

Table 1.

Upregulated Genes in Crypt Bottom

Gene Symbol	Gene Name	Function	Cellular Component	Accession ID	Fold Increase
PCANAP1	prostate cancer associated protein 1	undefined	undefined	W31561	5.6
SLC14A1	transporter), member 1 (Kidd blood group)	protein binding, urea transporter	plasma membrane	N47509	2.9
SERPINA8	serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 8	protein binding, hormone activity, serine proteinase inhibitor, cell-cell signaling	soluble fraction	H22747	2.8
	ESTs	undefined	undefined	R67379	2.3
SLC1A2	solute carrier family 1 (glial high affinity glutamate transporter), member 2	undefined	undefined	H18570	2.3
PCDHAC1	protocadherin alpha subfamily C, 1	calcium ion binding, cell adhesion molecule activity, neurogenesis	integral to plasma membrane	W32160	2.0
	ESTs	undefined	undefined	R63876	2.0
	ESTs	undefined	undefined	H43974	2.0
CYB5-M	cytochrome B5 outer mitochondrial precursor	undefined	undefined	T95206	2.0
	ESTs	undefined	undefined	T98389	1.9
DF	D component of complement (adipsin)	hydrolase activity, complement factor D activity, peptidase activity	undefined	AA056541	1.9
	EST	undefined	undefined	AA127845	1.9
HOX10D	homeobox 10D	nucleic acid binding, DNA-dependent regulator of transcription, RNA polII transcription factor activity, development	nucleus	AA043380	1.9
	ESTs	undefined	undefined	AA045634	1.9
FLJ31751	hypothetical protein FLJ31751, Moderately similar to B43284 zinc finger protein ZNF48 - human [H.sapiens]	undefined	undefined	T75281	1.8
FLJ20493	hypothetical protein	calcium ion binding, classic complement activation, hydrolase activity (trypsin/chymotrypsin), proteolysis and peptidolysis	undefined	W93580	1.8
COPB	coatamer protein complex, subunit beta	intracellular non-selective protein transporter, pathogenesis	Golgi vesicle/cytosol/ Golgi membrane	N75060	1.8
C21orf70	chromosome 21 open reading frame 70	undefined	undefined	AA037661	1.8
ENPP4	ectonucleotide pyrophosphatase/phosphodiesterase 4 (putative function)	hydrolase activity, nucleotide metabolism	undefined	W32652	1.8
JIK	STE20-like kinase	protein kinase inhibitor, protein serine/threonine kinase activity, JNK cascade, protein amino acid phosphorylation	undefined	AA053510	1.8
RBMX	RNA binding motif protein, X chromosome	undefined	undefined	N92899	1.8
GEF	GLUT4 enhancer factor	DNA binding, DNA-dependent regulator of transcription	nucleus	AA028142	1.8

