

**Table 3. Differential gene expression between SN and VTA neurons**

Gene name	Genebank Accession	RATIO SN	RATIO VTA	RATIO A13	RATIO LC	Mean signal SN	Mean signal VTA	Mean signal A13	Mean signal LC
Wnt2: wingless-type MMTV integration site 2	AK045120	2.5	9.3	0.1	1.6	2,644	7,864	682	3,536
Incyte EST	N.A.	2.0	4.5	1.5	1.9	6,350	15,348	8,202	9,110
unnamed protein product	BAB14897	3.3	7.8	3.8	2.5	4,627	12,327	10,338	6,127
Mouse lysyl hydroxylase isoform 2 mRNA, complete cds	AF080572	4.4	19.1	0.8	1.9	3,358	12,871	1,388	2,631
Mouse NMRI fibroglycan (syndecan-2) gene, complete cds	U00674	3.1	8.7	1.9	1.5	14,836	33,370	17,834	16,066
Rat core protein (HSPG) mRNA, complete cds. =syndecan 2	M81687	3.4	8.8	2.0	1.7	2,213	5,022	2,250	2,244
Rat serine protease RNK-Met-1 mRNA, complete cds	L05175	1.8	4.7	0.8	0.6	3,220	8,632	3,201	2,314
solute carrier family 39 (zinc transporter), member 4 (ZIP-4)	BQ196656	103.6	265.6	1.6	1.4	13,954	31,245	1,208	1,017
bA524D16A.1 (sushi-repeat-containing protein)	CAC16060	12.5	37.1	1.2	1.3	1,879	5,096	723	734
Rat kidney extracellular calcium-sensing receptor mRNA, complete cds	U10354	0.9	16.8	0.9	0.2	597	2,851	794	533
Rattus norvegicus cDNA clone UI-R-BT1-akv-g-05-0-UI 3'	AW531194	1.1	3.5	7.3	6.0	639	985	1,995	1,740
Mouse C1q-related factor mRNA, complete cds	AF095155	1.2	3.3	4.8	7.5	1,110	2,486	4,284	5,419
Rat vanilloid receptor splice variant mRNA, complete cds	AF158248	1.0	3.8	1.1	1.6	514	914	666	795
Rat mRNA for Castration Induced Prostatic Apoptosis Related protein-1 (CIPAR-1)	AJ010750	1.0	5.0	7.4	1.2	1,165	5,322	11,583	2,261
hypothetical protein	CAB94883	0.7	4.1	0.4	0.4	534	1,258	626	602
Mouse myristoylated alanine-rich C-kinase substrate (MARCKS) mRNA, complete cds	M60474	0.9	2.2	2.7	1.1	3,366	8,864	15,566	7,533
Incyte EST	N.A.	0.9	1.7	0.6	0.4	4,357	9,184	5,567	3,837
Rattus norvegicus cDNA clone UI-R-DK0-ceq-g-09-0-UI 3' similar to hypothetical protein DKFZp564B1162 with RHOGAP domain	BI295380	0.9	2.0	1.5	4.1	2,178	5,041	5,428	11,832
Mouse bone morphogenetic protein 2 (BMP-2) gene, complete cds	L25602	1.2	3.8	0.2	1.5	1,358	3,393	743	2,520
Rat bone morphogenetic protein 2 related mRNA sequence	L20678	1.0	2.6	0.3	1.4	554	908	511	896
Incyte EST	N.A.	0.9	2.5	2.1	1.1	1,028	2,382	2,901	1,914
Rat follistatin gene, exon 6, clones pROF(301-305)	M31591	0.6	10.5	1.9	0.4	540	2,744	1,123	642
axonemal dynein heavy chain	CAB94756	1.0	2.6	1.0	4.0	915	1,937	1,451	4,044
Mouse Ephrin B3	AK048305	0.9	3.1	3.6	1.0	2,090	6,658	10,668	3,990

