Treatment CLK1 Exon 4 Morpholino Non-targeting Morpholino **GSVA Scores** -1 -0.5 0 0.5 1 Treatment OLFACTORY TRANSDUCTION
NEUROACTIVE LIGAND RECEPTOR INTERACTION
CYTOKINE CYTOKINE RECEPTOR INTERACTION
NON HOMOLOGOUS END JOINING CIRCADIAN RHYTHM MAMMAL PROTEIN EXPORT GLYCOSAMINOGLYCAN DEGRADATION N GLYCAN BIOSYNTHESIS GLYCOSYLPHOSPHATIDYLINOSITOL GPI ANCHOR BIOSYNTHESIS STEROID BIOSYNTHESIS GLYCOSAMINOGLYCAN BIOSYNTHESIS CHONDROITIN SULFATE EPITHELIAL CELL SIGNALING IN HELICOBACTER PYLORI INFECTION RIBOSOME RIBOSOME
RIBOFLAVIN METABOLISM
GLYCINE SERINE AND THREONINE METABOLISM
RENIN ANGIOTENSIN SYSTEM
PENTOSE PHOSPHATE PATHWAY
ARGININE AND PROLINE METABOLISM PHOSPHATIDYLINOSITOL SIGNALING SYSTEM BASAL CELL CARCINOMA
HEDGEHOG SIGNALING PATHWAY
GLUTATHIONE METABOLISM
PRIMARY BILE ACID BIOSYNTHESIS SULFUR METABOLISM MATURITY ONSET DIABETES OF THE YOUNG LINOLEIC ACID METABOLISM RETINOL METABOLISM ARACHIDONIC ACID METABOLISM TAURINE AND HYPOTAURINE METABOLISM NITROGEN METABOLISM CALCIUM SIGNALING PATHWAY ETHER LIPID METABOLISM BETA ALANINE METABOLISM
DRUG METABOLISM OTHER ENZYMES
GLYCOSPHINGOLIPID BIOSYNTHESIS LACTO AND NEOLACTO SERIES
METABOLISM OF XENOBIOTICS BY CYTOCHROME P450
ASCORBATE AND ALDARATE METABOLISM
PENTOSE AND GLUCURONATE INTERCONVERSIONS
DRUG METABOLISM CYTOCHROME P450 DRUG METABOLISM CYTOCHROME P450
STARCH AND SUCROSE METABOLISM
STEROID HORMONE BIOSYNTHESIS
COMPLEMENT AND COAGULATION CASCADES
TERPENOID BACKBONE BIOSYNTHESIS LIMONENE AND PINENE DEGRADATION
CITRATE CYCLE TCA CYCLE
VALINE LEUCINE AND ISOLEUCINE DEGRADATION
REGULATION OF AUTOPHAGY
GLYCOSAMINOGLYCAN BIOSYNTHESIS KERATAN SULFATE RENAL CELL CARCINOMA FRUCTOSE AND MANNOSE METABOLISM
AMINO SUGAR AND NUCLEOTIDE SUGAR METABOLISM
GLYCOSAMINOGLYCAN BIOSYNTHESIS HEPARAN SULFATE
GLYOXYNATE AND DICATBOAYDATE TABBOLISM NICOTINATE AND NICOTINAMIDE METABOLISM UBIQUITIN MEDIATED PROTEOLYSIS **CELL CYCLE** VASOPRESSIN REGULATED WATER REABSORPTION OOCYTE MEIOSIS CHRONIC MYELOID LEUKEMIA SELENOAMINO ACIDATUMAN ERBB SIGNALING PATHWAY REGULATION OF ACTIN CYTOSKELETON FC GAMMA R MEDIATED PHAGOCYTOSIS P53 SIGNALING PATHWAY LEUKOCYTE TRANSENDOTHELIAL MIGRATION PATHWAYS IN CANCER VEGF SIGNALING PATHWAY TRYPTOPHAN METABOLISM HISTIDINE METABOLISM ALANINE ASPARTATE AND GLUTAMATE METABOLISM GLYCOLYSIS GLUCONEOGENESIS PORPHYRIN AND CHLOROPHYLL METABOLISM PROPANOATE METABOLISM **BUTANOATE METABOLISM** PYRUVATE METABOLISM ALDOSTERONE REGULATED SODIUM REABSORPTION GLYCOSPHINGOLIPID BIOSYNTHESIS GLOBO SERIES **MELANOGENESIS GNRH SIGNALING PATHWAY** COLORECTAL CANCER LONG TERM DEPRESSION BASE EXCISION REPAIR FATTY ACID METABOLISM SNARE INTERACTIONS IN VESICULAR TRANSPORT BIOSYNTHESIS OF UNSATURATED FATTY ACIDS DNA REPLICATION INOSITOL PHOSPHATE METABOLISM