PLGL	plasminogen-like	serine peptidase/plasmin activity	undefined	N76070	1.8
LZTR1	leucine-zipper-like transcriptional regulator, 1	protein binding	undefined	R61014	1.8
	ESTs	undefined	undefined	R17486	1.8
KIAA1046	KIAA1046 protein	undefined	undefined	N72176	1.7
	ESTs	undefined	undefined	H17030	1.7
	GTPase regulator associated with the focal adhesion kinase pp125(FAK); KIAA0621 protein	electron transporter, oxidoreductase activity, vitamin A metabolism	undefined	AA056765	1.7
GRAF	ESTs	undefined	undefined	H37799	1.7
			nucleus,		
ALTE	Ac-like transposable element	DNA binding, transposase activity	chromosome	N75330	1.7
	serine hydroxymethyltransferase 2 (mitochondrial)	undefined	undefined	H22827	1.7
SHMT2	lymphocyte activation-associated protein	undefined	undefined	R78728	1.7
LOC51088	ESTs	undefined	undefined	AA055329	1.7
		RNA binding, structural constituent of ribosome, protein biosynthesis	intracellular	W32999	1.7
RPS26	ribosomal protein S26				
	signal transducing adaptor molecule (SH3 and ITAM motif) 2	undefined	undefined	W42638	1.7
STAM2	glutamate receptor, ionotropic, N-methyl D-aspartate 1	undefined	undefined	R88266	1.7
GRIN1	phosphoinositide-specific phospholipase C-beta 1	undefined	undefined	W33159	1.7
PLCB1	protein kinase NYD_SP15	undefined	undefined	N70777	1.7
NYD-SP15	fibrinogen, gamma polypeptide	undefined	undefined	N79517	1.7
FGG	ESTs, Weakly similar to AF151818_1 CGI-60 protein [H.sapiens]	undefined	undefined	R08338	1.7
	ESTs	undefined	undefined	R24750	1.7
		magnesium ion/ATP binding, cation transporter, Na/K+ exchange ATPase, hydrolase activity, metabolism	integral to membrane	H14143	1.7
ATP1A3	ATPase, Na+/K+ transporting, alpha 3 polypeptide				
FLJ20539	hypothetical protein FLJ20539	undefined	undefined	AA057468	1.7
MDS015	hypothetical protein MDS015	undefined	undefined	N34884	1.7
	natural killer-tumor recognition sequence	cyclosporin A binding, cis-trans isomerase activity, protein folding	plasma membrane	AA007368	1.7
NKTR	ESTs	undefined	undefined	W33113	1.7
	spermidine/spermine N1-acetyltransferase	acyl transferase activity	undefined	N25817	1.7
SAT	KIAA0854 protein	DNA-dependent transcription factor	nucleus	H83341	1.7
KIAA0854	KIAA0616 protein	undefined	undefined	R68034	1.7
KIAA0616	ESTs	undefined	undefined	R73398	1.7
	ESTs	undefined	undefined	W87279	1.7
		magnesium ion binding, phosphoric ester hydrolase activity, serine biosynthesis	undefined	H38879	1.7
PSPH	phosphoserine phosphatase				
	Arg/Abl-interacting protein ArgBP2	cytoskeletal protein binding, constituent of cytoskeleton	nucleus, actin cytoskeleton	AA142922	1.7
ARGBP2	RAP2A, member of RAS oncogene family	RAS small monomeric GTPase, intracellular signaling cascade	membrane	W32474	1.7
RAP2A	ESTs	undefined	undefined	R00492	1.6
	ESTs	undefined	undefined	T96973	1.6

	ESTs, Weakly similar to prolyl 4-hydroxylase beta subunit [H.sapiens]				W32940	1.6
FLJ32115		undefined				
FLJ11220	hypothetical protein FLJ11220	undefined			H02808	1.6
KIAA1350	KIAA1350 protein	undefined			W37627	1.6
			nucleic acid binding/ATP binding, ATP-dependent/RNA helicase, regulation of cell cycle, mRNA splicing			
DDX16	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 16			nucleus	AA042889	1.6
	Homo sapiens mRNA; cDNA DKFZp564A2463 (from clone DKFZp564A2463)	undefined			N75210	1.6
FLJ31842	hypothetical protein FLJ31842	undefined			H56035	1.6
HHLA3	HERV-H LTR-associating 3	undefined			R50257	1.6
ALDH1A2	retinaldehyde dehydrogenase 2	undefined			AA036837	1.6
			hydrolase activity/serine-type peptidase activity, complement factor D activity, nucleotide metabolism			
TMEPAI	transmembrane, prostate androgen induced RNA				AA126899	1.6
	undefined	undefined			AA114965	1.6
MGC15429	hypothetical protein MGC15429	undefined			R48247	1.6
FLJ11155	hypothetical protein FLJ11155	undefined			N66082	1.6
	pyruvate dehydrogenase phosphatase					
PDP		undefined			H10695	1.6
	Homo sapiens cDNA FLJ12529 fis, clone NT2RM4000156, weakly similar to H.sapiens HPBR11-7 gene					
FLJ12529		undefined			T89571	1.6
	transmembrane 7 superfamily member 2		oxidoreductase, sterol biosynthesis	ER/integral to plasma membrane	R89566	1.6
TM7SF2				nucleus, microtubule cytoskeleton complex		
	pleckstrin homology, Sec7 and coiled/coil domains 1 (cytohesin 1)		ARF guanyl-nucleotide exchange factor activity, kinesin complex, vesicle-mediated transport		T77415	1.6
PSCD1		undefined			H17336	1.6
	ESTs	undefined			R94856	1.6
	hypothetical protein MGC43399, novel human gene mapping to chromosome 1					
MGC43399		undefined			T78497	1.6
	ESTs	undefined			T69735	1.6
	ESTs	undefined			W84871	1.6
	solute carrier family 7 (cationic amino acid transporter, y+ system), member 6					
SLC7A6		undefined			AA134825	1.6
	Homo sapiens clone 23870 mRNA sequence				H98718	1.6
	rap guanine nucleotide exchange factor					
RA-GEF-2		undefined			N64002	1.6
MDS009	x 009 protein	undefined			N90238	1.6
ZNF258	zinc finger protein 258		DNA binding, development		N67657	1.6
	ESTs	undefined			W23540	1.6
	glutamate-ammonia ligase (glutamine synthase)					
GLUL		undefined			H22918	1.5
	ESTs	undefined			T83910	1.5