Rat gene for hepatocarcinogenesis-related transcription factor (HTF), complete cds	AB030238	1.1	2.2	1.1	1.2	3,672	9,453	8,873	8,484
unnamed protein product	BAA91922	1.3	3.5	0.2	0.4	2,680	6,151	1,421	1,551
Rat phospholipase C $\gamma$ -2, complete cds	J05155	1.2	8.5	1.0	0.4	1,530	7,388	2,018	968
Rat DRG Library Rattus norvegicus cDNA clone DRNBLF02 5'	BG671101	1.2	5.3	11.0	1.8	6,359	21,966	42,331	15,662
Myopodin protein	CAB51856	1.2	3.2	0.4	0.2	2,379	4,926	1,364	1,222
Mouse mRNA for distal intestinal serine protease (DISP gene)	AJ243866	1.4	4.4	0.8	2.0	501	655	587	685
Rat huntingtin associated protein (rHAP1-B) mRNA, complete cds, alternatively spliced form	U38370	1.3	3.7	8.2	5.5	12,898	26,823	47,599	41,910
Rattus norvegicus cDNA clone UI-R-C0-hi-d-02-0-UI 3' similar to Necdin-like protein 1 and melanoma antigen, family L, 2 (Magel2), involved in Prader-Willi syndrome	AA996569	1.6	5.3	10.8	4.2	2,033	6,482	16,258	7,246
Rat mRNA for novel gene expressed in circadian manner, clone SCN8	X95850	1.3	3.0	0.5	1.2	2,355	5,323	2,268	3,561
Rat $\alpha$ -1B adrenergic receptor mRNA, complete cds	M60655	1.5	3.8	0.8	0.2	3,678	8,541	3,597	1,130
Mouse mRNA for Rho guanine nucleotide-exchange factor, splice variant NET1A	AJ010045	1.2	2.6	0.3	0.3	9,435	17,062	4,035	4,052
Mouse hepatocyte growth factor activator inhibitor type 2 splice variant 2 (Hai2) mRNA, complete cds	AF099020	1.1	2.6	2.9	1.1	3,806	9,383	14,244	5,518
Rat pancreatic ribonuclease mRNA	J00771	1.0	5.0	0.9	0.7	453	832	531	545
palate, lung, and nasal epithelium expressed transcript (Plunc)	U69172	0.6	9.1	6.7	5.3	454	1,346	1,146	1,043
Mouse DNA for Gpx2 pseudogene	X91864	51.0	13.3	1.3	2.8	3,589	1,892	721	963
Rattus norvegicus cDNA clone UI-R-C0-gx-g-08-0-UI 3'	AA964745	6.6	2.5	0.9	0.8	2,687	1,759	1,087	1,130
Rat mRNA for sensory neuron synuclein	X86789	28.1	4.3	1.8	29.5	10,687	3,114	2,181	21,682
Similar to retinoic acid-inducible orphan G-protein-coupled receptor GPRC5C	NM_181444	7.8	2.0	2.0	1.9	870	577	647	703
INCYTE EST	N.A.	0.2	0.7	0.1	0.0	1,037	2,876	917	715
Rat mRNA for fibromodulin.	X82152	0.0	0.3	0.1	0.2	548	1,030	704	1,127
Rattus norvegicus cDNA clone UI-R-DK0-cea-c-05-0-UI 3'	BI294233	0.1	0.3	0.2	0.0	594	1,554	1,401	613
cDNA clone similar to voltage-dependent calcium channel, $\alpha$ 11 subunit	BE095865	0.1	0.2	1.3	0.3	521	907	4,087	1,192
KIAA1613 protein similar to cationic amino acid	BAB13439	0.1	0.3	2.6	0.7	789	2,097	17,214	6,591

transporter									
hypothetical Leucine-rich repeat, typical subtype containing protein	BE096686	0.1	0.4	0.1	0.1	494	792	652	632
Rat neuronal olfactomedin-related ER localized protein (D2Sut1e) mRNA, complete cds	U03417	0.1	0.4	0.7	0.9	2,147	7,826	21,702	19,831
Mouse (E25) mRNA, complete cds	L38971	0.2	0.5	0.2	0.1	916	2,706	2,303	1,377
Mouse integral membrane protein 2A (Itm2a) gene, complete cds	AF074020	0.2	0.5	0.2	0.1	1,285	4,375	3,337	1,859
Rattus norvegicus G-substrate phosphatase inhibitor mRNA, complete cds	AF294688	0.1	0.3	0.1	0.1	752	3,091	2,133	1,600
Incyte EST no sequence homology	N.A.	0.1	0.4	1.1	0.2	1,592	5,963	20,574	3,542
Incyte EST	N.A.	0.1	0.2	0.5	0.4	543	912	1,627	1,713
Rat nerve growth factor-induced (NGFI-A) gene, complete cds	M18416	0.0	0.1	0.1	0.0	582	1,382	3,329	1,307
Rattus norvegicus cDNA clone UI-R-CV0-brm-d-06-0-UI 3'	BG372104	0.1	0.3	1.0	1.2	633	1,400	5,673	5,316
Incyte EST	N.A.	0.1	0.2	0.5	0.1	481	724	1,994	615
Rat neuropilin mRNA, complete cds	AF016296	0.1	0.3	0.8	0.1	479	1,002	2,334	758
Mouse zinc metalloendopeptidase ADAMTS8 mRNA, complete cds	AF175282	0.3	0.8	0.4	0.9	445	564	555	665
Rat E11 antigen epitope (OTS-8) mRNA, complete cds	U32115	0.2	0.6	0.3	0.2	782	1,975	1,586	1,219
Rat mRNA for RB109 (brain specific protein), complete cds	D26154	0.4	0.9	0.7	0.2	2,216	5,133	6,734	2,113
Mouse calcium- and diacylglycerol-regulated guanine nucleotide exchange factor I (CalDAG-GEFI) mRNA, complete cds	U78171	0.3	0.7	0.7	0.1	1,140	2,145	3,050	765
Rat mRNA for collagen $\alpha$ 2 type V, partial cds	AJ224880	0.1	0.6	0.2	0.2	677	2,296	1,696	1,194
Rat insulin-like growth factor binding protein 5 mRNA, 3' UTR	AF139830	0.2	0.6	1.7	0.2	1,299	4,341	15,354	2,715
Mouse brain cDNA, clone MNCb-2717.	AB041591	0.3	0.6	0.9	0.4	802	1,582	3,125	1,645
Rattus norvegicus cDNA clone UI-R-CN1-cjm-g-13-0-UI 3'	BM390981	0.2	0.7	0.2	0.2	611	1,247	933	882
Mouse cAMP inducible 1 protein (Ci1) mRNA, complete cds	AF121080	0.3	0.7	0.4	0.5	4,980	11,273	10,350	11,212
Rattus norvegicus cDNA clone UI-R-DR0-cjc-g-03-0-UI 3'	BI303966	0.1	0.7	0.6	0.5	507	1,378	1,633	1,385
Rat CDK108 mRNA	Y17328	0.0	0.9	0.1	0.0	785	11,217	1,972	1,194
extensin-like protein	CAA84230	0.3	0.9	0.4	0.3	1,015	2,857	2,460	1,954
Mouse sprouty 1 (Spry1) mRNA, complete cds	AF176903	0.3	0.9	0.7	0.7	585	998	1,224	1,309

