Table S33 - IPA EGA upstream regulators targets in affected sub-group canonical pathways

		Upstream Regulators																		
Pathways	Sub-Group	SOX11	CCND1	CXCR4	LDLR	SET	RRP1B	CDK4/6	SSRP1	HNRNPU	HNF4A	INSR	HSPA5	ROCK2	KITLG	ERBB2	ELF3	ACOX1	TCF7L2	FN1
RhoGDI Signaling	M-1															ESR2				
FcγRIIB Signaling in B Lymphocytes	M-1															ITGA5				
Sperm Motility	M-1															AKT1				
Dopamine-DARPP32 Feedback in cAMP Signaling	M-1																		SLC12A2	
Opioid Signaling Pathway	M-3																		CREB5	
RhoGDI Signaling	M-3															MAPK4				
ERK/MAPK Signaling	M-3																			ITGA4
D-myo-inositol (1 4 5)-Trisphosphate Biosynthesis	M-1																			ITGA4
Superpathway of Citrulline Metabolism	M-1																		PI4KB	
Cellular Effects of Sildenafil (Viagra)	M-1															CPS1				
PAK Signaling	M-3		MYLK																	
VDR/RXR Activation	M-3																			ITGA4
Dopamine Receptor Signaling	M-3		NCOA3																	
Role of JAK2 in Hormone-like Cytokine Signaling	M-3															PRL				
CNTF Signaling	EGA2-1															PRL				
ErbB2-ErbB3 Signaling	EGA2-1										PTPN11									
Role of p14/p19ARF in Tumor Suppression	EGA2-1										PTPN11									
Cell Cycle: G2/M DNA Damage Checkpoint Regulation	EGA2-1										NPM1 PTPN11									
Systemic Lupus Erythematosus Signaling	EGA2-1						EP300 TOP2A													
Purine Nucleotides De Novo Biosynthesis II	EGA2-1										HLA-C HLA-F HLA-G HNRNPC LSM4 PTPN11 SNRPA SNRPD2 SNRPD3									
RAN Signaling	EGA2-1										ADSS									
Vitamin-C Transport	EGA2-1										KPNB1									
Thioredoxin Pathway	EGA2-1										TXNRD1									
Pyrimidine Ribonucleotides Interconversion	EGA2-1										TXNRD1									
											RECQL									

Arsenate Detoxification I (Glutaredoxin)	EGA2-2		GSTO1					
Heme Degradation	EGA2-2					HMOX1		
Ascorbate Recycling (Cytosolic)	EGA2-2		GSTO1					
Serine Biosynthesis	EGA2-2		PSAT1					
Superpathway of Serine and Glycine Biosynthesis I	EGA2-2		PSAT1					
Vitamin-C Transport	EGA2-4						SLC2A1	
Regulation of Actin-based Motility by Rho	EGA3-1			CFL1				
Actin Nucleation by ARP-WASP Complex	EGA3-2						RHOD	
Retinoic acid Mediated Apoptosis Signaling	EGA3-2		IFNAR1 RXRB					
Glioma Invasiveness Signaling	EGA3-2						RHOD	
Regulation of Actin-based Motility by Rho	EGA3-2						RHOD	
DNA Double-Strand Break Repair by Homologous Recombination	EGA3-2						LIG1	
Endoplasmic Reticulum Stress Pathway	EGA3-2		HSP90B1					
Semaphorin Signaling in Neurons	EGA3-2						RHOD	
Cell Cycle Control of Chromosomal Replication	EGA3-2						LIG1	
Coenzyme A Biosynthesis	EGA3-2		PPCS					
Branched-chain α-keto acid Dehydrogenase Complex	EGA3-2		DBT					
Glutamate Receptor Signaling	EGA3-4	HOMER2						
Glycine Cleavage Complex	EGA3-1		AMT					
Arginine Degradation VI (Arginase 2 Pathway)	EGA3-1							OAT
Hypoxia Signaling in the Cardiovascular System	EGA3-1				P4HB			
Uridine-5'-phosphate Biosynthesis	EGA3-1		UMPS					
Glycine Biosynthesis I	EGA3-1						SHMT1	

