

Supplementary Table 1.
Deepcell-derived morphometrics features distinguishing MES and MEL
states.

	Importance MES/MEL
STANDARD_DEVIATION	7.03
LBP_CENTER_10	6.39
SOLIDITY	6.26
LBP_CENTER_07	4.76
HU_MOMENT_01	4.67
ROUDNESS	4.42
LARGE_BLACK_BLOB_INTEGRAL	4.01
LBP_CENTER_06	3.91
POSITIVE_FRACTION	3.5
PERCENTILE_25	2.47
ELLIPSE_VARIANCE	2.44
PERIMETER	2.36
LBP_CENTER_08	2.14
CIRCULARITY	2.12
LBP_CENTER_03	2.06
LBP_CENTER_01	2.04
MAX_FERET	2.03
NEGATIVE_FRACTION	1.88
MAX_RADIUS	1.85
LONG_AXIS	1.81
LBP_CENTER_04	1.78

Supplementary Table 2.
PCAs and related pathways

path	PCs	rho	pvalue	p,adjust	significant
Wouters_MES	PC_1	8,705E-01	1,364E-132	4,705E-129	TRUE
SEMI_9PROvs2SEMI	PC_1	8,620E-01	3,401E-127	5,866E-124	TRUE
Wouters_INT	PC_1	8,407E-01	5,385E-115	3,629E-112	TRUE
JEFFS_INV	PC_1	8,405E-01	6,312E-115	3,629E-112	TRUE
RIESENBERG_MELANOMA_TNF_RESPONSE_GODING	PC_1	8,288E-01	5,820E-109	2,869E-106	TRUE
AP1_targets	PC_1	8,273E-01	2,915E-108	1,117E-105	TRUE
HOEK_INV	PC_1	8,051E-01	3,305E-98	1,140E-95	TRUE
hugo_IPRES	PC_1	7,986E-01	1,506E-95	4,329E-93	TRUE
Pozniak_Neural_crest_like	PC_1	7,976E-01	4,033E-95	1,070E-92	TRUE
TEAD_targets	PC_1	7,956E-01	2,615E-94	6,443E-92	TRUE
XU_INV	PC_1	7,905E-01	2,656E-92	6,110E-90	TRUE
Pozniak_Mesenchymal	PC_1	7,842E-01	6,316E-90	1,282E-87	TRUE
PH_BLOOD_VESS_DEVEL_DN_IN_R	PC_1	7,840E-01	8,134E-90	1,559E-87	TRUE
MAPKi_INDUCED_ANGIOGENESIS	PC_1	7,805E-01	1,536E-88	2,650E-86	TRUE
VERF_INV	PC_1	7,804E-01	1,684E-88	2,766E-86	TRUE
AXL_SIGNATURE_GODING	PC_1	7,679E-01	4,819E-84	7,557E-82	TRUE
WU_CELL_MIGRATION	PC_1	7,637E-01	1,338E-82	2,007E-80	TRUE
rambow_neuro	PC_1	7,559E-01	5,209E-80	7,487E-78	TRUE
HALLMARK_EPITHELIAL_MESENCHYMAL_TRANSITION	PC_1	7,555E-01	6,743E-80	9,305E-78	TRUE
KEGG_COMPLEMENT_AND_COAGULATION_CASCADES	PC_1	7,449E-01	1,520E-76	1,942E-74	TRUE
ROY_WOUND_BLOOD_VESSEL_UP	PC_1	7,365E-01	5,537E-74	6,162E-72	TRUE
HALLMARK_APICAL_JUNCTION	PC_1	7,346E-01	1,932E-73	2,083E-71	TRUE
KEGG_ECM_RECEPTOR_INTERACTION	PC_1	7,345E-01	2,104E-73	2,199E-71	TRUE
HALLMARK_APOPTOSIS	PC_1	7,265E-01	4,268E-71	4,207E-69	TRUE
LEF1_UP.V1_UP	PC_1	7,217E-01	1,004E-69	9,618E-68	TRUE
HALLMARK_COAGULATION	PC_1	7,178E-01	1,174E-68	1,095E-66	TRUE
HALLMARK_ANGIOGENESIS	PC_1	6,916E-01	6,788E-62	5,712E-60	TRUE
HALLMARK_HEDGEHOG_SIGNALING	PC_1	6,867E-01	1,038E-60	8,330E-59	TRUE

HALLMARK_HYPOXIA	PC_1	6,801E-01	3,899E-59	2,924E-57	TRUE
HALLMARK_TNFA_SIGNALING_VIA_NFKB	PC_1	6,766E-01	2,567E-58	1,884E-56	TRUE
KARAKAS_TGFB1_SIGNALING	PC_1	6,723E-01	2,424E-57	1,742E-55	TRUE
KEGG_CELL_ADHESION_MOLECULES_CAMS	PC_1	6,719E-01	3,029E-57	2,132E-55	TRUE
HALLMARK_IL2_STAT5_SIGNALING	PC_1	6,623E-01	4,083E-55	2,709E-53	TRUE
Pozniak_Antigen_presenting	PC_1	6,613E-01	6,577E-55	4,281E-53	TRUE
raj_resistance	PC_1	6,594E-01	1,687E-54	1,078E-52	TRUE
rambow_invasion	PC_1	6,534E-01	3,250E-53	2,039E-51	TRUE
MISHRA_CARCINOMA_ASSOCIATED_FIBROBLAST_UP	PC_1	6,500E-01	1,645E-52	1,014E-50	TRUE
ANASTASSIOU_CANCER_MESENCHYMAL_TRANSITION_SIGNATURE	PC_1	6,493E-01	2,389E-52	1,446E-50	TRUE
HALLMARK_MYOGENESIS	PC_1	6,403E-01	1,622E-50	9,484E-49	TRUE
KEGG_REGULATION_OF_ACTIN_CYTOSKELETON	PC_1	6,398E-01	1,983E-50	1,140E-48	TRUE
POST_OP_WOUNDHEALING	PC_1	6,363E-01	9,899E-50	5,598E-48	TRUE
GO_CELLULAR_EXTRAVASATION	PC_1	6,327E-01	5,078E-49	2,825E-47	TRUE
HALLMARK_INTERFERON_GAMMA_RESPONSE	PC_1	6,297E-01	1,907E-48	1,028E-46	TRUE
LU_TUMOR_ANGIOGENESIS_UP	PC_1	6,291E-01	2,513E-48	1,334E-46	TRUE
HALLMARK_P53_PATHWAY	PC_1	6,208E-01	9,382E-47	4,831E-45	TRUE
WINNEPENNINCKX_MELANOMA_METASTASIS_DN	PC_1	6,131E-01	2,500E-45	1,215E-43	TRUE
HALLMARK_INTERFERON_ALPHA_RESPONSE	PC_1	6,037E-01	1,167E-43	5,514E-42	TRUE
LEE_NEURAL_CREST_STEM_CELL_UP	PC_1	6,028E-01	1,674E-43	7,805E-42	TRUE
MINN_INV	PC_1	6,017E-01	2,661E-43	1,224E-41	TRUE
Surface (MemBrite)	PC_1	5,786E-01	1,981E-39	8,135E-38	TRUE
rambow_immune	PC_1	5,620E-01	7,794E-37	2,891E-35	TRUE
KEGG_FOCAL_ADHESION	PC_1	5,603E-01	1,409E-36	5,170E-35	TRUE
HALLMARK_INFLAMMATORY_RESPONSE	PC_1	5,575E-01	3,676E-36	1,321E-34	TRUE
KEGG_ARRHYTHMOGENIC_RIGHT_VENTRICULAR_CARDIOMYOPATHY_ARVC	PC_1	5,546E-01	9,861E-36	3,471E-34	TRUE
cheng_mesench_top100	PC_1	5,513E-01	3,035E-35	1,037E-33	TRUE
KEGG_HEMATOPOIETIC_CELL_LINEAGE	PC_1	5,456E-01	2,028E-34	6,602E-33	TRUE
GO_AMEBOIDAL_TYPE_CELL_MIGRATION	PC_1	5,424E-01	5,880E-34	1,844E-32	TRUE
SARRIO_EPITHELIAL_MESENCHYMAL_TRANSITION_DN	PC_1	5,318E-01	1,811E-32	5,482E-31	TRUE
LIEN_BREAST_CARCINOMA_METAPLASTIC	PC_1	5,250E-01	1,509E-31	4,449E-30	TRUE
JEON_SMAD6_TARGETS_DN	PC_1	5,086E-01	2,066E-29	5,569E-28	TRUE
KEGG_HYPERTROPHIC_CARDIOMYOPATHY_HCM	PC_1	5,060E-01	4,530E-29	1,158E-27	TRUE

Pozniak_p_spec_A	PC_1	5,042E-01	7,629E-29	1,935E-27	TRUE
VECCHI_GASTRIC_CANCER_ADVANCED_VS_EARLY_UP	PC_1	4,982E-01	4,144E-28	1,014E-26	TRUE
KEGG_LEISHMANIA_INFECTION	PC_1	4,918E-01	2,511E-27	5,775E-26	TRUE
REACTOME_SEMA4D_INDUCED_CELL_MIGRATION_AND_GROWTH_CONE_COLLAPSE	PC_1	4,885E-01	6,308E-27	1,441E-25	TRUE
KEGG_GRAFT_VERSUS_HOST_DISEASE	PC_1	4,813E-01	4,362E-26	9,646E-25	TRUE
GO_POSITIVE_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	PC_1	4,703E-01	7,963E-25	1,616E-23	TRUE
KEGG_LEUKOCYTE_TRANSENDOTHELIAL_MIGRATION	PC_1	4,698E-01	9,067E-25	1,829E-23	TRUE
YE_METASTATIC_LIVER_CANCER	PC_1	4,689E-01	1,121E-24	2,249E-23	TRUE
KEGG_DILATED_CARDIOMYOPATHY	PC_1	4,635E-01	4,499E-24	8,921E-23	TRUE
HALLMARK_COMPLEMENT	PC_1	4,619E-01	6,644E-24	1,310E-22	TRUE
KEGG_ALLOGRAFT_REJECTION	PC_1	4,593E-01	1,287E-23	2,480E-22	TRUE
KEGG_AUTOIMMUNE_THYROID_DISEASE	PC_1	4,593E-01	1,287E-23	2,480E-22	TRUE
KEGG_FOLATE_BIOSYNTHESIS	PC_1	4,501E-01	1,218E-22	2,222E-21	TRUE
KEGG_TOLL_LIKE_RECEPTOR_SIGNALING_PATHWAY	PC_1	4,497E-01	1,359E-22	2,467E-21	TRUE
KEGG_HEDGEHOG_SIGNALING_PATHWAY	PC_1	4,465E-01	2,910E-22	5,070E-21	TRUE
KEGG_TGF_BETA_SIGNALING_PATHWAY	PC_1	4,440E-01	5,202E-22	8,885E-21	TRUE
KEGG_GLYCOSYLPHOSPHATIDYLINOSITOL_GPI_ANCHOR_BIOSYNTHESIS	PC_1	4,427E-01	7,068E-22	1,181E-20	TRUE
HALLMARK_APICAL_SURFACE	PC_1	4,419E-01	8,621E-22	1,430E-20	TRUE
HARRIS_HYPOXIA	PC_1	4,412E-01	1,013E-21	1,672E-20	TRUE
KEGG_ARACHIDONIC_ACID_METABOLISM	PC_1	4,267E-01	2,811E-20	4,368E-19	TRUE
MS_RESP_TO_WOUNDING_UP_IN_MAPKi_aPDL1_NR	PC_1	4,167E-01	2,522E-19	3,767E-18	TRUE
HALLMARK_KRAS_SIGNALING_UP	PC_1	4,139E-01	4,613E-19	6,773E-18	TRUE
HALLMARK_UV_RESPONSE_DN	PC_1	4,117E-01	7,372E-19	1,043E-17	TRUE
KEGG_PRION_DISEASES	PC_1	4,115E-01	7,763E-19	1,093E-17	TRUE
HALLMARK_PROTEIN_SECRETION	PC_1	4,097E-01	1,139E-18	1,591E-17	TRUE
KEGG_NEUROTROPHIN_SIGNALING_PATHWAY	PC_1	4,016E-01	6,126E-18	8,098E-17	TRUE
KEGG_SYSTEMIC_LUPUS_ERYTHEMATOSUS	PC_1	3,998E-01	8,882E-18	1,156E-16	TRUE
KEGG_OLFACTORY_TRANSDUCTION	PC_1	3,997E-01	9,008E-18	1,164E-16	TRUE
KEGG_INTESTINAL_IMMUNE_NETWORK_FOR_IGA_PRODUCTION	PC_1	3,937E-01	3,047E-17	3,781E-16	TRUE
HALLMARK_IL6_JAK_STAT3_SIGNALING	PC_1	3,894E-01	7,152E-17	8,480E-16	TRUE
KEGG_REGULATION_OF_AUTOPHAGY	PC_1	3,788E-01	5,497E-16	6,238E-15	TRUE