Rat purine-selective sodium/nucleoside cotransporter (rCNT2) mRNA, complete cds	U66723	0.3	0.8	0.8	0.2	1,360	3,681	5,531	1,299
Rat differentiation-associated Na-dependent inorganic phosphate cotransporter (DNPI) mRNA, complete cds	AF271235	0.1	1.0	0.4	0.1	1,153	5,100	3,252	1,463
Incyte EST	N.A.	0.5	1.9	0.4	0.3	540	985	580	612
Mus musculus, claudin 1, clone IMAGE:3493550, mRNA	BC008536	0.5	2.0	0.3	0.4	498	781	555	560
Rattus norvegicus cDNA clone UI-R-CO-jq-d-07-0-UI 3'	AI045808	0.3	2.7	1.4	0.6	500	1,353	1,099	733
Rat pituitary adenylate cyclase activating polypeptide precursor protein mRNA, complete cds	M63006	0.2	4.0	0.3	1.4	591	5,171	1,194	3,115
Rattus norvegicus cDNA clone UI-R-CO-gs-c-02-0-UI 3'	AA963971	0.5	2.3	0.5	0.9	549	1,396	731	1,050
Mouse RNA guanylyltransferase (Mce1) mRNA, complete cds	AF034568	0.6	2.2	1.6	2.2	604	1,297	1,426	1,824
CD166 (Alcam, DM-GRASP)	N.A.	0.8	1.8	0.3	0.8	6,121	12,958	4,207	9,520
Rat mRNA for Rab3B protein.	Y14019	0.7	2.4	2.3	10.8	2,618	8,350	13,009	27,863
Mouse chordin mRNA, complete cds	AF096276	0.6	1.8	1.0	0.7	761	1,560	1,514	1,247
Rattus norvegicus similar to HTPAP protein, mRNA, contains acid phosphatase domain	XM_219376	0.4	3.8	1.1	0.4	873	5,324	2,824	1,311
Rat mRNA for Mx3 protein.	X52713	0.7	2.0	0.5	1.2	1,765	5,234	2,262	4,360
Rattus norvegicus cDNA clone RGIDW96	AW916943	0.7	1.8	2.2	4.6	661	1,365	1,990	2,906
Rat lipoprotein lipase mRNA, complete cds	L03294	0.1	2.0	0.1	0.0	819	7,556	1,170	704
similar to AD037 protein containing RalGDS/AF-6 domain	BI293840	0.5	1.4	1.0	5.0	978	2,091	2,203	7,681
immunoglobulin superfamily, member 4, IGSF4	AF434663	0.4	1.7	0.7	0.8	3,308	11,632	9,170	10,056
immunoglobulin superfamily, member 4, IGSF4	AF434663	0.5	1.8	0.7	0.9	3,205	11,294	9,430	8,765
Rat GicAT-S mRNA for UDP-glucuronyltransferase-S, complete cds	AB010441	0.6	2.6	2.5	1.2	1,044	3,873	5,294	2,935
Mouse ATP-binding cassette protein (Abca8) mRNA, partial cds	AF213393	0.6	1.7	0.2	0.1	4,484	11,963	2,715	1,055
Mouse mRNA for adhesion protein RA175N, complete cds	AB021967	0.5	2.0	0.8	1.3	1,477	5,146	3,836	4,948
Mouse manic fringe precursor mRNA, complete cds	U94349	0.5	2.1	1.0	1.1	887	2,851	2,545	2,607
similar to AD037 protein containing RalGDS/AF-6 domain	XM_232305	0.6	1.5	1.0	5.8	688	1,335	1,441	4,833
Mouse neurogenic extracellular slit protein (Slit2) mRNA, partial cds	AF074960	0.6	1.7	1.4	2.0	943	2,232	2,525	3,317
Rat fibrillin-1 mRNA, complete cds	AF135059	0.6	1.8	1.1	2.6	1,038	2,312	2,010	5,607