Homo sapiens cDNA FLJ12985 fis,
clone NT2RP3000050, moderately
similar to ZINC FINGER PROTEIN

	91	undefined	undefined	W35282	1.5
	undefined	undefined	undefined	N74377	1.5
SPPL3	SPPL3	peptidase	integral to membrane	R64681	1.5
Upregulated Genes in Crypt Middle					
FLJ20508	hypothetical protein FLJ20508	undefined	undefined	H78681	6.5
FLJ30681	KIAA1983 protein	calcium ion binding	undefined	H67346	3.3
	ESTs	undefined	undefined	H79292	2.9
		carboxy/metallopeptidase, proteolysis/peptidolysis	plasma membrane	H93272	2.9
CPM	carboxypeptidase M			H74262	2.8
	ESTs	undefined	undefined	H79396	2.8
	ESTs	undefined	undefined		
		transferase, delta DNA polymerase, DNA	nucleus	H53410	2.7
POLD4	polymerase (DNA-directed), delta 4	replication	undefined	H67306	2.7
	ESTs	undefined	undefined	H77569	2.6
	ESTs	undefined	undefined	H78565	2.5
	ESTs	undefined	undefined	N28259	2.5
	ESTs	undefined	undefined	H75964	2.5
	ESTs	undefined	undefined	H73969	2.5
	ESTs	undefined	undefined	H72693	2.4
	ESTs	undefined	undefined	H73504	2.4
	ESTs	undefined	undefined	H93200	2.4
	ESTs	undefined	undefined	R96031	2.4
	complement component (3b/4b) receptor 1, including Knops blood group system	complement receptor, complement activation	integral to plasma membrane	H75766	2.4
CR1		undefined	undefined	H52561	2.4
	ESTs	undefined	undefined	H72686	2.4
	ESTs	undefined	undefined	H80299	2.3
	ESTs	undefined	undefined	H72803	2.3
		zinc ion binding, transcription factor, DNA- dependent regulator of transcription	nucleus	H56184	2.3
MYT1	myelin transcription factor 1				
		SH2/SH3 adaptor protein, intracellular signaling cascade, cell/motility/actin cytoskeleton organogenesis/biogenesis, regulator of transcription from Pol II	nucleus/cytoplas m	H75530	2.3
CRK	v-crk avian sarcoma virus CT10 oncogene homolog	promoter		H73274	2.2
	ESTs	undefined	undefined		
	putative protein kinase NY-REN-64 antigen	undefined	undefined	H78687	2.2
LOC51135		transferase/UDP-N-acetylglucosamine pyrophosphorylase, UDP-N- acetylglucosamine biosynthesis	undefined	H78933	2.2
UAP1	UDP-N-acetylglucosamine pyrophosphorylase 1				
	inter-alpha (globulin) inhibitor, H1 polypeptide	calcium ion binding, serine protease inhibitor	undefined	H67336	2.2
ITIH1		undefined	undefined	H75387	2.2
	ESTs	undefined	undefined	H79016	2.1
	ESTs	undefined	undefined	H79160	2.1
	ESTs	undefined	undefined		
	golgi autoantigen, golgin subfamily a, 1	undefined	undefined	H77390	2.1
GOLGA1					