KEGG_DRUG_METABOLISM_OTHER_ENZYMES	PC_1	3,769E-01	7,945E-16	8,928E-15	TRUE
WESTON_VEGFA_TARGETS_12HR	PC_1	3,745E-01	1,246E-15	1,378E-14	TRUE
GO_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	PC_1	3,742E-01	1,313E-15	1,447E-14	TRUE
GO_REGULATION_OF_CELL_MIGRATION_INVOLVED_IN_SPROUTING_ANGIOGENESIS	PC_1	3,731E-01	1,627E-15	1,771E-14	TRUE
cheng_lymph_top100	PC_1	3,713E-01	2,280E-15	2,450E-14	TRUE
KEGG_NATURAL_KILLER_CELL_MEDIATED_CYTOTOXICITY	PC_1	3,693E-01	3,296E-15	3,467E-14	TRUE
KEGG_WNT_SIGNALING_PATHWAY	PC_1	3,682E-01	4,013E-15	4,195E-14	TRUE
MAPKi_INDUCED_EMT	PC_1	3,657E-01	6,367E-15	6,499E-14	TRUE
LU_TUMOR_ENDOTHELIAL_MARKERS_UP	PC_1	3,596E-01	1,894E-14	1,861E-13	TRUE
LU_TUMOR_VASCULATURE_UP	PC_1	3,512E-01	8,259E-14	7,701E-13	TRUE
WESTON_VEGFA_TARGETS_6HR	PC_1	3,440E-01	2,811E-13	2,443E-12	TRUE
KEGG_TYPE_II_DIABETES_MELLITUS	PC_1	3,367E-01	9,453E-13	7,655E-12	TRUE
CHARAFE_BREAST_CANCER_BASAL_VS_MESENCHYMAL_DN	PC_1	3,357E-01	1,113E-12	8,846E-12	TRUE
KEGG_NOTCH_SIGNALING_PATHWAY	PC_1	3,268E-01	4,644E-12	3,366E-11	TRUE
KAUFFMANN_DNA_REPAIR_GENES	PC_1	3,264E-01	4,925E-12	3,547E-11	TRUE
MS_RESP_TO_HYPOXIA_UP_IN_MAPKi_aPDL1_NR	PC_1	3,211E-01	1,129E-11	7,773E-11	TRUE
KEGG_ADIPOCYTOKINE_SIGNALING_PATHWAY	PC_1	3,210E-01	1,151E-11	7,909E-11	TRUE
POOLA_INVASIVE_BREAST_CANCER_UP	PC_1	3,209E-01	1,169E-11	8,018E-11	TRUE
KEGG_ASTMHA	PC_1	3,194E-01	1,481E-11	9,979E-11	TRUE
KEGG_RIG_I_LIKE_RECEPTOR_SIGNALING_PATHWAY	PC_1	3,186E-01	1,664E-11	1,113E-10	TRUE
HALLMARK_MITOTIC_SPINDLE	PC_1	3,183E-01	1,733E-11	1,152E-10	TRUE
HALLMARK_ESTROGEN_RESPONSE_EARLY	PC_1	3,144E-01	3,141E-11	2,037E-10	TRUE
HALLMARK_GLYCOLYSIS	PC_1	3,110E-01	5,244E-11	3,350E-10	TRUE
KEGG_AXON_GUIDANCE	PC_1	3,001E-01	2,587E-10	1,529E-09	TRUE
KEGG_SMALL_CELL_LUNG_CANCER	PC_1	2,999E-01	2,669E-10	1,571E-09	TRUE
GO_REGULATION_OF_FIBROBLAST_MIGRATION	PC_1	2,987E-01	3,136E-10	1,828E-09	TRUE
MINN_PRO	PC_1	2,973E-01	3,856E-10	2,217E-09	TRUE
KEGG_PROTEASOME	PC_1	2,925E-01	7,495E-10	4,157E-09	TRUE
KEGG_ETHER_LIPID_METABOLISM	PC_1	2,898E-01	1,093E-09	5,938E-09	TRUE
KEGG_VEGF_SIGNALING_PATHWAY	PC_1	2,896E-01	1,121E-09	6,060E-09	TRUE
raj_drug_response	PC_1	2,896E-01	1,121E-09	6,060E-09	TRUE
KEGG_CIRCADIAN_RHYTHM_MAMMAL	PC_1	2,842E-01	2,329E-09	1,221E-08	TRUE

KEGG_HOMOLOGOUS_RECOMBINATION	PC_1	2,658E-01	2,534E-08	1,175E-07	TRUE
KEGG_HISTIDINE_METABOLISM	PC_1	2,648E-01	2,865E-08	1,320E-07	TRUE
KEGG_ANTIGEN_PROCESSING_AND_PRESENTATION	PC_1	2,627E-01	3,711E-08	1,685E-07	TRUE
VEER_INV	PC_1	2,613E-01	4,426E-08	1,996E-07	TRUE
KEGG_CHEMOKINE_SIGNALING_PATHWAY	PC_1	2,530E-01	1,211E-07	5,124E-07	TRUE
KEGG_PANTOTHENATE_AND_COA_BIOSYNTHESIS	PC_1	2,527E-01	1,252E-07	5,295E-07	TRUE
KEGG_NON_HOMOLOGOUS_END_JOINING	PC_1	2,457E-01	2,802E-07	1,143E-06	TRUE
KEGG_ERBB_SIGNALING_PATHWAY	PC_1	2,433E-01	3,699E-07	1,472E-06	TRUE
HALLMARK_PEROXISOME	PC_1	2,396E-01	5,633E-07	2,186E-06	TRUE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_CHONDROITIN_SULFATE	PC_1	2,383E-01	6,475E-07	2,491E-06	TRUE
HALLMARK_REACTIVE_OXIGEN_SPECIES_PATHWAY	PC_1	2,355E-01	8,831E-07	3,297E-06	TRUE
KEGG_TYPE_I_DIABETES_MELLITUS	PC_1	2,224E-01	3,578E-06	1,223E-05	TRUE
HALLMARK_ALLOGRAFT_REJECTION	PC_1	2,216E-01	3,862E-06	1,313E-05	TRUE
HALLMARK_PI3K_AKT_MTOR_SIGNALING	PC_1	2,210E-01	4,104E-06	1,384E-05	TRUE
HALLMARK_KRAS_SIGNALING_DN	PC_1	2,190E-01	5,073E-06	1,686E-05	TRUE
KEGG_CYTOSOLIC_DNA_SENSING_PATHWAY	PC_1	2,178E-01	5,728E-06	1,889E-05	TRUE
KEGG_DNA_REPLICATION	PC_1	2,147E-01	7,781E-06	2,516E-05	TRUE
KEGG_PRIMARY_IMMUNODEFICIENCY	PC_1	2,131E-01	9,139E-06	2,922E-05	TRUE
KEGG_FC_GAMMA_R_MEDIATED_PHAGOCYTOSIS	PC_1	2,122E-01	1,003E-05	3,190E-05	TRUE
KEGG_NOD_LIKE_RECEPTOR_SIGNALING_PATHWAY	PC_1	2,099E-01	1,252E-05	3,896E-05	TRUE
KEGG_LYSINE_DEGRADATION	PC_1	2,020E-01	2,671E-05	7,796E-05	TRUE
ALONSO_METASTASIS_EMT_DN	PC_1	2,008E-01	2,985E-05	8,646E-05	TRUE
KEGG_O_GLYCAN_BIOSYNTHESIS	PC_1	1,999E-01	3,241E-05	9,333E-05	TRUE
HALLMARK_TGF_BETA_SIGNALING	PC_1	1,987E-01	3,622E-05	1,034E-04	TRUE
KEGG_MISMATCH_REPAIR	PC_1	1,962E-01	4,546E-05	1,269E-04	TRUE
KEGG_VASCULAR_SMOOTH_MUSCLE_CONTRACTION	PC_1	1,942E-01	5,475E-05	1,506E-04	TRUE
KEGG_FATTY_ACID_METABOLISM	PC_1	1,932E-01	5,953E-05	1,624E-04	TRUE
KEGG_STEROID_HORMONE_BIOSYNTHESIS	PC_1	1,897E-01	8,172E-05	2,187E-04	TRUE
KEGG_CELL_CYCLE	PC_1	1,886E-01	8,958E-05	2,376E-04	TRUE
KEGG_ALDOSTERONE_REGULATED_SODIUM_REABSORPTION	PC_1	1,883E-01	9,208E-05	2,434E-04	TRUE
KEGG_N_GLYCAN_BIOSYNTHESIS	PC_1	1,878E-01	9,627E-05	2,534E-04	TRUE
GO_REGULATION_OF_MONONUCLEAR_CELL_MIGRATION	PC_1	1,855E-01	1,176E-04	3,039E-04	TRUE
GO_POSITIVE_REGULATION_OF_FIBROBLAST_MIGRATION	PC_1	1,846E-01	1,267E-04	3,256E-04	TRUE

