

Table S32 - IPA maternal upstream regulators targets in affected sub-group canonical pathways

Pathways	Sub-Group	Upstream Regulators				
		PRKCE	JAG1	PSEN1	ESR2	NFKBIA
Signaling by Rho Family GTPases	M-1			GNAO1 GNG2 PAK1		
GPCR-Mediated Nutrient Sensing in Enteroendocrine Cells	M-1			GNG2		
Synaptic Long Term Depression	M-2	PRKCE PRKD1				
Sperm Motility	M-2	PRKCE PRKD1				
PAK Signaling	M-1			PAK1		
Sperm Motility	M-1			PAFAH1B2		
Antioxidant Action of Vitamin C	M-2					NFKBIA
Synaptic Long Term Potentiation	M-2	PRKCE PRKD1				
Dopamine-DARPP32 Feedback in cAMP Signaling	M-1			GRIN2A GRIN2B NOS1		
Melatonin Signaling	M-2	PRKCE PRKD1				
Opioid Signaling Pathway	M-3				CACNA1D MAPK4	
Androgen Signaling	M-3				CACNA1D	
STAT3 Pathway	M-2	STAT3				
ERK/MAPK Signaling	M-3				PPP1R3C	
Dopamine-DARPP32 Feedback in cAMP Signaling	M-3				CACNA1D PPP1R3C	
Netrin Signaling	M-1			RYR2 RYR3		
Pyridoxal 5'-phosphate Salvage Pathway	M-1			DYRK1A PAK1		
Superpathway of Citrulline Metabolism	M-1			NOS1		
nNOS Signaling in Skeletal Muscle Cells	M-1			NOS1 RYR2 RYR3		
Phospholipases	M-1			PAFAH1B2		
Cellular Effects of Sildenafil (Viagra)	M-1				MYH3	
nNOS Signaling in Neurons	M-2	PRKCE PRKD1				
Factors Promoting Cardiogenesis in Vertebrates	M-2	PRKCE PRKD1				
4-1BB Signaling in T Lymphocytes	M-2					NFKBIA
Netrin Signaling	M-3				CACNA1D	
FcγRIIB Signaling in B Lymphocytes	M-3				CACNA1D	
nNOS Signaling in Skeletal Muscle Cells	M-3				CACNA1D	
VDR/RXR Activation	M-3				MXD1	
Maturity Onset Diabetes of Young (MODY) Signaling	M-3				CACNA1D	
Dopamine Receptor Signaling	M-3				PPP1R3C PRL	
Role of JAK2 in Hormone-like Cytokine Signaling	M-3				PRL	
PKCθ Signaling in T Lymphocytes	M-3				CACNA1D	
CCR5 Signaling in Macrophages	M-3				CACNA1D	
GABA Receptor Signaling	M-3				CACNA1D	
mTOR Signaling	EGA2-2					HMOX1 RPSA
Heme Degradation	EGA2-2					HMOX1
Trehalose Degradation II (Trehalase)	EGA2-2					HK2
Creatine-phosphate Biosynthesis	EGA2-2			CKB		
The Visual Cycle	EGA3-4				RDH10	
Retinoate Biosynthesis I	EGA3-4				RDH10	
Retinol Biosynthesis	EGA3-4				RDH10	
Basal Cell Carcinoma Signaling	EGA4-1					BMP2
Thyroid Hormone Biosynthesis	EGA4-2				CTSD	

Calcium Signaling	M-1			GRIN2A GRIN2B RYR2 RZR3		MYH3 TPM1	
RhoGDI Signaling	M-1			GDI2 GNAO1 GNG2 PAK1		ESR2	
TGF-β Signaling	M-1		RUNX2			BMP4 RUNX2	
D-myo-inositol-5-phosphate Metabolism	M-1		DUSP10 DUSP8			DUSP10	
VDR/RXR Activation	M-1		RUNX2			IGFBP3 MXD1 RUNX2	
3-phosphoinositide Degradation	M-1		DUSP10 DUSP8			DUSP10	
IL-10 Signaling	M-2	STAT3					IL10 NFKBIA
Th1 and Th2 Activation Pathway	M-2	IL2RB STAT3					IL10
Wnt/β-catenin Signaling	EGA1-1	CCND1 MYC	CCND1 MYC				
Estrogen-mediated S-phase Entry	EGA1-1	CCND1 MYC	CCND1 MYC				
Huntington's Disease Signaling	EGA2-2			HSPA5 HSPA8			HSPA5 HSPA8
Cell Cycle: G2/M DNA Damage Checkpoint Regulation	EGA2-2			YWHAZ			YWHAZ
Phagosome Maturation	EGA2-2			ATP6V1A			ATP6V1B1
Colorectal Cancer Metastasis Signaling	EGA4-1	NFKB1					NFKB1
LXR/RXR Activation	EGA4-1	NFKB1					APOA1 NFKB1
Atherosclerosis Signaling	EGA4-1	NFKB1					APOA1 COL1A2 NFKB1
Hepatic Fibrosis / Hepatic Stellate Cell Activation	EGA4-1	NFKB1					COL1A2 NFKB1
Role of JAK1 JAK2 and TYK2 in Interferon Signaling	EGA4-1	NFKB1					NFKB1
IL-15 Production	EGA4-1	NFKB1					NFKB1
Th2 Pathway	M-1		CD86	PSEN1 PSEN2		JAG1	
Notch Signaling	M-1		HEY2	DLL3 PSEN1 PSEN2 RBPJ		JAG1	
Osteoarthritis Pathway	EGA4-1	NFKB1	SPP1				BMP2 NFKB1 TIMP3
Role of Osteoblasts Osteoclasts and Chondrocytes in Rheumatoid Arthritis	EGA4-1	NFKB1	SPP1				BMP2 NFKB1
Actin Cytoskeleton Signaling	M-1			PAK1		MYH3 VAV3	
Synaptic Long Term Depression	M-1			GNAO1 NOS1 PAFAH1B2 RYR2 RYR3		IGF1R	