

S10 Table. Genes that are involved in immune response and/or inflammation, and that are upregulated in WT mice treated with DEN for 10-12 Months

Gene Symbol	Gene Name	Probe ID	Fold of Change	p value	Pathways	Functional Class
C1QA	complement component 1, q subcomponent, alpha polypeptide	98562_at	1.6453	0.0269	Complement_and_coagulation_cascades Systemic_lupus_erythematosus Chagas_disease_(American_trypanosomiasis) Pertussis Staphylococcus_aureus_infection Prion_diseases	Organismal Systems: Immune System Human Diseases: Immune diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Neurodegenerative diseases
C1QB	complement component 1, q subcomponent, beta polypeptide	96020_at	2.0625	0.0271	Complement_and_coagulation_cascades Systemic_lupus_erythematosus Chagas_disease_(American_trypanosomiasis) Pertussis Staphylococcus_aureus_infection Prion_diseases	Organismal Systems: Immune System Human Diseases: Immune diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Neurodegenerative diseases
C1QC	complement component 1, q subcomponent, c polypeptide	92223_at	1.7362	0.0065	Complement_and_coagulation_cascades Systemic_lupus_erythematosus Chagas_disease_(American_trypanosomiasis) Pertussis Staphylococcus_aureus_infection Prion_diseases	Organismal Systems: Immune System Human Diseases: Immune diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Neurodegenerative diseases
CCL4	small inducible cytokine A4	94146_at	1.2846	0.0351	Toll_like_receptor_signaling_pathway Chemokine_signaling_pathway Cytosolic_DNA_sensing_pathway Cytokine_cytokine_receptor_interaction NF_kappa_B_signaling_pathway Salmonella_infection	Organismal Systems: Immune System Organismal Systems: Immune System Organismal Systems: Immune System Environmental Information Processing: Signaling molecules and interaction Environmental Information Processing: Signal transduction Human Diseases: Infectious diseases
CCL5	small inducible cytokine A5	98406_at	1.4894	0.0475	TNF_signaling_pathway Cytokine_cytokine_receptor_interaction Chemokine_signaling_pathway	Environmental Information Processing: Signal transduction Environmental Information Processing: Signaling molecules and interaction Organismal Systems: Immune System

					NOD_like_receptor_signaling_pathway	Organismal Systems: Immune System
					Cytosolic_DNA_sensing_pathway	Organismal Systems: Immune System
					Rheumatoid_arthritis	Human Diseases: Immune diseases
					Herpes_simplex_infection	Human Diseases: Infectious diseases
					Influenza_A	Human Diseases: Infectious diseases
					Chagas_disease_(American_trypanosomiasis)	Human Diseases: Infectious diseases
					Prion_diseases	Human Diseases: Neurodegenerative diseases
CD14	CD14 antigen	98088_at	2.0174	0.0178	Hematopoietic_cell_lineage	Organismal Systems: Immune System
					Toll_like_receptor_signaling_pathway	Organismal Systems: Immune System
					NF_kappa_B_signaling_pathway	Environmental Information Processing: Signal transduction
					Amoebiasis	Human Diseases: Infectious diseases
					Legionellosis	Human Diseases: Infectious diseases
					Pertussis	Human Diseases: Infectious diseases
					Salmonella_infection	Human Diseases: Infectious diseases
					MAPK_signaling_pathway	Environmental Information Processing: Signal transduction
					Phagosome	Cellular Process: Transport and catabolism
					Regulation_of_actin_cytoskeleton	Cellular Process: Cell motility
CD99	CD99 antigen	101047_at	1.6316	0.0426	Leukocyte_transendothelial_migration	Organismal Systems: Immune System
					Cell_adhesion_molecules_(CAMs)	Environmental Information Processing: Signaling molecules and interaction
CYBA	cytochrome b-245, alpha polypeptide	100059_at;	1.4238	0.0014	Leukocyte_transendothelial_migration	Organismal Systems: Immune System
		97013_f_at	1.5608	0.0332	Leishmaniasis	Human Diseases: Infectious diseases
					Osteoclast_differentiation	Organismal Systems: Development
					Phagosome	Cellular Process: Transport and catabolism
DNTT	deoxynucleotidyltransferase, terminal	103962_at	1.2917	0.0254	Hematopoietic_cell_lineage	Organismal Systems: Immune System
					Non_homologous_end_joining	Genetic Information Processing: Replication and repair
FCGR1	Fc receptor, IgG, high affinity I	102879_s_at	1.3349	0.0079	Fc_gamma_R_mediated_phagocytosis	Organismal Systems: Immune System
					Hematopoietic_cell_lineage	Organismal Systems: Immune System
					Systemic_lupus_erythematosus	Human Diseases: Immune diseases
					Leishmaniasis	Human Diseases: Infectious diseases
					Staphylococcus_aureus_infection	Human Diseases: Infectious diseases