KEGG_FRUCTOSE_AND_MANNOSE_METABOLISM	PC_1	1,834E-01	1,410E-04	3,575E-04	TRUE
Pozniak_Interferon_responsive	PC_1	1,793E-01	1,985E-04	4,927E-04	TRUE
KEGG_PYRUVATE_METABOLISM	PC_1	1,776E-01	2,299E-04	5,653E-04	TRUE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_KERATAN_SULFATE	PC_1	1,770E-01	2,416E-04	5,908E-04	TRUE
KEGG_PROTEIN_EXPORT	PC_1	1,752E-01	2,791E-04	6,766E-04	TRUE
Pozniak_Stress_hypoxia	PC_1	1,740E-01	3,083E-04	7,432E-04	TRUE
HALLMARK_ANDROGEN_RESPONSE	PC_1	1,714E-01	3,815E-04	9,064E-04	TRUE
KEGG_OOCYTE_MEIOSIS	PC_1	1,704E-01	4,105E-04	9,720E-04	TRUE
KEGG_CYTOKINE_CYTOKINE_RECEPTOR_INTERACTION	PC_1	1,701E-01	4,204E-04	9,920E-04	TRUE
MAINA_VHL_TARGETS_DN	PC_1	1,691E-01	4,557E-04	1,069E-03	TRUE
KEGG_APOPTOSIS	PC_1	1,651E-01	6,224E-04	1,429E-03	TRUE
KEGG_PYRIMIDINE_METABOLISM	PC_1	1,625E-01	7,626E-04	1,723E-03	TRUE
KEGG_NEUROACTIVE_LIGAND_RECEPTOR_INTERACTION	PC_1	1,597E-01	9,435E-04	2,096E-03	TRUE
KEGG_B_CELL_RECEPTOR_SIGNALING_PATHWAY	PC_1	1,562E-01	1,221E-03	2,660E-03	TRUE
KEGG_PENTOSE_PHOSPHATE_PATHWAY	PC_1	1,522E-01	1,636E-03	3,492E-03	TRUE
HALLMARK_BILE_ACID_METABOLISM	PC_1	1,516E-01	1,702E-03	3,618E-03	TRUE
KEGG_PRIMARY_BILE_ACID_BIOSYNTHESIS	PC_1	1,515E-01	1,713E-03	3,639E-03	TRUE
KEGG_ABC_TRANSPORTERS	PC_1	1,453E-01	2,641E-03	5,427E-03	TRUE
KEGG_BASE_EXCISION_REPAIR	PC_1	1,447E-01	2,758E-03	5,626E-03	TRUE
KEGG_TIGHT_JUNCTION	PC_1	1,368E-01	4,665E-03	9,073E-03	TRUE
KEGG_UBIQUITIN_MEDIATED_PROTEOLYSIS	PC_1	1,353E-01	5,160E-03	9,951E-03	TRUE
KEGG_TAURINE_AND_HYPOTAURINE_METABOLISM	PC_1	1,303E-01	7,067E-03	1,323E-02	FALSE
KEGG_NUCLEOTIDE_EXCISION_REPAIR	PC_1	1,249E-01	9,848E-03	1,771E-02	FALSE
KEGG_NICOTINATE_AND_NICOTINAMIDE_METABOLISM	PC_1	1,209E-01	1,253E-02	2,198E-02	FALSE
KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_GANGLIO_SERIES	PC_1	1,207E-01	1,267E-02	2,222E-02	FALSE
KEGG_MATURITY_ONSET_DIABETES_OF_THE_YOUNG	PC_1	1,198E-01	1,332E-02	2,326E-02	FALSE
KEGG_GLYCOLYSIS_GLUONEOGENESIS	PC_1	1,099E-01	2,328E-02	3,848E-02	FALSE
GO_CELL_MIGRATION_INVOLVED_IN_GASTRULATION	PC_1	1,071E-01	2,714E-02	4,401E-02	FALSE
Volume (FSC-W)	PC_1	1,050E-01	3,022E-02	4,829E-02	FALSE
GO_NEGATIVE_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	PC_1	1,048E-01	3,053E-02	4,874E-02	FALSE
KAUFFMANN_MELANOMA_RELAPSE_DN	PC_1	1,001E-01	3,898E-02	6,052E-02	FALSE
KEGG_GLUTATHIONE_METABOLISM	PC_1	9,982E-02	3,947E-02	6,123E-02	FALSE

HALLMARK_UV_RESPONSE_UP	PC_1	9,241E-02	5,667E-02	8,501E-02	FALSE
SARRIO_EPITHELIAL_MESENCHYMAL_TRANSITION_UP	PC_1	9,160E-02	5,889E-02	8,800E-02	FALSE
KEGG_ADHERENS_JUNCTION	PC_1	9,123E-02	5,993E-02	8,903E-02	FALSE
JAEGER_METASTASIS_UP	PC_1	8,991E-02	6,373E-02	9,404E-02	FALSE
ALONSO_METASTASIS_DN	PC_1	8,702E-02	7,279E-02	1,060E-01	FALSE
KEGG_ONE_CARBON_POOL_BY_FOLATE	PC_1	8,370E-02	8,443E-02	1,209E-01	FALSE
HALLMARK_FATTY_ACID_METABOLISM	PC_1	8,120E-02	9,418E-02	1,332E-01	FALSE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_HEPARAN_SULFATE	PC_1	7,380E-02	1,283E-01	1,757E-01	FALSE
KEGG_ASCORBATE_AND_ALDARATE_METABOLISM	PC_1	7,170E-02	1,395E-01	1,892E-01	FALSE
SEMI_4INVvs2SEMI	PC_1	6,795E-02	1,615E-01	2,154E-01	FALSE
KEGG_PROANOATE_METABOLISM	PC_1	6,255E-02	1,976E-01	2,567E-01	FALSE
SALUBRINAL_SIGNATURE_GODING	PC_1	6,022E-02	2,149E-01	2,764E-01	FALSE
KAUFFMANN_DNA_REPLICATION_GENES	PC_1	4,879E-02	3,151E-01	3,825E-01	FALSE
KEGG_LONG_TERM_POTENTIATION	PC_1	4,756E-02	3,274E-01	3,955E-01	FALSE
KEGG_PORPHYRIN_AND_CHLOROPHYLL_METABOLISM	PC_1	4,489E-02	3,554E-01	4,242E-01	FALSE
KEGG_VIRAL_MYOCARDITIS	PC_1	4,461E-02	3,583E-01	4,270E-01	FALSE
KEGG_CALCIUM_SIGNALING_PATHWAY	PC_1	4,404E-02	3,645E-01	4,336E-01	FALSE
KEGG_SULFUR_METABOLISM	PC_1	4,110E-02	3,975E-01	4,669E-01	FALSE
KEGG_ENDOCYTOSIS	PC_1	4,015E-02	4,085E-01	4,783E-01	FALSE
VEER_PRO	PC_1	3,917E-02	4,200E-01	4,897E-01	FALSE
KEGG_GNRH_SIGNALING_PATHWAY	PC_1	3,883E-02	4,241E-01	4,934E-01	FALSE
KEGG_LONG_TERM_DEPRESSION	PC_1	3,755E-02	4,395E-01	5,079E-01	FALSE
HALLMARK_G2M_CHECKPOINT	PC_1	3,566E-02	4,629E-01	5,297E-01	FALSE
KEGG_SNARE_INTERACTIONS_IN_VESICULAR_TRANSPORT	PC_1	3,493E-02	4,721E-01	5,379E-01	FALSE
HALLMARK_ESTROGEN_RESPONSE_LATE	PC_1	2,834E-02	5,597E-01	6,207E-01	FALSE
KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_LACTO_AND_NEOLACTO_SERIES	PC_1	2,115E-02	6,634E-01	7,139E-01	FALSE
HKG_Chang_etal_PlosOne_2011	PC_1	1,394E-02	7,743E-01	8,112E-01	FALSE
KEGG_BASAL_TRANSCRIPTION_FACTORS	PC_1	1,372E-02	7,777E-01	8,135E-01	FALSE
HALLMARK_PANCREAS_BETA_CELLS	PC_1	1,275E-02	7,930E-01	8,258E-01	FALSE
WINNEPENNINGKX_MELANOMA_METASTASIS_UP	PC_1	5,288E-03	9,133E-01	9,298E-01	FALSE
GO_CEREBRAL_CORTEX_RADIALY_ORIENTED_CELL_MIGRATION	PC_1	2,502E-03	9,589E-01	9,660E-01	FALSE
KEGG_TERPENOID_BACKBONE_BIOSYNTHESIS	PC_1	-1,583E-02	7,446E-01	7,846E-01	FALSE

HALLMARK_DNA_REPAIR	PC_1	-1,724E-02	7,228E-01	7,647E-01	FALSE
Pozniak_Mitotic	PC_1	-1,952E-02	6,879E-01	7,342E-01	FALSE
KEGG_PEROXISOME	PC_1	-2,286E-02	6,379E-01	6,928E-01	FALSE
KEGG_GLYCOPHINGOLIPID_BIOSYNTHESIS_GLOBO_SERIES	PC_1	-2,364E-02	6,266E-01	6,839E-01	FALSE
KEGG_T_CELL_RECEPTOR_SIGNALING_PATHWAY	PC_1	-2,647E-02	5,859E-01	6,467E-01	FALSE
KEGG_BLADDER_CANCER	PC_1	-2,648E-02	5,857E-01	6,467E-01	FALSE
KEGG_BETA_ALANINE_METABOLISM	PC_1	-2,925E-02	5,471E-01	6,089E-01	FALSE
KEGG_JAK_STAT_SIGNALING_PATHWAY	PC_1	-2,954E-02	5,432E-01	6,057E-01	FALSE
KEGG_OTHER_GLYCAN_DEGRADATION	PC_1	-3,114E-02	5,215E-01	5,850E-01	FALSE
RAMASWAMY_PRO	PC_1	-3,289E-02	4,984E-01	5,625E-01	FALSE
KEGG_GLIOMA	PC_1	-3,978E-02	4,128E-01	4,821E-01	FALSE
KEGG_FC_EPSILON_RI_SIGNALING_PATHWAY	PC_1	-4,112E-02	3,972E-01	4,668E-01	FALSE
KEGG_PATHWAYS_IN_CANCER	PC_1	-4,124E-02	3,959E-01	4,654E-01	FALSE
KEGG_DORSO_VENTRAL_AXIS_FORMATION	PC_1	-4,138E-02	3,943E-01	4,638E-01	FALSE
KEGG_GLYCOSAMINOGLYCAN_DEGRADATION	PC_1	-4,729E-02	3,302E-01	3,982E-01	FALSE
KEGG_RENIN_ANGIOTENSIN_SYSTEM	PC_1	-5,465E-02	2,604E-01	3,256E-01	FALSE
MAHADEVAN_GIST_MORPHOLOGICAL_SWITCH	PC_1	-5,974E-02	2,185E-01	2,803E-01	FALSE
HALLMARK_NOTCH_SIGNALING	PC_1	-5,991E-02	2,172E-01	2,791E-01	FALSE
KEGG_RNA_POLYMERASE	PC_1	-7,807E-02	1,076E-01	1,499E-01	FALSE
KEGG_CHRONIC_MYELOID_LEUKEMIA	PC_1	-8,168E-02	9,225E-02	1,307E-01	FALSE
ALONSO_METASTASIS_EMT_UP	PC_1	-8,684E-02	7,338E-02	1,068E-01	FALSE
HALLMARK_MTORC1_SIGNALING	PC_1	-8,991E-02	6,373E-02	9,404E-02	FALSE
KEGG_MTOR_SIGNALING_PATHWAY	PC_1	-1,015E-01	3,630E-02	5,686E-02	FALSE
KEGG_VALINE_LEUCINE_AND_ISOLEUCINE_BIOSYNTHESIS	PC_1	-1,077E-01	2,626E-02	4,276E-02	FALSE
GSS_GODING	PC_1	-1,080E-01	2,584E-02	4,222E-02	FALSE
KEGG_VALINE_LEUCINE_AND_ISOLEUCINE_DEGRADATION	PC_1	-1,098E-01	2,348E-02	3,875E-02	FALSE
KEGG_PHOSPHATIDYLINOSITOL_SIGNALING_SYSTEM	PC_1	-1,108E-01	2,213E-02	3,683E-02	FALSE
Pozniak_Mitochondrial	PC_1	-1,126E-01	2,005E-02	3,375E-02	FALSE
KAUFFMANN_MELANOMA_RELAPSE_UP	PC_1	-1,128E-01	1,984E-02	3,344E-02	FALSE
KEGG_PHENYLALANINE_METABOLISM	PC_1	-1,138E-01	1,875E-02	3,172E-02	FALSE
KEGG_AMYOTROPHIC_LATERAL_SCLEROSIS_ALS	PC_1	-1,158E-01	1,676E-02	2,864E-02	FALSE
KEGG_MAPK_SIGNALING_PATHWAY	PC_1	-1,163E-01	1,633E-02	2,795E-02	FALSE
XU_PRO	PC_1	-1,166E-01	1,603E-02	2,749E-02	FALSE