Thyroid Hormone Biosynthesis	EGA4-2													CTSD
Chondroitin Sulfate Degradation (Metazoa)	EGA4-1							HEXA						
Dermatan Sulfate Degradation (Metazoa)	EGA4-1							HEXA						
Tyrosine Biosynthesis IV	EGA4-1							PCBD1						
Phenylalanine Degradation I (Aerobic)	EGA4-1							PCBD1						
UDP-N-acetyl-D-glucosamine Biosynthesis II	BL-Down-1	UAP1												
UDP-N-acetyl-D-galactosamine Biosynthesis II	BL-Down-1	UAP1												
Calcium Signaling	M-1										CHRNE TPM1	CREB5 TP63		
PAK Signaling	M-1	MYLK									ITGA5			
Notch Signaling	M-1										JAG1 PSEN1	JAG1		
Actin Cytoskeleton Signaling	M-3										FGF9			ITGA4
ERK5 Signaling	EGA2-1		EP300					PTPN11 SGK1						
PDGF Signaling	EGA2-1				PDGFA			PTPN11						
Neurotrophin/TRK Signaling	EGA2-1		EP300					PTPN11						
Sumoylation Pathway	EGA2-1		EP300						SIRT1					
Cyclins and Cell Cycle Regulation	EGA2-1			CDK6				E2F5						
Remodeling of Epithelial Adherens Junctions	EGA2-1			TUBA1B TUBB		ACTB								
Estrogen Receptor Signaling	EGA2-1		EP300					TAF11 THRAP3						
Glucocorticoid Receptor Signaling	EGA3-2							HSP90B1 SMARCE1			PTGS2			
PPAR Signaling	EGA3-2							HSP90B1			PTGS2			
Oxidative Phosphorylation	EGA3-1							NDUFA4 NDUFB5	ATP5A1 ATP5H ATP5O NDUFA4 NDUFB4					
TCA Cycle II (Eukaryotic)	EGA3-1							MDH2 SUCLA2 SUCLG1	MDH2 SUCLA2					
Folate Polyglutamylation	EGA3-1							MTHFD1			SHMT1			
Folate Transformations I	EGA3-1							MTHFD1			SHMT1			
Acetyl-CoA Biosynthesis III (from Citrate)	EGA3-1							ACLY		ACLY				
Trans trans-farnesyl Diphosphate Biosynthesis	EGA4-3								IDI1	IDI1				

Mevalonate Pathway I	EGA4-3								IDI1	IDI1						
Superpathway of Geranylgeranyl diphosphate Biosynthesis I (via Mevalonate)	EGA4-3								IDI1	IDI1						
Role of JAK1 JAK2 and TYK2 in Interferon Signaling	EGA4-1											NFKB1	NFKB1			
Signaling by Rho Family GTPases	M-1		MYLK									ITGA5				
Th2 Pathway	M-1	CD86										CHD4 JAG1 PSEN1			JAG1	
TGF-β Signaling	M-1	BMP4 BMPR1A RUNX2										SMAD2 SMAD3			BMP4 SMURF1	
D-myo-inositol-5-phosphate Metabolism	M-1		PPFIA2			PPFIA2									MTMR2	
VDR/RXR Activation	M-1	RUNX2										IGFBP3 IGFBP5			NCOR2	
3-phosphoinositide Degradation	M-1		PPFIA2			PPFIA2									MTMR2	
Huntington's Disease Signaling	EGA2-1				APAF1 EP300			BAX	ARFIP2 PTPN11 SGK1							
Pyrimidine Deoxyribonucleotides De Novo Biosynthesis I	EGA2-1			DTYMK					RRM1	RRM1						
Huntington's Disease Signaling	EGA2-2								HSPA5 HSPA8		HSPA5 HSPA8			HSPA5		
Phagosome Maturation	EGA2-2									CTSV				CTSV	LAMP1	
Mitochondrial Dysfunction	EGA3-1								CPT1B NDUFA4 NDUFB5 PINK1	ATP5A1 ATP5H ATP5O CPT1B NDUFA4 NDUFB4		GPD2 PINK1				
Mitochondrial L-carnitine Shuttle Pathway	EGA3-1								CPT1B CPT2	ACSL4 CPT1B CPT2		ACSL4 CPT2				
PCP pathway	EGA4-1		WNT7A	WNT7A								FZD4				
Hepatic Fibrosis / Hepatic Stellate Cell Activation	EGA4-2											COL4A1 FN1	FN1			FN1
Zymosterol Biosynthesis	EGA4-1								CYP51A1	CYP51A1 MSMO1					CYP51A1	
Superpathway of Cholesterol Biosynthesis	EGA4-1								CYP51A1	CYP51A1 HMGCS1 MSMO1					CYP51A1	
Cholesterol Biosynthesis I	EGA4-1								CYP51A1	CYP51A1 MSMO1					CYP51A1	
Cholesterol Biosynthesis II (via 24 25-dihydrolanosterol)	EGA4-1								CYP51A1	CYP51A1 MSMO1					CYP51A1	

