

Additional file 1. Selected rat early HCC specific genes, conserved across both age groups (old and young), and significantly modulated with respect regenerated and normal.

Gene Symbol	Gene Name	Celera Gene ID	FC DO vs NO	FC DO vs RO	FC DY vs NY	FC DY vs RY	Biological Process
Pbsn	probasin	rCG36423	29.6	33.0	67.1	13.6	Pheromone response Transport;Sensory perception
Agtpbp1	ATP/GTP binding protein 1 (predicted)	rCG24159	3.8	2.4	2.2	2.6	Proteolysis;Signal transduction Protein metabolism and modification
Col1a1	collagen, type 1, alpha 1	rCG33732	3.7	3.2	2.2	3.7	Cell structure Cell adhesion;Cell structure and motility
Prom1	prominin 1	rCG35777	3.4	2.8	1.8	1.9	Other intracellular protein traffic Intracellular protein traffic
Calb3	calbindin 3, (vitamin D-dependent calcium binding protein)	rCG49631	3.0	2.9	4.3	3.8	Biological process unclassified
Lum	lumican	rCG48866	2.9	5.3	5.3	6.7	Vision Signal transduction Cell communication Cell adhesion-mediated signaling;Sensory perception
Fbn1	fibrillin 1	rCG27283	2.9	1.9	1.6	1.6	Signal transduction Cell communication;Sensory perception Mesoderm development Vision;Developmental processes Skeletal development
Star	steroidogenic acute regulatory protein	rCG43004.1	2.4	2.4	2.5	2.0	Other lipid, fatty acid and steroid metabolism;Developmental processes Regulation of lipid, fatty acid and steroid metabolism;Lipid, fatty acid and steroid metabolism Gametogenesis Oogenesis Lipid, fatty acid and steroid metabolism
Ccna2	cyclin A2	rCG41610	2.3	3.0	1.2	1.6	Cell cycle control;Oncogenesis Gametogenesis Spermatogenesis and motility;Cell cycle Developmental processes
P2ry13	purinergic receptor P2Y, G-protein coupled, 13	rCG50055	2.1	2.2	2.7	1.9	Cell surface receptor mediated signal transduction Signal transduction G-protein mediated signaling;Neuronal activities
Tnfsf13	tumor necrosis factor (ligand) superfamily, member 13	rCG34899	2.0	1.6	2.0	1.7	immune response positive regulation of isotype switching to IgA isotypes regulation of immune response signal transduction positive regulation of cell proliferation humoral defense mechanism (sensu Vertebrata)
Gja1	gap junction membrane channel protein alpha 1	rCG22127	1.9	1.9	1.8	1.7	Signal transduction
Ankrd22	ankyrin repeat domain 22 (predicted)	rCG47624	1.8	1.9	3.3	2.5	Biological process unclassified
Srpx	sushi-repeat-containing protein	rCG42920	1.8	2.6	1.8	2.1	Biological process unclassified
Abi2	abl-interactor 2	rCG22366.1	1.6	2.4	2.3	2.3	Cell motility Cell cycle control;Cell structure and motility Signal transduction;Cell cycle
Igfbp3	insulin-like growth factor binding protein 3	rCG24498	1.6	1.7	1.4	1.6	Signal transduction Growth factor homeostasis Extracellular matrix protein-mediated signaling;Homeostasis Cell communication
Pnoc	prepronociceptin	rCG52154.1	1.6	3.6	2.2	3.3	Cell surface receptor mediated signal transduction Signal transduction G-protein mediated signaling;Neuronal activities Other neuronal activity
Ctse	cathepsin E	rCG46116.1	1.6	3.5	2.9	3.1	Proteolysis;Immunity and defense Protein metabolism and modification MHCII-mediated immunity T-cell mediated immunity
Stat2	signal transducer and activator of transcription 2	rCG42435	1.4	1.5	1.5	1.6	Nucleoside, nucleotide and nucleic acid metabolism Intracellular signaling cascade mRNA transcription regulation;Signal transduction Interferon-mediated immunity mRNA transcription JAK-STAT cascade;Immunity and defense Macrophage-mediated immunity;Immunity and defense
RT1-Ba	RT1 class II, locus Ba	rCG60724	1.4	1.5	2.4	2.3	MHCII-mediated immunity Immunity and defense T-cell mediated immunity
Hnrpa2b1	Heterogeneous nuclear	rCG52521	1.4	1.2	1.5	1.5	Nucleoside, nucleotide and nucleic acid metabolism Pre-mRNA