KEGG_PATHOGENIC_ESCHERICHIA_COLI_INFECTION	PC_1	-1,175E-01	1,527E-02	2,628E-02	FALSE
KEGG_INSULIN_SIGNALING_PATHWAY	PC_1	-1,227E-01	1,123E-02	1,993E-02	FALSE
HALLMARK_UNFOLDED_PROTEIN_RESPONSE	PC_1	-1,335E-01	5,799E-03	1,109E-02	FALSE
KEGG_LIMONENE_AND_PINENE_DEGRADATION	PC_1	-1,352E-01	5,173E-03	9,970E-03	TRUE
KEGG_PANCREATIC_CANCER	PC_1	-1,380E-01	4,330E-03	8,500E-03	TRUE
KEGG_BUTANOATE_METABOLISM	PC_1	-1,403E-01	3,703E-03	7,393E-03	TRUE
GO_WOUND_HEALING_SPREADING_OF_EPIDERMAL_CELLS	PC_1	-1,406E-01	3,632E-03	7,256E-03	TRUE
KEGG_SPLICEOSOME	PC_1	-1,446E-01	2,768E-03	5,641E-03	TRUE
cheng_mitotic_top100	PC_1	-1,476E-01	2,254E-03	4,695E-03	TRUE
ALONSO_METASTASIS_UP	PC_1	-1,481E-01	2,185E-03	4,572E-03	TRUE
KEGG_STARCH_AND_SUCROSE_METABOLISM	PC_1	-1,566E-01	1,184E-03	2,583E-03	TRUE
KEGG_P53_SIGNALING_PATHWAY	PC_1	-1,585E-01	1,029E-03	2,272E-03	TRUE
KEGG_LYSOSOME	PC_1	-1,600E-01	9,214E-04	2,051E-03	TRUE
HALLMARK_HEME_METABOLISM	PC_1	-1,617E-01	8,070E-04	1,815E-03	TRUE
KEGG_RETINOL_METABOLISM	PC_1	-1,688E-01	4,681E-04	1,096E-03	TRUE
KEGG_RENAL_CELL_CARCINOMA	PC_1	-1,734E-01	3,240E-04	7,773E-04	TRUE
HKG_Eisenberg_etal_TIG_2013	PC_1	-1,858E-01	1,142E-04	2,966E-04	TRUE
JAEGER_METASTASIS_DN	PC_1	-1,889E-01	8,754E-05	2,323E-04	TRUE
KEGG_VIBRIO_CHOLERAЕ_INFECTION	PC_1	-1,916E-01	6,919E-05	1,874E-04	TRUE
KEGG_METABOLISM_OF_XENOBIOTICS_BY_CYTOCHROME_P450	PC_1	-1,984E-01	3,714E-05	1,055E-04	TRUE
KEGG_PROGESTERONE_MEDIATED_OOCYTE_MATURATION	PC_1	-1,988E-01	3,600E-05	1,028E-04	TRUE
HALLMARK_CHOLESTEROL_HOMEOSTASIS	PC_1	-2,017E-01	2,737E-05	7,963E-05	TRUE
HALLMARK_XENOBIOTIC_METABOLISM	PC_1	-2,039E-01	2,235E-05	6,634E-05	TRUE
KEGG_DRUG_METABOLISM_CYTOCHROME_P450	PC_1	-2,061E-01	1,801E-05	5,441E-05	TRUE
KEGG_PURINE_METABOLISM	PC_1	-2,066E-01	1,715E-05	5,200E-05	TRUE
KEGG_SELENOAMINO_ACID_METABOLISM	PC_1	-2,067E-01	1,702E-05	5,165E-05	TRUE
KEGG_RNA_DEGRADATION	PC_1	-2,076E-01	1,562E-05	4,759E-05	TRUE
KEGG_RIBOSOME	PC_1	-2,141E-01	8,269E-06	2,659E-05	TRUE
KEGG_STEROID_BIOSYNTHESIS	PC_1	-2,276E-01	2,079E-06	7,371E-06	TRUE
MXI_ChIP_Atlas_top200_targets	PC_1	-2,363E-01	8,071E-07	3,024E-06	TRUE
HALLMARK_SPERMATOGENESIS	PC_1	-2,395E-01	5,711E-07	2,211E-06	TRUE
Pozniak_p_spec_B	PC_1	-2,469E-01	2,448E-07	1,005E-06	TRUE
KEGG_GLYCEROLIPID_METABOLISM	PC_1	-2,573E-01	7,228E-08	3,125E-07	TRUE

HALLMARK_E2F_TARGETS	PC_1	-2,666E-01	2,304E-08	1,073E-07	TRUE
KEGG_GAP_JUNCTION	PC_1	-2,673E-01	2,108E-08	9,868E-08	TRUE
Pozniak_Stress_paraspeckles	PC_1	-2,766E-01	6,442E-09	3,179E-08	TRUE
HALLMARK_MYC_TARGETS_V1	PC_1	-2,778E-01	5,485E-09	2,747E-08	TRUE
KEGG_PPAR_SIGNALING_PATHWAY	PC_1	-2,808E-01	3,684E-09	1,889E-08	TRUE
KEGG_TRYPTOPHAN_METABOLISM	PC_1	-2,825E-01	2,956E-09	1,534E-08	TRUE
KEGG_GLYOXYLATE_AND_DICARBOXYLATE_METABOLISM	PC_1	-2,835E-01	2,575E-09	1,344E-08	TRUE
HALLMARK_ADIPOGENESIS	PC_1	-2,964E-01	4,339E-10	2,466E-09	TRUE
KEGG_AMINOACYL_TRNA_BIOSYNTHESIS	PC_1	-3,059E-01	1,115E-10	6,845E-10	TRUE
KEGG_GALACTOSE_METABOLISM	PC_1	-3,078E-01	8,477E-11	5,273E-10	TRUE
KEGG_CYSTEINE_AND_METHIONINE_METABOLISM	PC_1	-3,103E-01	5,817E-11	3,689E-10	TRUE
KEGG_PENTOSE_AND_GLUCURONATE_INTERCONVERSIONS	PC_1	-3,223E-01	9,402E-12	6,500E-11	TRUE
KEGG_COLORECTAL_CANCER	PC_1	-3,226E-01	8,938E-12	6,204E-11	TRUE
KEGG_NON_SMALL_CELL_LUNG_CANCER	PC_1	-3,237E-01	7,594E-12	5,336E-11	TRUE
KEGG_CITRATE_CYCLE_TCA_CYCLE	PC_1	-3,298E-01	2,895E-12	2,167E-11	TRUE
KEGG_TASTE_TRANSDUCTION	PC_1	-3,444E-01	2,639E-13	2,311E-12	TRUE
KEGG_VASOPRESSIN_REGULATED_WATER_REABSORPTION	PC_1	-3,449E-01	2,400E-13	2,123E-12	TRUE
ALONSO_METASTASIS_NEURAL_UP	PC_1	-3,571E-01	2,935E-14	2,838E-13	TRUE
Pozniak_Melanocytic	PC_1	-3,607E-01	1,558E-14	1,540E-13	TRUE
KEGG_EPITHELIAL_CELL_SIGNALING_IN_HELICOBACTER_PYLORI_INFECTION	PC_1	-3,618E-01	1,274E-14	1,277E-13	TRUE
KEGG_GLYCINE_SERINE_AND_THREONINE_METABOLISM	PC_1	-3,739E-01	1,399E-15	1,532E-14	TRUE
HALLMARK_MYC_TARGETS_V2	PC_1	-3,881E-01	9,201E-17	1,076E-15	TRUE
KEGG_ARGININE_AND_PROLINE_METABOLISM	PC_1	-3,970E-01	1,547E-17	1,976E-16	TRUE
KEGG_BIOSYNTHESIS_OF_UNSATURATED_FATTY_ACIDS	PC_1	-4,090E-01	1,299E-18	1,807E-17	TRUE
rambow_mitosis	PC_1	-4,294E-01	1,535E-20	2,430E-19	TRUE
HALLMARK_WNT_BETA_CATENIN_SIGNALING	PC_1	-4,464E-01	2,981E-22	5,168E-21	TRUE
KEGG_NITROGEN_METABOLISM	PC_1	-4,567E-01	2,466E-23	4,649E-22	TRUE
RAMASWAMY_INV	PC_1	-4,796E-01	6,880E-26	1,493E-24	TRUE
KEGG_ALANINE_ASPARTATE_AND_GLUTAMATE_METABOLISM	PC_1	-4,932E-01	1,686E-27	3,930E-26	TRUE
KEGG_RIBOFLAVIN_METABOLISM	PC_1	-5,085E-01	2,140E-29	5,724E-28	TRUE
KEGG_ENDOMETRIAL_CANCER	PC_1	-5,112E-01	9,820E-30	2,668E-28	TRUE
KEGG_BASAL_CELL_CARCINOMA	PC_1	-5,197E-01	7,713E-31	2,236E-29	TRUE
KEGG_INOSITOL_PHOSPHATE_METABOLISM	PC_1	-5,504E-01	4,222E-35	1,414E-33	TRUE