Rat AMP deaminase (ampd2) gene, partial cds	M38126	0.7	1.4	2.0	2.3	3,406	7,149	15,115	15,921
Rat PND gene encoding atrial natriuretic factor, complete cds	K02062	0.5	1.8	14.1	2.9	992	2,798	18,650	6,657
Mouse mRNA for Doc2 $\beta$ , complete cds	D85037	0.4	1.6	2.0	3.1	447	751	895	1,149
Mouse mRNA for K-glypican.	X83577	0.1	2.3	0.3	0.3	697	4,966	1,567	1,459
Rat Drosophila polarity gene (frizzled) homologue mRNA, complete cds	L02529	0.4	1.1	0.2	0.1	717	1,661	797	617
Rat SOD gene, complete cds	Z24721	0.5	1.2	0.4	0.4	705	1,286	811	869
Rat synaptotagmin interacting protein STIP2 mRNA, complete cds	AF193757	0.2	1.3	1.3	0.3	752	3,398	5,210	1,454
POZ/zinc finger transcription factor ODA-8	AF194030	0.5	1.1	1.3	1.3	1,680	3,780	6,437	5,794
tuftelin	AAC04577	0.3	1.6	0.4	0.2	616	1,160	885	668
Mouse mRNA for entactin	X14194	0.1	2.1	0.3	0.6	545	2,745	982	1,335
Rattus norvegicus chloride intracellular channel 5 (Clc5), mRNA	NM_053603	0.2	1.3	0.6	0.6	534	1,642	1,321	1,165
Incyte EST	N.A.	1.7	0.5	0.4	0.2	1,144	675	696	591
Rat heat shock protein 22 mRNA, complete cds	AF314540	1.8	0.6	3.2	2.3	4,843	2,452	12,889	9,184
Incyte EST	N.A.	1.9	0.6	0.5	0.3	6,122	2,469	3,005	1,867
Sox6 (SRY-box containing gene 6)	AK044981	2.3	0.6	0.4	0.2	4,784	1,768	2,142	1,163
Incyte EST	N.A.	2.4	0.8	1.4	1.4	805	597	1,029	933
DRNBTE01 Rat DRG Library Rattus norvegicus cDNA clone DRNBTE01 5'	BG673363	3.4	0.9	0.3	0.3	18,737	9,850	5,933	5,488
Mouse erythroid differentiation related factor mRNA, complete cds	AF060220	3.2	0.6	0.8	1.1	874	560	671	791
Rat Sprague-Dawley N-methyl-D-aspartate receptor NMDAR2C subunit mRNA, complete cds	U08259	0.7	0.1	0.2	0.3	3,986	1,262	2,329	2,687
Rat mRNA for receptor activity modifying protein 1, complete cds	AB042887	1.0	0.4	0.4	0.4	5,246	2,735	4,226	3,906
Rat regulator of G-protein signaling protein 2 mRNA, complete cds	AF279918	1.0	0.4	0.9	0.6	3,903	2,269	6,842	4,394
Rat testis-specific histone H1t and histone H4t, complete cds	M28409	1.0	0.3	0.2	0.6	4,937	2,475	2,630	5,642
Rat protein kinase C $\delta$ subspecies	M18330	0.9	0.2	0.1	0.1	2,593	1,085	1,101	932
Rat protein kinase C $\delta$ subspecies	M18330	1.1	0.4	0.4	0.3	1,388	896	1,109	941
Rat osteoactivin mRNA, complete cds	AF184983	1.0	0.2	0.4	0.2	1,566	839	1,378	908
LOMP protein	AAD33924	0.5	0.2	0.1	0.1	5,501	2,675	2,326	1,340

Genes with significant differences in expression between SN and VTA were identified by SAM (false discovery rate <1%) and sorted by hierarchical clustering. Abbreviations: CA, catecholaminergic; LC, locus coeruleus; SN, substantia nigra; VTA, ventral tegmental area.