Cholesterol Biosynthesis III (via Desmosterol)	EGA4-1									CYP51A1	CYP51A1 MSMO1						CYP51A1	
Atherosclerosis Signaling	EGA4-1									APOA1				NFKB1	NFKB1			
IL-15 Production	EGA4-1									PTK7				NFKB1	NFKB1			
LPS/IL-1 Mediated Inhibition of RXR Function	EGA3-1									ACOX1 ACOX2 CPT1B CPT2 XPO1	ACSL4 CPT1B CPT2 TNFRSF1A			ACSL4 CPT2 IL1A		ACOX1		
ILK Signaling	EGA3-1									FLNA	CFL1 TNFRSF1A			PPP2R5A				FLNA
Agranulocyte Adhesion and Diapedesis	EGA3-1							MSN			TNFRSF1A			CLDN4 IL1A				SDC4
Basal Cell Carcinoma Signaling	EGA4-1		WNT7A		BMP2 WNT7A					TCF7L2				FZD4				
Role of Wnt/GSK-3β Signaling in the Pathogenesis of Influenza	EGA4-1		WNT7A		WNT7A					TCF7L2				FZD4				
GADD45 Signaling	M-3		BRCA1 PCNA			BRCA1	BRCA1 PCNA							PCNA				PCNA
Wnt/β-catenin Signaling	EGA1-1	CCND1	CCND1 MYC	CCND1 MYC	CCND1 MYC					CCND1 CSNK2A1 MYC								
Estrogen-mediated S-phase Entry	EGA1-1	CCND1	CCNA1 CCND1 MYC	CCND1 MYC	CCND1 MYC					CCND1 MYC								
mTOR Signaling	EGA2-1						EIF3H RPS14 RPS3 RPS5 RPS9	RPS6		EIF4G1 PLD2 PRKAB2 PTPN11 RPS25 RPS6	INSR		RPS6					
mTOR Signaling	EGA2-2						RPS10 RPS8	RPS6		RPS20 RPS6	RPS16		HMOX1 RPS6 RPS7					
Colorectal Cancer Metastasis Signaling	EGA4-1		WNT7A		WNT7A					TCF7L2				FZD4 NFKB1	NFKB1			
LXR/RXR Activation	EGA4-1									APOA1 CYP51A1 VTN	CYP51A1			NFKB1	NFKB1		CYP51A1	
Hepatic Fibrosis / Hepatic Stellate Cell Activation	EGA4-1									IGF1	IGF1			NFKB1	NFKB1	IGF1		
Osteoarthritis Pathway	EGA4-1		SPP1		BMP2 SPP1					SPP1 TCF7L2 TIMP3		SPP1		FZD4 NFKB1 TIMP3	NFKB1 TIMP3		SPP1	
Role of Osteoblasts Osteoclasts and Chondrocytes in Rheumatoid Arthritis	EGA4-1		SPP1 WNT7A		BMP2 SPP1 WNT7A					IGF1 SPP1 TCF7L2	IGF1	SPP1		FZD4 NFKB1	NFKB1	IGF1	SPP1	
Actin Cytoskeleton Signaling	M-1	TIAM1	MYLK TIAM1											ITGA5 PFN2				
Synaptic Long Term Depression	M-1													IGF1R				