KEGG_AMINO_SUGAR_AND_NUCLEOTIDE_SUGAR_METABOLISM	PC_1	-5,643E-01	3,475E-37	1,317E-35	TRUE
KEGG_PROXIMAL_TUBULE_BICARBONATE_RECLAMATION	PC_1	-5,905E-01	2,195E-41	9,467E-40	TRUE
KEGG_SPHINGOLIPID_METABOLISM	PC_1	-5,930E-01	8,300E-42	3,625E-40	TRUE
KEGG_HUNTINGTONS_DISEASE	PC_1	-5,958E-01	2,748E-42	1,215E-40	TRUE
KEGG_GLYCEROPHOSPHOLIPID_METABOLISM	PC_1	-6,004E-01	4,453E-43	1,995E-41	TRUE
KEGG_PROSTATE_CANCER	PC_1	-6,059E-01	4,837E-44	2,318E-42	TRUE
KEGG_CARDIAC_MUSCLE_CONTRACTION	PC_1	-6,170E-01	4,770E-46	2,420E-44	TRUE
KEGG_MELANOMA	PC_1	-6,268E-01	7,118E-48	3,721E-46	TRUE
KEGG_ACUTE_MYELOID_LEUKEMIA	PC_1	-6,317E-01	7,785E-49	4,263E-47	TRUE
KEGG_OXIDATIVE_PHOSPHORYLATION	PC_1	-6,665E-01	4,803E-56	3,249E-54	TRUE
HALLMARK_OXIDATIVE_PHOSPHORYLATION	PC_1	-6,692E-01	1,231E-56	8,491E-55	TRUE
rambow_MITF_targets	PC_1	-6,842E-01	4,292E-60	3,291E-58	TRUE
KEGG_TYROSINE_METABOLISM	PC_1	-6,895E-01	2,274E-61	1,868E-59	TRUE
KEGG_ALZHEIMERS_DISEASE	PC_1	-6,919E-01	5,751E-62	4,960E-60	TRUE
KEGG_PARKINSONS_DISEASE	PC_1	-7,079E-01	5,000E-66	4,423E-64	TRUE
KEGG_MELANOGENESIS	PC_1	-7,090E-01	2,651E-66	2,407E-64	TRUE
MITF_targets	PC_1	-7,370E-01	3,904E-74	4,490E-72	TRUE
KEGG_THYROID_CANCER	PC_1	-7,379E-01	2,112E-74	2,513E-72	TRUE
SOX10_targets	PC_1	-7,400E-01	5,002E-75	6,163E-73	TRUE
VERF_PRO	PC_1	-7,548E-01	1,123E-79	1,490E-77	TRUE
JEFFS_PRO	PC_1	-7,859E-01	1,564E-90	3,372E-88	TRUE
Wouters_MEL	PC_1	-8,029E-01	2,565E-97	8,044E-95	TRUE
GO_PIGMENTATION	PC_1	-8,276E-01	2,196E-108	9,471E-106	TRUE
HOEK_PRO	PC_1	-8,464E-01	4,243E-118	3,660E-115	TRUE
rambow_pigmentation	PC_1	-8,483E-01	3,844E-119	4,421E-116	TRUE
KEGG_REGULATION_OF_ACTIN_CYTOSKELETON	PC_3	6,843E-01	4,066E-60	3,188E-58	TRUE
GO_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	PC_3	6,404E-01	1,516E-50	9,015E-49	TRUE
KEGG_OOCYTE_MEIOSIS	PC_3	6,145E-01	1,374E-45	6,868E-44	TRUE
HALLMARK_FATTY_ACID_METABOLISM	PC_3	6,132E-01	2,376E-45	1,171E-43	TRUE
KEGG_FC_GAMMA_R_MEDIATED_PHAGOCYTOSIS	PC_3	6,015E-01	2,875E-43	1,305E-41	TRUE
REACTOME_SEMA4D_INDUCED_CELL_MIGRATION_AND_GROWTH_CONE_COLL					
APSE	PC_3	5,818E-01	5,967E-40	2,541E-38	TRUE
KEGG_OLFACTORY_TRANSDUCTION	PC_3	5,806E-01	9,280E-40	3,904E-38	TRUE

HALLMARK_APICAL_JUNCTION	PC_3	5,700E-01	4,561E-38	1,830E-36	TRUE
HALLMARK_REACTIVE_OXIGEN_SPECIES_PATHWAY	PC_3	5,679E-01	9,634E-38	3,820E-36	TRUE
HALLMARK_PROTEIN_SECRETION	PC_3	5,665E-01	1,576E-37	6,178E-36	TRUE
KEGG_NEUROTROPHIN_SIGNALING_PATHWAY	PC_3	5,657E-01	2,116E-37	8,109E-36	TRUE
HALLMARK_COMPLEMENT	PC_3	5,601E-01	1,487E-36	5,400E-35	TRUE
Pozniak_Stress_hypoxia	PC_3	5,547E-01	9,543E-36	3,394E-34	TRUE
KEGG_TGF_BETA_SIGNALING_PATHWAY	PC_3	5,514E-01	3,004E-35	1,036E-33	TRUE
KEGG_VASCULAR_SMOOTH_MUSCLE_CONTRACTION	PC_3	5,511E-01	3,296E-35	1,115E-33	TRUE
GO_REGULATION_OF_MONONUCLEAR_CELL_MIGRATION	PC_3	5,489E-01	6,892E-35	2,286E-33	TRUE
HALLMARK_HEDGEHOG_SIGNALING	PC_3	5,487E-01	7,462E-35	2,452E-33	TRUE
GO_POSITIVE_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	PC_3	5,441E-01	3,426E-34	1,105E-32	TRUE
ANASTASSIOU_CANCER_MESENCHYMAL_TRANSITION_SIGNATURE	PC_3	5,437E-01	3,880E-34	1,228E-32	TRUE
KEGG_LEUKOCYTE_TRANSENDOTHELIAL_MIGRATION	PC_3	5,364E-01	4,148E-33	1,278E-31	TRUE
KEGG_ARRHYTHMOGENIC_RIGHT_VENTRICULAR_CARDIOMYOPATHY_ARVC	PC_3	5,361E-01	4,616E-33	1,409E-31	TRUE
KEGG_HYPERTROPHIC_CARDIOMYOPATHY_HCM	PC_3	5,266E-01	9,238E-32	2,748E-30	TRUE
HALLMARK_MYOGENESIS	PC_3	5,172E-01	1,631E-30	4,649E-29	TRUE
KEGG_TIGHT_JUNCTION	PC_3	5,139E-01	4,408E-30	1,227E-28	TRUE
KARAKAS_TGFB1_SIGNALING	PC_3	5,080E-01	2,482E-29	6,586E-28	TRUE
HALLMARK_PEROXISOME	PC_3	5,075E-01	2,902E-29	7,641E-28	TRUE
KEGG_FOCAL_ADHESION	PC_3	5,061E-01	4,294E-29	1,114E-27	TRUE
HALLMARK_CHOLESTEROL_HOMEOSTASIS	PC_3	5,061E-01	4,397E-29	1,132E-27	TRUE
KEGG_DILATED_CARDIOMYOPATHY	PC_3	5,016E-01	1,573E-28	3,905E-27	TRUE
HALLMARK_COAGULATION	PC_3	5,007E-01	2,048E-28	5,048E-27	TRUE
HARRIS_HYPOXIA	PC_3	4,962E-01	7,319E-28	1,766E-26	TRUE
HALLMARK_BILE_ACID_METABOLISM	PC_3	4,958E-01	8,127E-28	1,947E-26	TRUE
KEGG_STEROID_BIOSYNTHESIS	PC_3	4,944E-01	1,203E-27	2,842E-26	TRUE
KEGG_COMPLEMENT_AND_COAGULATION_CASCADES	PC_3	4,926E-01	2,008E-27	4,649E-26	TRUE
KEGG_GLUTATHIONE_METABOLISM	PC_3	4,883E-01	6,548E-27	1,486E-25	TRUE
KEGG_ECM_RECEPTOR_INTERACTION	PC_3	4,816E-01	4,078E-26	9,076E-25	TRUE
HALLMARK_KRAS_SIGNALING_DN	PC_3	4,800E-01	6,187E-26	1,360E-24	TRUE
LEE_NEURAL_CREST_STEM_CELL_UP	PC_3	4,794E-01	7,317E-26	1,578E-24	TRUE
HALLMARK_EPITHELIAL_MESENCHYMAL_TRANSITION	PC_3	4,758E-01	1,878E-25	4,000E-24	TRUE

MAINA_VHL_TARGETS_DN	PC_3	4,720E-01	5,040E-25	1,047E-23	TRUE
LEF1_UP.V1_UP	PC_3	4,713E-01	6,040E-25	1,240E-23	TRUE
KEGG_ADHERENS_JUNCTION	PC_3	4,705E-01	7,529E-25	1,537E-23	TRUE
KEGG_BETA_ALANINE_METABOLISM	PC_3	4,602E-01	1,031E-23	2,022E-22	TRUE
KEGG_LONG_TERM_POTENTIATION	PC_3	4,570E-01	2,259E-23	4,282E-22	TRUE
raj_resistance	PC_3	4,531E-01	5,910E-23	1,102E-21	TRUE
GO_REGULATION_OF_CELL_MIGRATION_INVOLVED_IN_SPROUTING_ANGIOGENESIS	PC_3	4,530E-01	6,088E-23	1,129E-21	TRUE
KEGG_GNRH_SIGNALING_PATHWAY	PC_3	4,529E-01	6,202E-23	1,144E-21	TRUE
KEGG_CALCIUM_SIGNALING_PATHWAY	PC_3	4,526E-01	6,740E-23	1,237E-21	TRUE
HALLMARK_HEME_METABOLISM	PC_3	4,483E-01	1,900E-22	3,414E-21	TRUE
cheng_mesench_top100	PC_3	4,476E-01	2,237E-22	3,957E-21	TRUE
Surface	PC_3	4,473E-01	2,383E-22	4,194E-21	TRUE
KEGG_UBIQUITIN_MEDIATED_PROTEOLYSIS	PC_3	4,467E-01	2,752E-22	4,820E-21	TRUE
WU_CELL_MIGRATION	PC_3	4,410E-01	1,072E-21	1,761E-20	TRUE
Pozniak_Mesenchymal	PC_3	4,367E-01	2,875E-21	4,635E-20	TRUE
HALLMARK_NOTCH_SIGNALING	PC_3	4,360E-01	3,431E-21	5,505E-20	TRUE
LU_TUMOR_ANGIOGENESIS_UP	PC_3	4,292E-01	1,619E-20	2,550E-19	TRUE
GO_NEGATIVE_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	PC_3	4,289E-01	1,707E-20	2,678E-19	TRUE
KEGG_TERPENOID_BACKBONE_BIOSYNTHESIS	PC_3	4,223E-01	7,401E-20	1,140E-18	TRUE
HALLMARK_APOPTOSIS	PC_3	4,216E-01	8,679E-20	1,325E-18	TRUE
GO_CELLULAR_EXTRAVASATION	PC_3	4,207E-01	1,061E-19	1,606E-18	TRUE
HKG_Chang_etal_PlosOne_2011	PC_3	4,197E-01	1,305E-19	1,967E-18	TRUE
KEGG_RIG_I_LIKE_RECEPTOR_SIGNALING_PATHWAY	PC_3	4,161E-01	2,890E-19	4,297E-18	TRUE
KEGG_PYRUVATE_METABOLISM	PC_3	4,157E-01	3,110E-19	4,585E-18	TRUE
KEGG_DRUG_METABOLISM_CYTOCHROME_P450	PC_3	4,136E-01	4,896E-19	7,157E-18	TRUE
KEGG_METABOLISM_OF_XENOBIOTICS_BY_CYTOCHROME_P450	PC_3	4,135E-01	4,991E-19	7,266E-18	TRUE
KEGG_VIBRIO_CHOLERAE_INFECTION	PC_3	4,125E-01	6,187E-19	8,932E-18	TRUE
KEGG_PROANOATE_METABOLISM	PC_3	4,108E-01	9,006E-19	1,263E-17	TRUE
KEGG_WNT_SIGNALING_PATHWAY	PC_3	4,062E-01	2,374E-18	3,251E-17	TRUE
hugo_IPRES	PC_3	4,043E-01	3,488E-18	4,664E-17	TRUE
MS_RESP_TO_WOUNDING_UP_IN_MAPKi_aPDL1_NR	PC_3	3,999E-01	8,662E-18	1,132E-16	TRUE

