protein 2	BC012697
2.4477	Il6ra	interleukin 6 receptor, alpha	X53802
2.4465	Cxcl3	chemokine (C-X-C motif) ligand 3	BB829808
2.4329	Ctdspl2	CTD small phosphatase like 2	BG070878
2.4229	Gabrg1	gamma-aminobutyric acid (GABA-A) receptor, subunit gamma 1	AF156490
2.4222	Scn1a	sodium channel, voltage-gated, type I, alpha	BI731739
2.4154	Mapk1	mitogen activated protein kinase 1	BM209765
2.4026	Mtss1	metastasis suppressor 1	BC024131
2.3981	Nsf	N-ethylmaleimide sensitive fusion protein	BB400581
2.3755	Mt1	metallothionein 1	NM_013602
2.3610	Grb2	growth factor receptor bound protein 2	BG064712
2.3416	Vldlr	very low density lipoprotein receptor	BG063333
2.3173	Cidea	cell death-inducing DNA fragmentation factor, alpha subunit-like effector A	NM_007702
2.3143	Txn1	thioredoxin-like 1	BI416051
2.3067	Edn3	endothelin 3	BB535528
2.2983	Ncor1	Nuclear receptor co-repressor 1	BM224192
2.2811	Gad2	glutamic acid decarboxylase 2	AF326550
2.2730	Ces3	carboxylesterase 3	AI315015
2.2585	Vldlr	very low density lipoprotein receptor	BE647363
2.2578	Nts	neurotensin	NM_024435
2.2512	Gmeb1	glucocorticoid modulatory element binding protein 1	BB039426
2.2508	Cd109	CD109 antigen	AV246882
2.2467	Pdgfd	Platelet-derived growth factor, D polypeptide	BB428671
2.2275	Cd24a	CD24a antigen	NM_009846
2.2128	Amigo2	adhesion molecule with Ig like domain 2	AV315087
2.2091	Scg2	secretogranin II	NM_009129
2.1913	Actb	Actin, beta, cytoplasmic	BG071386

2.1908	Vip	vasoactive intestinal polypeptide	AK018599
2.1823	Pcsk1	proprotein convertase subtilisin/kexin type 1	M69196
2.1798	Mt2	metallothionein 2	AA796766
2.1756	Efnb2	ephrin B2	U30244
2.1707	Sgk	serum/glucocorticoid regulated kinase	NM_011361
2.1643	Ern1	Endoplasmic reticulum (ER) to nucleus signalling 1	BG075179
2.1604	Stxbp1	syntaxin binding protein 1	AF326545
2.1571	Mtf2	metal response element binding transcription factor 2	BG066919
2.1559	Hnrpu	heterogeneous nuclear ribonucleoprotein U	BF228203
2.1431	Isl1	ISL1 transcription factor, LIM/homeodomain	BQ176915
2.1391	Frk	fyn-related kinase	BB831042
2.1260	Hspa4	heat shock protein 4	BE912771
2.1217	Cacna2d1	calcium channel, voltage-dependent, alpha2/delta subunit 1	U73483
2.1213	Kctd20	potassium channel tetramerisation domain containing 20	AV281062
2.1080	Snrpa1	small nuclear ribonucleoprotein polypeptide A'	BC013777
2.1009	Cntn3	contactin 3	NM_008779
2.0999	Ptpn12	Protein tyrosine phosphatase, non-receptor type 12	BB255893
2.0978	Ctgf	connective tissue growth factor	NM_010217
2.0768	Mmd	monocyte to macrophage differentiation-associated	AA472735
2.0768	Zhx1	zinc fingers and homeoboxes protein 1	NM_009572
2.0767	Glg1	golgi apparatus protein 1	BB795216
2.0462	Cp	ceruloplasmin	BB332449
2.0454	Socs3	suppressor of cytokine signaling 3	BB241535
2.0189	Penk1	preproenkephalin 1	M13227
2.0152	Ctns	Cystinosis, nephropathic	BB430980
2.0147	Agrin	agrin	BM208224
2.0095	Ddc	dopa decarboxylase	AF071068
2.0034	Jazf1	JAZF zinc finger 1	BB755745

r	Symbol	Description	Genbank No.
0.1738	Vamp3	vesicle-associated membrane protein 3	BB491065
0.2913	Egr2	early growth response 2	X06746
0.3020	Egr2	early growth response 2	X06746
0.3021	Flt1	FMS-like tyrosine kinase 1	NM_010228
0.3195	Nrip2	nuclear receptor interacting protein 2	AW491344
0.3297	Dusp8	dual specificity phosphatase 8	NM_008748
0.3427	Grip1	Glutamate receptor interacting protein 1	BB531021
0.3524	Grip1	Glutamate receptor interacting protein 1	BM218868
0.3602	Prkce	Protein kinase C, epsilon	BB534545
0.3641	Ptprg	Protein tyrosine phosphatase, receptor type, G	BB435965
0.3657	Fos	FBJ osteosarcoma oncogene	AV026617
0.3673	Per3	period homolog 3	AW553065
0.3684	Hspa4	heat shock protein 4	AW909503
0.3733	Itch	itchy	AK020167
0.3835	Calu	calumenin	BB120190
0.3861	Zfp53	zinc finger protein 53	BB176857
0.3985	Thbs2	thrombospondin 2	BB233297
0.3986	Adcy3	adenylate cyclase 3	BB763890
0.4007	H2-Aa	Histocompatibility 2, class II antigen A, alpha	AV018723
0.4147	Ncam2	neural cell adhesion molecule 2	AF001287
0.4161	Cd82	CD82 antigen	NM_007656
0.4209	Kit	kit oncogene	BB333334
0.4212	Nrip1	nuclear receptor interacting protein 1	BB041915
0.4216	Pam	Peptidylglycine alpha-amidating monooxygenase	BM242340
0.4239	Egr3	early growth response 3	AV346607
0.4387	Cxcl12	chemokine (C-X-C motif) ligand 12	NM_013655
0.4407	Ireb2	Iron responsive element binding protein 2	BM201500