	ribonucleoprotein A2/B1 (predicted)						processing mRNA splicing
Lsp1	lymphocyte specific 1	rCG47545.1	1.4	1.6	1.5	1.4	Biological process unclassified
Creb1	cAMP responsive element binding protein 1	rCG22512	1.3	1.1	1.9	1.4	Nucleoside, nucleotide and nucleic acid metabolism mRNA transcription mRNA transcription regulation;Signal transduction;Neuronal activities;Developmental processes Neurogenesis Ectoderm development
Carhsp1	calcium regulated heat stable protein 1	rCG49839.1	-1.2	-1.4	-1.6	-1.5	Intracellular signaling cascade Nucleoside, nucleotide and nucleic acid metabolism;Signal transduction Calcium mediated signaling;Other metabolism
P2rx11	purinergic receptor P2X-like 1, orphan receptor	rCG36557	-1.4	-1.4	-1.8	-2.0	Hearing;Blood circulation and gas exchange Synaptic transmission Ion transport Nerve-nerve synaptic transmission;Sensory perception Vision;Sensory perception Cation transport;Neuronal activities Regulation of vasoconstriction, dilation Signal transduction;Transport
Eif4ebp1	eukaryotic translation initiation factor 4E binding protein 1	rCG42993	-1.5	-1.2	-1.4	-1.3	Translational regulation;Cell proliferation and differentiation;Oncogenesis Tumor suppressor Protein biosynthesis;Protein metabolism and modification Protein metabolism and modification
Pfkfb4	6-phosphofructo-2- kinase/fructose-2,6- biphosphatase 4	rCG25080	-1.7	-1.3	-2.1	-1.6	Glycolysis;Carbohydrate metabolism Monosaccharide metabolism Carbohydrate metabolism
Kcnip2	Kv channel-interacting protein 2	rCG57780	-1.7	-1.5	-2.5	-2.5	Intracellular signaling cascade Calcium mediated signaling Signal transduction
Olr1602	olfactory receptor 1602 (predicted)	rCG20131	-1.8	-2.2	-1.2	-2.0	Cell surface receptor mediated signal transduction Signal transduction G-protein mediated signaling;Sensory perception Olfaction Chemosensory perception
Olr838	olfactory receptor 838 (predicted)	rCG55011	-1.8	-3.5	-1.2	-1.5	Cell surface receptor mediated signal transduction Signal transduction Olfaction Chemosensory perception G-protein mediated signaling;Sensory perception
Slc22a5	solute carrier family 22 (organic cation transporter), member 5	rCG35332	-1.8	-2.0	-1.4	-1.3	Transport Small molecule transport;Transport Ion transport Cation transport;Transport Extracellular transport and import
Gak	cyclin G associated kinase	rCG57247	-1.8	-1.2	-1.6	-1.5	Protein metabolism and modification Protein modification Other protein metabolism;Intracellular protein traffic Protein phosphorylation;Protein metabolism and modification Endocytosis
Ela1	elastase 1, pancreatic	rCG50853	-2.0	-2.6	-3.6	-4.0	Proteolysis Other steroid metabolism;Protein metabolism and modification Cholesterol metabolism;Lipid, fatty acid and steroid metabolism Steroid metabolism Lipid, fatty acid and steroid metabolism
Apom	apolipoprotein M	rCG38376	-2.0	-1.8	-1.5	-1.3	transport lipid transport
Pik3cb	phosphatidylinositol 3-kinase, catalytic, beta polypeptide	rCG25555	-2.0	-1.6	-2.5	-2.4	Cell surface receptor mediated signal transduction Receptor protein tyrosine kinase signaling pathway;Signal transduction Inhibition of apoptosis Lipid, fatty acid and steroid metabolism Lipid metabolism;Signal transduction Intracellular signaling cascade;Apoptosis
Ech1	enoyl coenzyme A hydratase 1, peroxisomal	rCG53633	-2.3	-1.4	-1.8	-1.7	Vitamin biosynthesis Coenzyme metabolism;Coenzyme and prosthetic group metabolism Carbohydrate metabolism;Lipid, fatty acid and steroid metabolism Fatty acid metabolism Fatty acid beta-oxidation;Coenzyme and prosthetic group metabolism Vitamin metabolism
Mgat5	mannoside acetylglucosaminyltransferase 5	rCG59358	-2.8	-1.3	-2.4	-1.3	Protein metabolism and modification Protein modification
Csrp2bp	cysteine and glycine-rich protein 2 binding protein (predicted)	rCG27524	-2.8	-2.3	-1.6	-1.3	Biological process unclassified
Bai1	brain-specific angiogenesis inhibitor 1 (predicted)	rCG59454	-3.2	-3.9	-1.8	-1.2	G-protein mediated signaling;Cell adhesion;Developmental processes Cell surface receptor mediated signal transduction Signal transduction Mesoderm development Angiogenesis
Clcnkb	chloride channel Kb	rCG30632	-4.0	-3.3	-2.1	-1.3	Transport Ion transport Anion transport

Ap2b1	adaptor-related protein complex 2, beta 1 subunit	rCG33026	-4.9	-4.6	-2.3	-2.0	General vesicle transport Intracellular protein traffic
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