HALLMARK_APICAL_SURFACE	PC_3	3,964E-01	1,760E-17	2,240E-16	TRUE
Wouters_MES	PC_3	3,960E-01	1,899E-17	2,409E-16	TRUE
AXL_SIGNATURE_GODING	PC_3	3,953E-01	2,191E-17	2,749E-16	TRUE
KEGG_STEROID_HORMONE_BIOSYNTHESIS	PC_3	3,950E-01	2,322E-17	2,902E-16	TRUE
KEGG_PHOSPHATIDYLINOSITOL_SIGNALING_SYSTEM	PC_3	3,911E-01	5,088E-17	6,156E-16	TRUE
SARRIO_EPITHELIAL_MESENCHYMAL_TRANSITION_DN	PC_3	3,900E-01	6,377E-17	7,613E-16	TRUE
HALLMARK_IL2_STAT5_SIGNALING	PC_3	3,887E-01	8,136E-17	9,580E-16	TRUE
HALLMARK_PI3K_AKT_MTOR_SIGNALING	PC_3	3,808E-01	3,746E-16	4,294E-15	TRUE
KEGG_FOLATE_BIOSYNTHESIS	PC_3	3,801E-01	4,338E-16	4,956E-15	TRUE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_HEPARAN_SULFATE	PC_3	3,730E-01	1,659E-15	1,800E-14	TRUE
KEGG_HEMATOPOIETIC_CELL_LINEAGE	PC_3	3,684E-01	3,829E-15	4,016E-14	TRUE
KEGG_TYPE_II_DIABETES_MELLITUS	PC_3	3,679E-01	4,265E-15	4,432E-14	TRUE
HALLMARK_MITOTIC_SPINDLE	PC_3	3,674E-01	4,636E-15	4,775E-14	TRUE
LIEN_BREAST_CARCINOMA_METAPLASTIC	PC_3	3,633E-01	9,667E-15	9,724E-14	TRUE
KEGG_GLYCOLYSIS_GLUONEOGENESIS	PC_3	3,571E-01	2,945E-14	2,838E-13	TRUE
VECCHI_GASTRIC_CANCER_ADVANCED_VS_EARLY_UP	PC_3	3,509E-01	8,632E-14	8,027E-13	TRUE
KEGG_BUTANOATE_METABOLISM	PC_3	3,482E-01	1,374E-13	1,247E-12	TRUE
KEGG_NUCLEOTIDE_EXCISION_REPAIR	PC_3	3,478E-01	1,480E-13	1,336E-12	TRUE
HALLMARK_ADIPOGENESIS	PC_3	3,468E-01	1,746E-13	1,565E-12	TRUE
RIESENBERG_MELANOMA_TNF_RESPONSE_GODING	PC_3	3,465E-01	1,833E-13	1,639E-12	TRUE
KEGG_EPITHELIAL_CELL_SIGNALING_IN_HELICOBACTER_PYLORI_INFECTION	PC_3	3,423E-01	3,741E-13	3,187E-12	TRUE
KAUFFMANN_DNA_REPAIR_GENES	PC_3	3,416E-01	4,173E-13	3,538E-12	TRUE
KEGG_FATTY_ACID_METABOLISM	PC_3	3,411E-01	4,597E-13	3,878E-12	TRUE
KEGG_TOLL_LIKE_RECEPTOR_SIGNALING_PATHWAY	PC_3	3,386E-01	6,865E-13	5,677E-12	TRUE
Wouters_INT	PC_3	3,378E-01	7,930E-13	6,483E-12	TRUE
Pozniak_Antigen_presenting	PC_3	3,366E-01	9,579E-13	7,740E-12	TRUE
HALLMARK_HYPOXIA	PC_3	3,359E-01	1,079E-12	8,619E-12	TRUE
HALLMARK_TNFA_SIGNALING_VIA_NFKB	PC_3	3,357E-01	1,113E-12	8,846E-12	TRUE
rambow_neuro	PC_3	3,353E-01	1,189E-12	9,410E-12	TRUE
ALONSO_METASTASIS_UP	PC_3	3,342E-01	1,416E-12	1,110E-11	TRUE
KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_LACTO_AND_NEOLACTO_SERIES	PC_3	3,335E-01	1,587E-12	1,239E-11	TRUE
KEGG_PEROXISOME	PC_3	3,285E-01	3,541E-12	2,622E-11	TRUE

KEGG_PATHOGENIC_ESCHERICHIA_COLI_INFECTION	PC_3	3,258E-01	5,478E-12	3,921E-11	TRUE
Pozniak_Neural_crest_like	PC_3	3,256E-01	5,589E-12	3,984E-11	TRUE
MAPKi_INDUCED_EMT	PC_3	3,224E-01	9,213E-12	6,383E-11	TRUE
KEGG_CELL_ADHESION_MOLECULES_CAMS	PC_3	3,222E-01	9,583E-12	6,612E-11	TRUE
rambow_immune	PC_3	3,186E-01	1,673E-11	1,116E-10	TRUE
KEGG_LIMONENE_AND_PINENE_DEGRADATION	PC_3	3,145E-01	3,112E-11	2,022E-10	TRUE
KEGG_LYSINE_DEGRADATION	PC_3	3,075E-01	8,786E-11	5,452E-10	TRUE
KEGG_NON_HOMOLOGOUS_END_JOINING	PC_3	2,999E-01	2,659E-10	1,568E-09	TRUE
KEGG_VEGF_SIGNALING_PATHWAY	PC_3	2,980E-01	3,476E-10	2,009E-09	TRUE
KEGG_ABC_TRANSPORTERS	PC_3	2,980E-01	3,484E-10	2,010E-09	TRUE
AP1_targets	PC_3	2,972E-01	3,918E-10	2,249E-09	TRUE
KEGG_GLIOMA	PC_3	2,965E-01	4,288E-10	2,441E-09	TRUE
KEGG_ADIPOCYTOKINE_SIGNALING_PATHWAY	PC_3	2,960E-01	4,631E-10	2,623E-09	TRUE
KEGG_PENTOSE_PHOSPHATE_PATHWAY	PC_3	2,954E-01	5,025E-10	2,828E-09	TRUE
KEGG_RENAL_CELL_CARCINOMA	PC_3	2,921E-01	7,960E-10	4,387E-09	TRUE
KEGG_CELL_CYCLE	PC_3	2,905E-01	9,892E-10	5,426E-09	TRUE
KEGG_LYSOSOME	PC_3	2,885E-01	1,304E-09	6,984E-09	TRUE
HALLMARK_GLYCOLYSIS	PC_3	2,842E-01	2,329E-09	1,221E-08	TRUE
KEGG_PORPHYRIN_AND_CHLOROPHYLL_METABOLISM	PC_3	2,811E-01	3,534E-09	1,822E-08	TRUE
ALONSO_METASTASIS_EMT_UP	PC_3	2,791E-01	4,602E-09	2,338E-08	TRUE
KEGG_REGULATION_OF_AUTOPHAGY	PC_3	2,768E-01	6,207E-09	3,081E-08	TRUE
KEGG_CHEMOKINE_SIGNALING_PATHWAY	PC_3	2,732E-01	9,986E-09	4,785E-08	TRUE
KEGG_BASAL_TRANSCRIPTION_FACTORS	PC_3	2,722E-01	1,138E-08	5,417E-08	TRUE
KEGG_CITRATE_CYCLE_TCA_CYCLE	PC_3	2,714E-01	1,253E-08	5,931E-08	TRUE
HALLMARK_INFLAMMATORY_RESPONSE	PC_3	2,596E-01	5,446E-08	2,412E-07	TRUE
ALONSO_METASTASIS_NEURAL_UP	PC_3	2,585E-01	6,263E-08	2,745E-07	TRUE
KEGG_T_CELL_RECEPTOR_SIGNALING_PATHWAY	PC_3	2,572E-01	7,309E-08	3,152E-07	TRUE
YE_METASTATIC_LIVER_CANCER	PC_3	2,559E-01	8,562E-08	3,674E-07	TRUE
HALLMARK_IL6_JAK_STAT3_SIGNALING	PC_3	2,503E-01	1,650E-07	6,934E-07	TRUE
WINNEPENNINGCKX_MELANOMA_METASTASIS_DN	PC_3	2,446E-01	3,189E-07	1,288E-06	TRUE
ROY_WOUND_BLOOD_VESSEL_UP	PC_3	2,440E-01	3,436E-07	1,378E-06	TRUE
JAEGER_METASTASIS_UP	PC_3	2,421E-01	4,256E-07	1,676E-06	TRUE
HALLMARK_ANDROGEN_RESPONSE	PC_3	2,413E-01	4,658E-07	1,822E-06	TRUE