	ESTs	undefined	undefined	H77738	2.1
CDC10	CDC10 (cell division cycle 10, S. cerevisiae, homolog)	GTP binding, microtubule cytoskeleton, cell proliferation/cytokinesis	microtubule cytoskeleton/actin/kinesin complex	H79411	2.1
	ESTs	undefined	undefined	H79508	2.1
E2IG3	putative nucleotide binding protein, estradiol-induced	undefined	undefined	H53723	2.1
MLLT10	myeloid/lymphoid or mixed-lineage leukemia (trithorax (Drosophila) homolog); translocated to, 10	DNA binding, transcription factor, DNA-dependent regulator of transcription	nucleus	H66479	2.1
SR140	US-associated R140 protein	RNA binding, RNA processing		H93167	2.1
RPS6	ribosomal protein S6	undefined	undefined	H67329	2.0
DDX17	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 17 (72kD)	RNA binding, RNA-dependent ATPase/RNA helicase, RNA processing	nucleus	H78808	2.0
	ESTs	undefined	undefined	H73375	2.0
	ESTs	undefined	undefined	H79123	2.0
PKNOX1	PBX/knotted 1 homeobox 1	RNA pol II transcription factor	undefined	H77399	2.0
	ESTs	undefined	undefined	N54956	2.0
	ESTs	undefined	undefined	H65941	2.0
	ESTs, Highly similar to Gene product with similarity to Multidrug resistance protein MRP1 [H.sapiens]	undefined	undefined	H75839	1.9
PSG4	pregnancy specific beta-1-glycoprotein 4	undefined	undefined	H67911	1.9
	ESTs	undefined	undefined	H79410	1.9
LOC51636	CGI-93 protein	undefined	undefined	H56180	1.9
	ESTs	undefined	undefined	H77738	1.9
	Homo sapiens mRNA; cDNA DKFZp434F1622 (from clone DKFZp434F1622)	undefined	undefined	H79447	1.9
	ESTs	undefined	undefined	H80295	1.9
RTN4R	reticulin 4 receptor	receptor, axonogenesis	membrane plasma	H61387	1.8
RDX	radixin	actin binding, structural constituent of cytoskeleton, cytoskeletal anchoring	membrane/actin cytoskeleton	H80175	1.8
	ESTs	undefined	undefined	H80847	1.8
	ESTs, Weakly similar to ALUB_HUMAN !!!! ALU CLASS B WARNING ENTRY !!!! [H.sapiens]	undefined	undefined	H78468	1.8
LOC51320	hypothetical protein	undefined	undefined	R96053	1.8
SULT1A1	sulfotransferase family, cytosolic, 1A, phenol-preferring, member 1	transferase/arylsulfotransferase, steroid/amine metabolism	undefined	H67893	1.8
	ESTs	undefined	undefined	H52500	1.8
HLA-DRB1	major histocompatibility complex, class II, DR beta 1	class II MHC antigen, response to stress/pathogens	integral to plasma membrane	H81481	1.8
	Human clone 137308 mRNA, partial cds	undefined	undefined	H91398	1.8

