Scatterplot of all genes



Rank-rank plot of all genes



Rank in contrast KO

number of genes in each quadrant







geneset size

number of genesets FDR<0.05





Scatterplot of all gene sets; FDR<0.05 in red

0.5 0.0 s.drug -0.5 -0.5 0.0 0.5

Scatterplot of all gene sets; top 52 in red



Peptide chain elongation **Eukaryotic Translation Elongation** Response of EIF2AK4 (GCN2) to amino acid deficiency Formation of a pool of free 40S subunits Respiratory electron transport Cap-dependent Translation Initiation Selenoamino acid metabolism Nonsense Mediated Decay (NMD) enhanced by the Exon Junction Complex (EJC Regulation of expression of SLITs and ROBOs Mitochondrial iron-sulfur cluster biogenesis L13a-mediated translational silencing of Ceruloplasmin expression Major pathway of rRNA processing in the nucleolus and cytosol ATF4 activates genes in response to endoplasmic reticulum stress Activation of the mRNA upon binding of the cap-binding complex and eIFs, and s SLBP independent Processing of Histone Pre-mRNAs Mucopolysaccharidoses Laminin interactions Non-integrin membrane-ECM interactions HS-GAG degradation Reduction of cytosolic Ca++ levels A tetrasaccharide linker sequence is required for GAG synthesis Regulation of localization of FOXO transcription factors **PKA** activation Defective EXT1 causes exostoses 1, TRPS2 and CHDS Other semaphorin interactions Defective B3GAT3 causes JDSSDHD

effect size versus statistical significance



s.dist (effect size)