0.4498	Slit2	slit homolog 2	BB547877
0.4551	Qser1	glutamine and serine rich 1	BC021511
0.4563	Grip1	Glutamate receptor interacting protein 1	BB337104
0.4566	Lbh	limb-bud and heart	AK007400
0.4578	Thbd	thrombomodulin	NM_009378
0.4598	Zar1	zygote arrest 1	BG071693
0.4634	Npas3	neuronal PAS domain protein 3	AV226749
0.4659	Runx1t1	runt-related transcription factor 1; translocated to, 1	AV327778
0.4726	Calm3	calmodulin 3	AV047570
0.4753	Pam	Peptidylglycine alpha-amidating monooxygenase	BI499978
0.4765	Tcf7l2	transcription factor 7-like 2, T-cell specific, HMG-box	BB175494
0.4819	Thada	thyroid adenoma associated	BG064135
0.4846	Fap	fibroblast activation protein	NM_007986
0.4853	Slit2	Slit homolog 2	BB527337
0.4857	Nrxn1	neurexin I	BB130571
0.4866	Tff1	trefoil factor 1	NM_009362
0.4869	Scpep1	serine carboxypeptidase 1	AV102733
0.4932	Ptprd	Protein tyrosine phosphatase, receptor type, D	BB477150
0.4941	Pdgfc	platelet-derived growth factor, C polypeptide	NM_019971
0.4942	Hspa8	heat shock protein 8	AK004608
0.4944	Fgfr4	fibroblast growth factor receptor 4	AF127140
0.4973	Pparbp	peroxisome proliferator activated receptor binding protein	AV100992
0.4993	Dlc1	deleted in liver cancer 1	BB768194
0.4996	Tert	telomerase reverse transcriptase	BB400861

Supplementary Table S3. Primers for BDNF variants.

Exon	Forward primers sequences	Hydrolysis primers sequences	Reverse primers sequences	Annealing Temp. (°C)
1	CACATTACCTTCCTGCATCTGTTG	AAGCCACAATGTTCCACCAG	ACCATAGTAAGGAAAAGGATGGTCAT	64
2a	CCATTCAGCACCTTGGACAGA	AGTACTTCATCCAGTTCACCAG	CGAAGTATGAAATAACCATAGTAAGGAAAA	60
2b	AGTTGGCTTCCTAGCGGTGTAG	AAGCTCCGGTTCACCAG	CGAAGTATGAAATAACCATAGTAAGGAAAA	58
2c	TTGGGAAATGCAAGTGTTTATCA	CCGCAAAGAAGTTCACCAG	CGAAGTATGAAATAACCATAGTAAGGAAAA	58
3	CCGGGCCGGATGCT	TTGAGCCCAGTTCACCAG	ACCATAGTAAGGAAAAGGATGGTCAT	58
4	CTGCCTTGATGTTTACTTTGACAAG	TGACTGAAAAAGTTCACCAGG	ACCATAGTAAGGAAAAGGATGGTCAT	60
5	CAGAAGCGTGACAACAATGTGA	ACCCTGAGTTCACCAGG	ACCATAGTAAGGAAAAGGATGGTCAT	60
6a	TCCTGAGGAAGTAAAAGTTTGGACT	TCATCCGGGATTCCACCAG	ACCATAGTAAGGAAAAGGATGGTCAT	60
6b	CCGAACAACTGATTGCTGAAA	TGGTGTGTAAGTTCACCAG	ACCATAGTAAGGAAAAGGATGGTCAT	60

Supplementary Table S4. Antibodies.

Antigen	Antibody	Dilution	Source
Lectin RCA-1	Biotinylated	1:200	Vector Laboratories
Iba1	rabbit polyclonal	1:200	Wako Pure Chemical Industries, Ltd.
Mac-1	rat purified	1:200	BD Pharmingen
GFAP	goat polyclonal	1:500	Santa Cruz Biotechnology
NeuN	mouse monoclonal	1:500	Chemicon
IL-6	goat polyclonal	1:1000	Santa Cruz Biotechnology
IL-1 β	goat polyclonal	1:1000	Santa Cruz Biotechnology
TGF β	goat polyclonal	1:1000	Santa Cruz Biotechnology
TNF α	goat polyclonal	1:1000	Santa Cruz Biotechnology
MHC-II	goat polyclonal	1:1000	Santa Cruz Biotechnology
BDNF	rabbit polyclonal	1:1000	Santa Cruz Biotechnology
	rabbit polyclonal	1:1000	abcam
	sheep polyclonal	1:1000	abcam
CRH	rabbit polyclonal	1:500	Yanaihara Institute Inc.
UCN1	rabbit polyclonal	1:500	Yanaihara Institute Inc.
UCN2	rabbit polyclonal	1:500	Yanaihara Institute Inc.
UCN3	rabbit polyclonal	1:500	Yanaihara Institute Inc.
AVP	rabbit polyclonal	1:500	AbD Serotec
OXT	rabbit polyclonal	1:1000	LifeSpan BioScience
TRH	rabbit polyclonal	1:200	Acris Antibodies GmbH