		calcium ion binding, transcription factor, DNA-dependent regulator of transcription/transcription from the P ₀ III promoter, heart			
HAND2	heart and neural crest derivatives expressed 2	development/angiogenesis	nucleus	H78795	1.8
	ESTs	undefined	undefined	H66628	1.7
			microtubule cytoskeleton/kin esis complex	H92449	1.7
TRIAD3	TRIAD3 protein	apoptosis	undefined	H78668	1.7
	ESTs	undefined	undefined		
			microtubuleasso ciated		
		ATP binding, microtubule-based motor activity	complex/kinesin complex	T65539	1.7
KIF2	kinesin heavy chain member 2	undefined	undefined	H67452	1.6
	ESTs	undefined	undefined	H73948	1.6
	ESTs	undefined	undefined		
Upregulated Genes in Crypt Top					
	ESTs			H19445	6.5
	ESTs			T92285	1.8
	disabled (Drosophila) homolog 2 (mitogen-responsive phosphoprotein)			H96724	1.7
DAB2					
TRA1	tumor rejection antigen (gp96) 1			H65057	1.6
	ESTs			W37504	1.6
				N99642	1.6
	ESTs			N74386	1.5
				R02137	1.5
	syntrophin, alpha 1(dystrophin- associated protein A1, 59kD, acidic component)			H09104	1.5
SNTA1					
	Homo sapiens cDNA FLJ12118 fis, clone MAMMA1000085, weakly similar to PUTATIVE CYSTEINYL- TRNA SYNTHETASE C29E6.06C (EC 6.1.1.16)			AA045241	1.5
	glucose-6-phosphate dehydrogenase			W92662	1.4
G6PD	ESTs			AA044150	1.4
				N95191	1.4
	ESTs			N47405	1.4
	ESTs			N71005	1.4
	ESTs			R97175	1.4
	v-yes-1 Yamaguchi sarcoma viral related oncogene homolog			R67762	1.4
LYN	ESTs			R68651	1.4
	Wiskott-Aldrich syndrome (eczema- thrombocytopenia)			R06910	1.4
WAS					
LOC51124	HSPC039 protein			H17385	1.3
				R11506	1.3
	growth factor receptor-bound protein 10			N92349	1.3
GRB10					
DKFZP547E2110	DKFZP547E2110 protein			AA031787	1.3
	ESTs			R12055	1.3
	related RAS viral (r-ras) oncogene homolog			W74233	1.3
RRAS					

	Homo sapiens mRNA; cDNA DKFZp564B076 (from clone DKFZp564B076)	H62621	1.3
PAX8	paired box gene 8	AA115328	1.3
FLJ20285	hypothetical protein FLJ20285	N93342	1.3
ARF1	ADP-ribosylation factor 1	H20379	1.2
HMT-1	beta-1,4 mannosyltransferase	N99927	1.2
YG81	hypothetical protein LOC54149	N22317	1.2
	ESTs	N74713	1.2
	ESTs	W57697	1.2
	ESTs	N51117	1.2
HAPIP	huntingtin-associated protein interacting protein (duo)	R90768	1.2
CD3D	CD3D antigen, delta polypeptide (TiT3 complex)	AA055945	1.2
		N46377	1.2
HDAC2	histone deacetylase 2	AA125908	1.2
		R68851	1.2
	ESTs	R70778	1.2
	Homo sapiens cDNA- FLJ22182 fis, clone HRC00953	AA156747	1.2
		H03340	1.2
SLC17A5	solute carrier family 17 (anion/sugar transporter), member 5	W04643	1.2
RFXANK		N25631	1.2
	ESTs	T70765	1.2
UBE2A	ubiquitin-conjugating enzyme E2A (RAD6 homolog)	AA133960	1.1
	Homo sapiens HCMOGT-1 mRNA for sperm antigen, complete cds	R02582	1.1
		R02382	1.1
		H22692	1.1
RFC5	replication factor C (activator 1) 5 (36.5kD)	H10350	1.1
IQGAP1	IQ motif containing GTPase activating protein 1	AA151625	1.1
DPYS	dihydropyrimidinase	N76073	1.1
PHKA2	phosphorylase kinase, alpha 2 (liver)	N93367	1.1
ADCY7	adenylate cyclase 7	H58086	1.1
	Human DNA sequence from clone RP5-1046G13 on chromosome 6q12-13 Contains part of a gene similar to Rattus norvegicus rab3 effector (RIM), ESTs, STSs and GSSs	R19493	1.1
	ESTs	AA002250	1.1
ZNF22	zinc finger protein 22 (KOX 15)	AA115745	1.1
PRAME	preferentially expressed antigen in melanoma	AA136089	1.1
	ESTs	N24906	1.1
APG12L	Apg12 (autophagy 12, S. cerevisiae)-like	H17690	1.1
		AA203550	1.1