CARDIAC MUSCLE CONTRACTION
TYROSINE METABOLISM
ARRHYTHMOGENIC RIGHT VENTRICULAR CARDIOMYOPATHY ARVC **AXON GUIDANCE** TGF BETA SIGNALING PATHWAY DILATED CARDIOMYOPATHY PHENYLALANINE METABOLISM PARKINSONS DISEASE HUNTINGTONS DISEASE ALZHEIMERS DISEASE PPAR SIGNALING PATHWAY PROXIMAL TUBULE BICARBONATE RECLAMATION NEUROTROPHIN SIGNALING PATHWAY **GLIOMA ENDOMETRIAL CANCER PEROXISOME** CYSTEINE AND METHIONINE METABOLISM PANCREATIC CANCER MTOR SIGNALING PATHWAY PROSTATE CANCER ACUTE MYELOID LEUKEMIA PROGESTERONE MEDIATED OOCYTE MATURATION MISMATCH REPAIR PANTOTHENATE AND COA BIOSYNTHESIS LONG TERM POTENTIATION PURINE METABOLISM GAP JUNCTION PYRIMIDINE METABOLISM ADHERENS JUNCTION LYSINE DEGRADATION NUCLEOTIDE EXCISION REPAIR INSULIN SIGNALING PATHWAY ONE CARBON POOL BY FOLATE ALPHA LINOLENIC ACID METABOLISM JAK STAT SIGNALING PATHWAY VASCULAR SMOOTH MUSCLE CONTRACTION **MELANOMA** CHEMOKINE SIGNALING PATHWAY WNT SIGNALING PATHWAY HOMOLOGOUS RECOMBINATION FOLATE BIOSYNTHESIS O GLYCAN BIOSYNTHESIS CYTOSOLIC DNA SENSING PATHWAY
NOD LIKE RECEPTOR SIGNALING PATHWAY
HEMATOPOIETIC CELL LINEAGE
ECM RECEPTOR INTERACTION
TYPE II DIABETES MELLITUS AMYOTROPHIC LATERAL SCLEROSIS ALS GLYCEROPHOSPHOLIPID METABOLISM GLYCEROLIPID METABOLISM PRION DISEASES RNA POLYMERASE ENDOCYTOSIS ABC TRANSPORTERS **BLADDER CANCER** TOLL LIKE RECEPTOR SIGNALING PATHWAY FOCAL ADHESION
HYPERTROPHIC CARDIOMYOPATHY HCM
MAPK SIGNALING PATHWAY PATHOGENIC ESCHERICHIA COLI INFECTION LYSOSOME APOPTOSIS SMALL CELL LUNG CANCER NON SMALL CELL LUNG CANCER GALACTOSE METABOLISM **TIGHT JUNCTION** T CELL RECEPTOR SIGNALING PATHWAY B CELL RECEPTOR SIGNALING PATHWAY FC EPSILON RI SIGNALING PATHWAY RIG I LIKE RECEPTOR SIGNALING PATHWAY OXIDATIVE PHOSPHORYLATION NOTCH SIGNALING PATHWAY VIBRIO CHOLERAE INFECTION **SPLICEOSOME** AMINOACYL TRNA BIOSYNTHESIS BASAL TRANSCRIPTION FACTORS RNA DEGRADATION **PROTEASOME** THYROID CANCER ADIPOCYTOKINE SIGNALING PATHWAY SPHINGOLIPID METABOLISM DORSO VENTRAL AXIS FORMATION GLYCOSPHINGOLIPID BIOSYNTHESIS GANGLIO SERIES PRIMARY IMMUNODEFICIENCY OTHER GLYCAN DEGRADATION VALINE LEUCINE AND ISOLEUCINE BIOSYNTHESIS TASTE TRANSDUCTION
CELL ADHESION MOLECULES CAMS
NATURAL KILLER CELL MEDIATED CYTOTOXICITY SYSTEMIC LUPUS ERYTHEMATOSUS LEISHMANIA INFECTION INTESTINAL IMMUNE NETWORK FOR IGA PRODUCTION VIRAL MYOCARDITIS AUTOIMMUNE THYROID DISEASE ANTIGEN PROCESSING AND PRESENTATION **ASTHMA** TYPE I DIABETES MELLITUS ALLOGRAFT REJECTION

GRAFT VERSUS HOST DISEASE

0.5

-0.5

Mean GSVA score

Treatment