KEGG_DRUG_METABOLISM_OTHER_ENZYMES	PC_3	2,381E-01	6,608E-07	2,536E-06	TRUE
KEGG_FRUCTOSE_AND_MANNOSE_METABOLISM	PC_3	2,357E-01	8,641E-07	3,230E-06	TRUE
HALLMARK_UV_RESPONSE_DN	PC_3	2,351E-01	9,285E-07	3,463E-06	TRUE
HALLMARK_P53_PATHWAY	PC_3	2,342E-01	1,019E-06	3,756E-06	TRUE
KEGG_ALDOSTERONE_REGULATED_SODIUM_REABSORPTION	PC_3	2,282E-01	1,942E-06	6,929E-06	TRUE
KEGG_ENDOCYTOSIS	PC_3	2,241E-01	2,984E-06	1,034E-05	TRUE
KEGG_SYSTEMIC_LUPUS_ERYTHEMATOSUS	PC_3	2,217E-01	3,839E-06	1,306E-05	TRUE
Volume (FCS-W)	PC_3	2,211E-01	4,317E-06	1,450E-05	TRUE
KEGG_VALINE_LEUCINE_AND_ISOLEUCINE_DEGRADATION	PC_3	2,157E-01	7,032E-06	2,287E-05	TRUE
KEGG_GRAFT_VERSUS_HOST_DISEASE	PC_3	2,109E-01	1,137E-05	3,566E-05	TRUE
HALLMARK_ESTROGEN_RESPONSE_EARLY	PC_3	2,080E-01	1,506E-05	4,620E-05	TRUE
KEGG_NEUROACTIVE_LIGAND_RECEPTOR_INTERACTION	PC_3	2,070E-01	1,653E-05	5,028E-05	TRUE
MINN_INV	PC_3	2,045E-01	2,112E-05	6,318E-05	TRUE
KEGG_ALLOGRAFT_REJECTION	PC_3	2,031E-01	2,396E-05	7,065E-05	TRUE
KEGG_AUTOIMMUNE_THYROID_DISEASE	PC_3	2,031E-01	2,396E-05	7,065E-05	TRUE
TEAD_targets	PC_3	2,018E-01	2,715E-05	7,912E-05	TRUE
RAMASWAMY_PRO	PC_3	1,990E-01	3,520E-05	1,008E-04	TRUE
SEMI_9PROvs2SEMI	PC_3	1,976E-01	4,017E-05	1,131E-04	TRUE
MAHADEVAN_GIST_MORPHOLOGICAL_SWITCH	PC_3	1,968E-01	4,328E-05	1,211E-04	TRUE
KEGG_GLYCOSAMINOGLYCAN_DEGRADATION	PC_3	1,914E-01	7,049E-05	1,907E-04	TRUE
KEGG_PROTEASOME	PC_3	1,913E-01	7,060E-05	1,909E-04	TRUE
KEGG_RENIN_ANGIOTENSIN_SYSTEM	PC_3	1,863E-01	1,097E-04	2,855E-04	TRUE
GO_AMEBOIDAL_TYPE_CELL_MIGRATION	PC_3	1,856E-01	1,162E-04	3,007E-04	TRUE
MINN_PRO	PC_3	1,856E-01	1,163E-04	3,008E-04	TRUE
KEGG_SNARE_INTERACTIONS_IN_VESICULAR_TRANSPORT	PC_3	1,843E-01	1,304E-04	3,331E-04	TRUE
XU_INV	PC_3	1,837E-01	1,368E-04	3,483E-04	TRUE
KEGG_RIBOFLAVIN_METABOLISM	PC_3	1,835E-01	1,402E-04	3,563E-04	TRUE
KEGG_MAPK_SIGNALING_PATHWAY	PC_3	1,833E-01	1,425E-04	3,611E-04	TRUE
KEGG_NOTCH_SIGNALING_PATHWAY	PC_3	1,742E-01	3,023E-04	7,299E-04	TRUE
KEGG_OTHER_GLYCAN_DEGRADATION	PC_3	1,739E-01	3,108E-04	7,487E-04	TRUE
VERF_INV	PC_3	1,737E-01	3,153E-04	7,582E-04	TRUE
HALLMARK_XENOBIOTIC_METABOLISM	PC_3	1,699E-01	4,299E-04	1,013E-03	TRUE
KEGG_PATHWAYS_IN_CANCER	PC_3	1,690E-01	4,598E-04	1,078E-03	TRUE

KEGG_SMALL_CELL_LUNG_CANCER	PC_3	1,667E-01	5,515E-04	1,274E-03	TRUE
Pozniak_Mitochondrial	PC_3	1,634E-01	7,109E-04	1,615E-03	TRUE
HALLMARK_INTERFERON_ALPHA_RESPONSE	PC_3	1,618E-01	8,040E-04	1,809E-03	TRUE
KEGG_B_CELL_RECEPTOR_SIGNALING_PATHWAY	PC_3	1,591E-01	9,872E-04	2,187E-03	TRUE
POOLA_INVASIVE_BREAST_CANCER_UP	PC_3	1,576E-01	1,098E-03	2,415E-03	TRUE
HOEK_INV	PC_3	1,571E-01	1,139E-03	2,497E-03	TRUE
KEGG_O_GLYCAN_BIOSYNTHESIS	PC_3	1,569E-01	1,155E-03	2,527E-03	TRUE
KAUFFMANN_MELANOMA_RELAPSE_DN	PC_3	1,542E-01	1,415E-03	3,045E-03	TRUE
KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_GLOBO_SERIES	PC_3	1,533E-01	1,507E-03	3,231E-03	TRUE
KAUFFMANN_MELANOMA_RELAPSE_UP	PC_3	1,397E-01	3,863E-03	7,688E-03	TRUE
HALLMARK_TGF_BETA_SIGNALING	PC_3	1,386E-01	4,161E-03	8,201E-03	TRUE
KEGG_PHENYLALANINE_METABOLISM	PC_3	1,373E-01	4,529E-03	8,849E-03	TRUE
KEGG_PYRIMIDINE_METABOLISM	PC_3	1,370E-01	4,622E-03	8,998E-03	TRUE
PH_BLOOD_VESS_DEVEL_DN_IN_R	PC_3	1,362E-01	4,851E-03	9,396E-03	TRUE
KEGG_PPAR_SIGNALING_PATHWAY	PC_3	1,306E-01	6,965E-03	1,310E-02	FALSE
KEGG_HOMOLOGOUS_RECOMBINATION	PC_3	1,303E-01	7,072E-03	1,323E-02	FALSE
KEGG_TYROSINE_METABOLISM	PC_3	1,297E-01	7,353E-03	1,370E-02	FALSE
KEGG_HISTIDINE_METABOLISM	PC_3	1,295E-01	7,449E-03	1,383E-02	FALSE
KEGG_PRIMARY_BILE_ACID_BIOSYNTHESIS	PC_3	1,292E-01	7,577E-03	1,404E-02	FALSE
KEGG_ETHER_LIPID_METABOLISM	PC_3	1,277E-01	8,308E-03	1,519E-02	FALSE
KEGG_VIRAL_MYOCARDITIS	PC_3	1,249E-01	9,843E-03	1,771E-02	FALSE
HALLMARK_INTERFERON_GAMMA_RESPONSE	PC_3	1,247E-01	9,974E-03	1,793E-02	FALSE
XU_PRO	PC_3	1,245E-01	1,011E-02	1,814E-02	FALSE
KEGG_COLORECTAL_CANCER	PC_3	1,242E-01	1,029E-02	1,843E-02	FALSE
KEGG_Cysteine_and_Methionine_Metabolism	PC_3	1,240E-01	1,043E-02	1,865E-02	FALSE
KEGG_PROTEIN_EXPORT	PC_3	1,236E-01	1,069E-02	1,905E-02	FALSE
KEGG_ARACHIDONIC_ACID_METABOLISM	PC_3	1,195E-01	1,355E-02	2,360E-02	FALSE
raj_drug_response	PC_3	1,181E-01	1,476E-02	2,549E-02	FALSE
KEGG_INOSITOL_PHOSPHATE_METABOLISM	PC_3	1,160E-01	1,662E-02	2,843E-02	FALSE
KEGG_BIOSYNTHESIS_OF_UNSATURATED_FATTY_ACIDS	PC_3	1,126E-01	2,007E-02	3,378E-02	FALSE
WESTON_VEGFA_TARGETS_12HR	PC_3	1,111E-01	2,179E-02	3,631E-02	FALSE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_CHONDROITIN_SULFATE	PC_3	1,102E-01	2,286E-02	3,789E-02	FALSE
KEGG_HEDGEHOG_SIGNALING_PATHWAY	PC_3	1,086E-01	2,499E-02	4,101E-02	FALSE

KEGG_LEISHMANIA_INFECTION	PC_3	1,069E-01	2,742E-02	4,439E-02	FALSE
MAPKi_INDUCED_ANGIOGENESIS	PC_3	1,026E-01	3,420E-02	5,398E-02	FALSE
HALLMARK_ANGIOGENESIS	PC_3	1,015E-01	3,619E-02	5,673E-02	FALSE
HKG_Eisenberg_etal_TIG_2013	PC_3	1,008E-01	3,758E-02	5,864E-02	FALSE
KEGG_NATURAL_KILLER_CELL_MEDIATED_CYTOTOXICITY	PC_3	9,880E-02	4,153E-02	6,422E-02	FALSE
HALLMARK_KRAS_SIGNALING_UP	PC_3	9,843E-02	4,231E-02	6,519E-02	FALSE
KEGG_TASTE_TRANSDUCTION	PC_3	9,779E-02	4,366E-02	6,701E-02	FALSE
KEGG_APOPTOSIS	PC_3	9,396E-02	5,263E-02	7,963E-02	FALSE
KEGG_PANTOTHENATE_AND_COA_BIOSYNTHESIS	PC_3	9,237E-02	5,679E-02	8,515E-02	FALSE
KEGG_BASE_EXCISION_REPAIR	PC_3	9,223E-02	5,715E-02	8,561E-02	FALSE
KEGG_SULFUR_METABOLISM	PC_3	9,135E-02	5,959E-02	8,869E-02	FALSE
VEER_INV	PC_3	9,027E-02	6,267E-02	9,276E-02	FALSE
HALLMARK_DNA_REPAIR	PC_3	8,759E-02	7,092E-02	1,037E-01	FALSE
JEFFS_INV	PC_3	8,536E-02	7,844E-02	1,134E-01	FALSE
GO_CELL_MIGRATION_INVOLVED_IN_GASTRULATION	PC_3	7,868E-02	1,049E-01	1,466E-01	FALSE
Pozniak_Stress_paraspeckles	PC_3	7,298E-02	1,326E-01	1,813E-01	FALSE
KEGG_CARDIAC_MUSCLE_CONTRACTION	PC_3	7,224E-02	1,366E-01	1,856E-01	FALSE
KEGG_DORSO_VENTRAL_AXIS_FORMATION	PC_3	7,166E-02	1,398E-01	1,895E-01	FALSE
HALLMARK_PANCREAS_BETA_CELLS	PC_3	7,015E-02	1,484E-01	1,997E-01	FALSE
KEGG_AXON_GUIDANCE	PC_3	6,946E-02	1,524E-01	2,046E-01	FALSE
KEGG_FC_EPSILON_RI_SIGNALING_PATHWAY	PC_3	6,850E-02	1,582E-01	2,114E-01	FALSE
HALLMARK_SPERMATOGENESIS	PC_3	6,829E-02	1,595E-01	2,129E-01	FALSE
Pozniak_Interferon_responsive	PC_3	6,488E-02	1,813E-01	2,381E-01	FALSE
KEGG_LONG_TERM_DEPRESSION	PC_3	6,391E-02	1,880E-01	2,457E-01	FALSE
CHARAFE_BREAST_CANCER_BASAL_VS_MESENCHYMAL_DN	PC_3	6,268E-02	1,967E-01	2,558E-01	FALSE
KEGG_ARGININE_AND_PROLINE_METABOLISM	PC_3	6,207E-02	2,011E-01	2,607E-01	FALSE
JEON_SMAD6_TARGETS_DN	PC_3	6,191E-02	2,022E-01	2,615E-01	FALSE
KEGG_GAP_JUNCTION	PC_3	6,084E-02	2,101E-01	2,707E-01	FALSE
KEGG_GLYCOSYLPHOSPHATIDYLINOSITOL_GPI_ANCHOR_BIOSYNTHESIS	PC_3	5,998E-02	2,167E-01	2,785E-01	FALSE
KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_GANGLIO_SERIES	PC_3	5,959E-02	2,197E-01	2,814E-01	FALSE
GO_CEREBRAL_CORTEX_RADIALY_ORIENTED_CELL_MIGRATION	PC_3	5,872E-02	2,265E-01	2,884E-01	FALSE
KEGG_ERBB_SIGNALING_PATHWAY	PC_3	5,508E-02	2,567E-01	3,220E-01	FALSE
KEGG_OXIDATIVE_PHOSPHORYLATION	PC_3	5,476E-02	2,594E-01	3,247E-01	FALSE