Peptide chain elongation



Rank in contrast KO

Peptide chain elongation



Peptide chain elongation



Viral mRNA Translation



Viral mRNA Translation



Viral mRNA Translation



Formation of a pool of free 40S subunits



Formation of a pool of free 40S subunits



Formation of a pool of free 40S subunits



Eukaryotic Translation Termination



Eukaryotic Translation Termination



Eukaryotic Translation Termination



Eukaryotic Translation Elongation



Eukaryotic Translation Elongation



Eukaryotic Translation Elongation



Defective EXT1 causes exostoses 1, TRPS2 and CHDS



Rank in contrast KO

Defective EXT1 causes exostoses 1, TRPS2 and CHDS



Rank in contrast KO

Rank in contrast drug

Defective EXT1 causes exostoses 1, TRPS2 and



Defective EXT2 causes exostoses 2



Rank in contrast KO

Defective EXT2 causes exostoses 2



Rank in contrast KO

Rank in contrast drug

Defective EXT2 causes exostoses 2



Laminin interactions



Rank in contrast KO



Rank in contrast KO

Laminin interactions

Laminin interactions



Response of EIF2AK4 (GCN2) to amino acid deficiency



Response of EIF2AK4 (GCN2) to amino acid deficiency



Rank in contrast KO

Rank in contrast drug

Response of EIF2AK4 (GCN2) to amino acid def


se Mediated Decay (NMD) independent of the Exon Junction (





onsense Mediated Decay (NMD) independent of the Exon Junction Complex

Nonsense Mediated Decay (NMD) independent of



Selenocysteine synthesis



Selenocysteine synthesis



Selenocysteine synthesis



ormation of the ternary complex, and subsequently, the 43S c



Formation of the ternary complex, and subsequently, the 43S complex



Formation of the ternary complex, and subseque



Syndecan interactions



Syndecan interactions



Syndecan interactions



Mucopolysaccharidoses



Rank in contrast KO

Mucopolysaccharidoses



Rank in contrast KO

Rank in contrast drug

Mucopolysaccharidoses



Defective B4GALT7 causes EDS, progeroid type



Defective B4GALT7 causes EDS, progeroid type



Rank in contrast KO

Rank in contrast drug

Defective B4GALT7 causes EDS, progeroid type



L13a–mediated translational silencing of Ceruloplasmin expr



L13a-mediated translational silencing of Ceruloplasmin expression



L13a-mediated translational silencing of Cerulop



GTP hydrolysis and joining of the 60S ribosomal subun



Rank in contrast KO

GTP hydrolysis and joining of the 60S ribosomal subunit



GTP hydrolysis and joining of the 60S ribosomal



Defective B3GAT3 causes JDSSDHD



Defective B3GAT3 causes JDSSDHD



Rank in contrast KO

Rank in contrast drug

Defective B3GAT3 causes JDSSDHD



Other semaphorin interactions



Other semaphorin interactions



Rank in contrast KO

Rank in contrast drug

Other semaphorin interactions



Defective B3GALT6 causes EDSP2 and SEMDJL1



Defective B3GALT6 causes EDSP2 and SEMDJL1



Rank in contrast KO

Rank in contrast drug

Defective B3GALT6 causes EDSP2 and SEMDJI



Cap-dependent Translation Initiation



Rank in contrast KO

Cap-dependent Translation Initiation



Cap-dependent Translation Initiation


Eukaryotic Translation Initiation



Eukaryotic Translation Initiation



Rank in contrast KO

Eukaryotic Translation Initiation



SRP-dependent cotranslational protein targeting to memb



SRP-dependent cotranslational protein targeting to membrane



SRP-dependent cotranslational protein targeting



Reduction of cytosolic Ca++ levels



Rank in contrast KO

Reduction of cytosolic Ca++ levels



Rank in contrast KO

Reduction of cytosolic Ca++ levels



Non-integrin membrane-ECM interactions



Rank in contrast KO



Non-integrin membrane-ECM interactions

Rank in contrast KO

Non-integrin membrane-ECM interactions



MET activates **PTK2** signaling



Rank in contrast KO



MET activates PTK2 signaling

Rank in contrast KO

MET activates PTK2 signaling



NA upon binding of the cap-binding complex and elFs, and :





the mRNA upon binding of the cap-binding complex and eIFs, and subseque

Activation of the mRNA upon binding of the cap-



Mitochondrial iron-sulfur cluster biogenesis



Mitochondrial iron-sulfur cluster biogenesis



Rank in contrast KO

Mitochondrial iron-sulfur cluster biogenesis



Translation initiation complex formation



Translation initiation complex formation



Translation initiation complex formation



The activation of arylsulfatases



10000 5000 0 -5000 -10000 -10000 -5000 5000 10000 0

The activation of arylsulfatases

Rank in contrast KO

The activation of arylsulfatases



HS-GAG degradation



Rank in contrast KO

HS-GAG degradation



Rank in contrast KO

HS-GAG degradation



Ribosomal scanning and start codon recognition



Ribosomal scanning and start codon recognition



Ribosomal scanning and start codon recognition



Major pathway of rRNA processing in the nucleolus and cyt



Major pathway of rRNA processing in the nucleolus and cytosol



Major pathway of rRNA processing in the nucleol




rRNA processing in the nucleus and cytosol

rRNA processing in the nucleus and cytosol



Rank in contrast KO

Rank in contrast drug

rRNA processing in the nucleus and cytosol



Selenoamino acid metabolism



Selenoamino acid metabolism



Selenoamino acid metabolism



nse Mediated Decay (NMD) enhanced by the Exon Junction C





Nonsense Mediated Decay (NMD) enhanced by the Exon Junction Complex (

Rank in contrast KO

Nonsense Mediated Decay (NMD) enhanced by



Nonsense-Mediated Decay (NMD)



Nonsense-Mediated Decay (NMD)



Nonsense-Mediated Decay (NMD)



Complex I biogenesis



Rank in contrast KO

Complex I biogenesis



Complex I biogenesis



Biotin transport and metabolism



Biotin transport and metabolism



Rank in contrast KO

Rank in contrast drug

Biotin transport and metabolism



rRNA processing



rRNA processing



Rank in contrast KO

Rank in contrast drug

rRNA processing



ATF4 activates genes in response to endoplasmic reticulum



Rank in contrast KO

ATF4 activates genes in response to endoplasmic reticulum stress



Rank in contrast KO

Rank in contrast drug

ATF4 activates genes in response to endoplasmi





P Dependent Processing of Replication–Dependent Histone F



SLBP Dependent Processing of Replication–Dependent Histone Pre–mRN

SLBP Dependent Processing of Replication-Dep



SLBP independent Processing of Histone Pre-mRNAs



SLBP independent Processing of Histone Pre-mRNAs



SLBP independent Processing of Histone Pre-m



Regulation of expression of SLITs and ROBOs



Regulation of expression of SLITs and ROBOs



Rank in contrast KO

Rank in contrast drug

Regulation of expression of SLITs and ROBOs





CREB1 phosphorylation through the activation of Adenylate (

CREB1 phosphorylation through the activation of Adenylate Cyclase



CREB1 phosphorylation through the activation of




A tetrasaccharide linker sequence is required for GAG syntl



A tetrasaccharide linker sequence is required for GAG synthesis

Rank in contrast KO

Rank in contrast drug

A tetrasaccharide linker sequence is required for







Rank in contrast KO

Influenza Viral RNA Transcription and Replication



Influenza Viral RNA Transcription and Replication



Chondroitin sulfate biosynthesis



Chondroitin sulfate biosynthesis



Rank in contrast KO

Rank in contrast drug

Chondroitin sulfate biosynthesis



PKA activation



PKA activation



PKA activation



Diseases associated with glycosaminoglycan metabolis



Diseases associated with glycosaminoglycan metabolism



Diseases associated with glycosaminoglycan me



Respiratory electron transport



Respiratory electron transport



Respiratory electron transport



Regulation of localization of FOXO transcription factors



Regulation of localization of FOXO transcription factors



Rank in contrast KO

Rank in contrast drug

Regulation of localization of FOXO transcription f