HCK	hemopoietic cell kinase	93483_at	1.4239	0.0146	Tuberculosis Phagosome	Human Diseases: Infectious diseases Cellular Process: Transport and catabolism Organismal Systems: Development Human Diseases: Cancers
					Osteoclast_differentiation Transcriptional_misregulation_in_cancer Fc_gamma_R_mediated_phagocytosis Chemokine_signaling_pathway	Organismal Systems: Immune System Organismal Systems: Immune System
IRF7	interferon regulatory factor 7	104669_at	1.4708	0.0077	Toll_like_receptor_signaling_pathway	Organismal Systems: Immune System
		162202_f_at	1.2999	0.0464	RIG_I_like_receptor_signaling_pathway Cytosolic_DNA_sensing_pathway	Organismal Systems: Immune System Organismal Systems: Immune System
ITGB2	integrin beta 2	102353_at	1.4139	0.0120	Hepatitis_B Hepatitis_C Herpes_simplex_infection Influenza_A Measles Viral_carcinogenesis	Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Cancers
					Leukocyte_transendothelial_migration Natural_killer_cell_mediated_cytotoxicity	Organismal Systems: Immune System Organismal Systems: Immune System
MYL9	transient receptor protein 2	96939_at	1.3586	0.0500	Amoebiasis HTLV_I_infection Legionellosis Leishmaniasis Malaria Pertussis Cell_adhesion_molecules_(CAMs)	Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Environmental Information Processing: Signaling molecules and interaction
					Hippo_signaling_pathway Leukocyte_transendothelial_migration cAMP_signaling_pathway cGMP_PKG_signaling_pathway Focal_adhesion Regulation_of_actin_cytoskeleton Tight_junction Vascular_smooth_muscle_contraction Oxytocin_signaling_pathway	Environmental Information Processing: Signal transduction Organismal Systems: Immune System Environmental Information Processing: Signal transduction Environmental Information Processing: Signal transduction Cellular Process: Cellular community Cellular Process: Cell motility Cellular Process: Cellular community Organismal Systems: Circulatory system Organismal Systems: Endocrine system

PLAUR	urokinase plasminogen activator receptor	102663_at	1.3212	0.0264	Complement_and_coagulation_cascades Proteoglycans_in_cancer	Organismal Systems: Immune System Human Diseases: Cancers
RAC2	RAS-related C3 botulinum substrate 2	103579_at	1.2760	0.0174	Fc_gamma_R_mediated_phagocytosis Fc_epsilon_RI_signaling_pathway Chemokine_signaling_pathway B_cell_receptor_signaling_pathway Axon_guidance Choline_metabolism_in_cancer Colorectal_cancer cAMP_signaling_pathway Adherens_junction Focal_adhesion	Organismal Systems: Immune System Organismal Systems: Immune System Organismal Systems: Immune System Organismal Systems: Development Human Diseases: Cancers Human Diseases: Cancers Environmental Information Processing: Signal transduction Cellular Process: Cellular community Cellular Process: Cellular community
ROCK2	Rho-associated coiled-coil forming kinase 2	98504_at	1.7854	0.0040	Leukocyte_transendothelial_migration Chemokine_signaling_pathway Platelet_activation cAMP_signaling_pathway cGMP_PKG_signaling_pathway Focal_adhesion Pathways_in_cancer Proteoglycans_in_cancer Axon_guidance Oxytocin_signaling_pathway	Organismal Systems: Immune System Organismal Systems: Immune System Organismal Systems: Immune System Environmental Information Processing: Signal transduction Environmental Information Processing: Signal transduction Cellular Process: Cellular community Human Diseases: Cancers Human Diseases: Cancers Organismal Systems: Development Organismal Systems: Endocrine system
VCAM1	vascular cell adhesion molecule 1	92559_at	1.4762	0.0053	Leukocyte_transendothelial_migration NF_kappa_B_signaling_pathway TNF_signaling_pathway African_trypanosomiasis HTLV_I_infection Malaria Cell_adhesion_molecules_(CAMs)	Organismal Systems: Immune System Environmental Information Processing: Signal transduction Environmental Information Processing: Signal transduction Human Diseases: Infectious diseases Human Diseases: Infectious diseases Human Diseases: Infectious diseases Environmental Information Processing: Signaling molecules and interaction
VWF	Von Willebrand factor homolog	103499_at	1.2766	0.0354	Complement_and_coagulation_cascades Platelet_activation PI3K_Akt_signaling_pathway ECM_receptor_interaction Focal_adhesion	Organismal Systems: Immune System Organismal Systems: Immune System Environmental Information Processing: Signal transduction Environmental Information Processing: Signaling molecules and interaction Cellular Process: Cellular community

The expression of these genes are significantly upregulated in DEN-treated wild type mouse livers (10-12 month) compared to the age-matched control samples. DAVID analysis coupled with KEGG Pathway indicates they belong to multiple functional groups but with the theme of "immune system", "immune diseases", and/or inflammation response (in red font). They are often involved in "infectious diseases" (in blue font), likely due to immune or inflammatory response to the pathogens. Many of them are also implicated in cell growth or cancer development.

(in blue font).