FLJ10210	hypothetical protein FLJ10210	T78406	1.1
AOAH	acyloxyacyl hydrolase (neutrophil) ESTs	T94800 W03263	1.1 1.1
	ESTs	R38456	1.1
ANXA3	annexin A3 ESTs	R52939	1.1
	ESTs	AA167659	1.1
	ESTs	H43974	1.1
DKFZP586K1	DKFZP586K0919 protein ESTs	R05816	1.1
	ESTs	R10564	1.1
	ESTs	N63402	1.0
	ESTs	R82747	1.0
	ESTs	R11870	1.0
AGXT2	alanine-glyoxylate aminotransferase 2	R10286	1.0
GBF1	golgi-specific brefeldin A resistance factor 1	AA099341	1.0
		T85310	1.0
FLJ10583	hypothetical protein FLJ10583 ESTs	T99853	1.0
	ESTs	H49519	1.0
		H03167	1.0
		N48735	1.0
UBE2B	ubiquitin-conjugating enzyme E2B (RAD6 homolog) ESTs, Weakly similar to putative p150 [H.sapiens]	R14961	1.0
		H84526	1.0
		R05301	1.0
PDGFRB	platelet-derived growth factor receptor, beta polypeptide ESTs	AA046654	1.0
		AA213820	1.0
	Human DNA sequence from clone 696P19 on chromosome 6p12.3- 21.2. Contains the gene for TFEB, an NPM1 (Nucleophosmin, Numatrin) pseudogene and the MDFI gene for MyoD family inhibitor (myogenic repressor I-MF). Contains ESTs, STSs, GSSs and two putative CpG islands		
TFEB		R22427	1.0
KIAA0669	KIAA0669 gene product ESTs	R62374	1.0
		R79612	1.0
PSMB9	proteasome (prosome, macropain) subunit, beta type, 9 (large multifunctional protease 2)	R80719	0.9
NRD1	nardilysin (N-arginine dibasic convertase)	R42028	0.9
		R09548	0.9
		AA039324	0.9
RTN3	reticulon 3	R52816	0.9
KIAA0411	KIAA0411 gene product	R85335	0.9
TFPI2	tissue factor pathway inhibitor 2	H12333	0.9
		T75369	0.9

LOC115286	hypothetical protein LOC 115286	H15744	0.9
ARRB2	arrestin, beta 2	T97814	0.9
CYP19	cytochrome P450, subfamily XIX (aromatization of androgens)	H00690	0.9
TGIF	TG-interacting factor (TALE family homeobox)	R70894	0.9
HNRPH1	heterogeneous nuclear ribonucleoprotein H1 (H)	H88577	0.9
	ESTs	T99720	0.9
FLJ10895	hypothetical protein FLJ10895	N44094	0.9
FLJ10525	hypothetical protein FLJ10525	H15171	0.9
	ESTs	R06918	0.9
CYB5	cytochrome b-5	R98556	0.9
	ESTs, Weakly similar to KIAA0872 protein [H.sapiens]	R13050	0.9
PIK3C3	phosphoinositide-3-kinase, class 3	AA149493	0.9
CRA	cisplatin resistance associated	R50652	0.9
		N34012	0.9
	ESTs, Highly similar to A56110 tyrosine phosphoprotein SLP-76 - human [H.sapiens]	R16888	0.9
	ESTs, Weakly similar to PZP_HUMAN PREGNANCY ZONE PROTEIN PRECURSOR [H.sapiens]	AA142969	0.8
		AA194925	0.8
	ESTs	R61775	0.8
KIAA0676	KIAA0676 protein	R25017	0.8
RNAHP	RNA helicase-related protein	T48016	0.8
BAIAP2	BAI1-associated protein 2	H22058	0.8
		AA147568	0.8
FOXO1A	forkhead box O1A (rhabdomyosarcoma)	AA019811	0.7
LOC51101	CGI-62 protein	W87505	0.7
	Homo sapiens, alpha-1 (VI) collagen	R49887	0.7
	ESTs	W94547	0.7
	ESTs, Weakly similar to KIAA1204 protein [H.sapiens]	T92245	0.7
	ESTs	T70264	0.7
ZNF262	zinc finger protein 262	AA149227	0.7
	ESTs, Moderately similar to ALU1_HUMAN ALU SUBFAMILY J SEQUENCE CONTAMINATION WARNING ENTRY [H.sapiens]	R48562	0.7
ZHX1	zinc-fingers and homeoboxes 1	T66784	0.7
DKFZP434N061	DKFZP434N061 protein	R02568	0.7
	Homo sapiens cDNA FLJ14188 fis, clone NT2RP2005980	W61235	0.6
		H30081	0.5
	ESTs	H72169	0.3