HALLMARK_MTORC1_SIGNALING	PC_3	5,469E-02	2,600E-01	3,252E-01	FALSE
rambow_MITF_targets	PC_3	5,163E-02	2,877E-01	3,527E-01	FALSE
HALLMARK_OXIDATIVE_PHOSPHORYLATION	PC_3	5,033E-02	3,000E-01	3,656E-01	FALSE
KEGG_PROGESTERONE_MEDIATED_OOCYTE_MATURATION	PC_3	4,811E-02	3,219E-01	3,898E-01	FALSE
KEGG_NOD_LIKE_RECEPTOR_SIGNALING_PATHWAY	PC_3	4,639E-02	3,395E-01	4,079E-01	FALSE
KEGG_PRION_DISEASES	PC_3	4,358E-02	3,696E-01	4,386E-01	FALSE
RAMASWAMY_INV	PC_3	4,186E-02	3,887E-01	4,580E-01	FALSE
KEGG_MATURITY_ONSET_DIABETES_OF_THE_YOUNG	PC_3	4,050E-02	4,044E-01	4,741E-01	FALSE
Pozniak_p_spec_B	PC_3	3,452E-02	4,774E-01	5,435E-01	FALSE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_KERATAN_SULFATE	PC_3	3,355E-02	4,898E-01	5,544E-01	FALSE
KAUFFMANN_DNA_REPLICATION_GENES	PC_3	2,986E-02	5,388E-01	6,016E-01	FALSE
KEGG_VASOPRESSIN_REGULATED_WATER_REABSORPTION	PC_3	2,914E-02	5,487E-01	6,102E-01	FALSE
KEGG_TYPE_I_DIABETES_MELLITUS	PC_3	2,824E-02	5,611E-01	6,218E-01	FALSE
POST_OP_WOUNDHEALING	PC_3	2,294E-02	6,368E-01	6,919E-01	FALSE
KEGG_ALZHEIMERS_DISEASE	PC_3	1,528E-02	7,531E-01	7,919E-01	FALSE
KEGG_MELANOGENESIS	PC_3	1,320E-02	7,859E-01	8,207E-01	FALSE
KEGG_INSULIN_SIGNALING_PATHWAY	PC_3	1,191E-02	8,064E-01	8,370E-01	FALSE
MISHRA_CARCINOMA_ASSOCIATED_FIBROBLAST_UP	PC_3	6,797E-03	8,888E-01	9,090E-01	FALSE
LU_TUMOR_VASCULATURE_UP	PC_3	6,071E-03	9,006E-01	9,190E-01	FALSE
KEGG_HUNTINGTONS_DISEASE	PC_3	3,864E-03	9,366E-01	9,487E-01	FALSE
SEMI_4INVvs2SEMI	PC_3	9,249E-04	9,848E-01	9,871E-01	FALSE
KEGG_CIRCADIAN_RHYTHM_MAMMAL	PC_3	-7,615E-03	8,755E-01	8,984E-01	FALSE
KEGG_ASCORBATE_AND_ALDARATE_METABOLISM	PC_3	-7,635E-03	8,751E-01	8,983E-01	FALSE
KEGG_N_GLYCAN_BIOSYNTHESIS	PC_3	-1,314E-02	7,868E-01	8,210E-01	FALSE
KEGG_RNA_POLYMERASE	PC_3	-1,374E-02	7,773E-01	8,135E-01	FALSE
GO_REGULATION_OF_FIBROBLAST_MIGRATION	PC_3	-1,846E-02	7,040E-01	7,480E-01	FALSE
KEGG_RETINOL_METABOLISM	PC_3	-2,215E-02	6,485E-01	7,009E-01	FALSE
KEGG_TAURINE_AND_HYPOTAURINE_METABOLISM	PC_3	-2,537E-02	6,015E-01	6,611E-01	FALSE
KEGG_ENDOMETRIAL_CANCER	PC_3	-2,556E-02	5,988E-01	6,590E-01	FALSE
HALLMARK_UV_RESPONSE_UP	PC_3	-2,646E-02	5,861E-01	6,467E-01	FALSE
KEGG_RNA_DEGRADATION	PC_3	-2,923E-02	5,474E-01	6,090E-01	FALSE
MITF_targets	PC_3	-3,107E-02	5,225E-01	5,857E-01	FALSE
KEGG_TRYPTOPHAN_METABOLISM	PC_3	-3,370E-02	4,878E-01	5,528E-01	FALSE

KEGG_CHRONIC_MYELOID_LEUKEMIA	PC_3	-3,393E-02	4,850E-01	5,502E-01	FALSE
SOX10_targets	PC_3	-3,546E-02	4,655E-01	5,317E-01	FALSE
VERF_PRO	PC_3	-3,590E-02	4,599E-01	5,264E-01	FALSE
KEGG_STARCH_AND_SUCROSE_METABOLISM	PC_3	-3,671E-02	4,498E-01	5,169E-01	FALSE
KEGG_NICOTINATE_AND_NICOTINAMIDE_METABOLISM	PC_3	-3,715E-02	4,444E-01	5,120E-01	FALSE
KEGG_PROXIMAL_TUBULE_BICARBONATE_RECLAMATION	PC_3	-3,730E-02	4,426E-01	5,107E-01	FALSE
rambow_invasion	PC_3	-3,836E-02	4,297E-01	4,989E-01	FALSE
cheng_mitotic_top100	PC_3	-3,838E-02	4,294E-01	4,987E-01	FALSE
KEGG_CYTOSOLIC_DNA_SENSING_PATHWAY	PC_3	-3,984E-02	4,120E-01	4,814E-01	FALSE
JEFFS_PRO	PC_3	-4,336E-02	3,720E-01	4,409E-01	FALSE
HALLMARK_G2M_CHECKPOINT	PC_3	-4,484E-02	3,558E-01	4,247E-01	FALSE
GO_POSITIVE_REGULATION_OF_FIBROBLAST_MIGRATION	PC_3	-4,737E-02	3,293E-01	3,974E-01	FALSE
HALLMARK_ESTROGEN_RESPONSE_LATE	PC_3	-5,346E-02	2,709E-01	3,362E-01	FALSE
KEGG_PANCREATIC_CANCER	PC_3	-5,892E-02	2,249E-01	2,867E-01	FALSE
KEGG_DNA_REPLICATION	PC_3	-5,978E-02	2,182E-01	2,801E-01	FALSE
KEGG_GLYOXYLATE_AND_DICARBOXYLATE_METABOLISM	PC_3	-6,171E-02	2,037E-01	2,632E-01	FALSE
KEGG_GLYCEROLIPID_METABOLISM	PC_3	-6,351E-02	1,908E-01	2,491E-01	FALSE
Pozniak_Mitotic	PC_3	-7,727E-02	1,112E-01	1,544E-01	FALSE
KEGG_SPHINGOLIPID_METABOLISM	PC_3	-8,076E-02	9,598E-02	1,354E-01	FALSE
KEGG_MISMATCH_REPAIR	PC_3	-9,122E-02	5,996E-02	8,903E-02	FALSE
KEGG_PARKINSONS_DISEASE	PC_3	-9,170E-02	5,861E-02	8,769E-02	FALSE
KEGG_PURINE_METABOLISM	PC_3	-9,304E-02	5,501E-02	8,283E-02	FALSE
WESTON_VEGFA_TARGETS_6HR	PC_3	-9,370E-02	5,329E-02	8,047E-02	FALSE
KEGG_ANTIGEN_PROCESSING_AND_PRESENTATION	PC_3	-9,862E-02	4,190E-02	6,465E-02	FALSE
MS_RESP_TO_HYPOXIA_UP_IN_MAPKi_aPDL1_NR	PC_3	-1,022E-01	3,498E-02	5,513E-02	FALSE
KEGG_SPLICEOSOME	PC_3	-1,058E-01	2,899E-02	4,655E-02	FALSE
SARRIO_EPITHELIAL_MESENCHYMAL_TRANSITION_UP	PC_3	-1,123E-01	2,047E-02	3,428E-02	FALSE
cheng_lymph_top100	PC_3	-1,157E-01	1,692E-02	2,890E-02	FALSE
GO_PIGMENTATION	PC_3	-1,173E-01	1,545E-02	2,655E-02	FALSE
SALUBRINAL_SIGNATURE_GODING	PC_3	-1,227E-01	1,126E-02	1,998E-02	FALSE
KEGG_INTESTINAL_IMMUNE_NETWORK_FOR_IGA_PRODUCTION	PC_3	-1,267E-01	8,858E-03	1,613E-02	FALSE
HOEK_PRO	PC_3	-1,286E-01	7,873E-03	1,449E-02	FALSE
KEGG_BASAL_CELL_CARCINOMA	PC_3	-1,299E-01	7,247E-03	1,354E-02	FALSE

KEGG_MELANOMA	PC_3	-1,319E-01	6,388E-03	1,212E-02	FALSE
WINNEPENNINGX_MELANOMA_METASTASIS_UP	PC_3	-1,360E-01	4,936E-03	9,545E-03	TRUE
rambow_mitosis	PC_3	-1,370E-01	4,602E-03	8,965E-03	TRUE
KEGG_AMYOTROPHIC_LATERAL_SCLEROSIS_ALS	PC_3	-1,474E-01	2,294E-03	4,773E-03	TRUE
KEGG_AMINO_SUGAR_AND_NUCLEOTIDE_SUGAR_METABOLISM	PC_3	-1,487E-01	2,087E-03	4,382E-03	TRUE
rambow_pigmentation	PC_3	-1,503E-01	1,873E-03	3,966E-03	TRUE
KEGG_NITROGEN_METABOLISM	PC_3	-1,549E-01	1,341E-03	2,897E-03	TRUE
Wouters_MEL	PC_3	-1,574E-01	1,118E-03	2,454E-03	TRUE
HALLMARK_WNT_BETA_CATENIN_SIGNALING	PC_3	-1,599E-01	9,242E-04	2,056E-03	TRUE
ALONSO_METASTASIS_DN	PC_3	-1,727E-01	3,418E-04	8,165E-04	TRUE
Pozniak_p_spec_A	PC_3	-1,733E-01	3,253E-04	7,799E-04	TRUE
VEER_PRO	PC_3	-1,839E-01	1,353E-04	3,452E-04	TRUE
KEGG_NON_SMALL_CELL_LUNG_CANCER	PC_3	-1,842E-01	1,312E-04	3,350E-04	TRUE
KEGG_BLADDER_CANCER	PC_3	-1,845E-01	1,279E-04	3,274E-04	TRUE
HALLMARK_E2F_TARGETS	PC_3	-1,846E-01	1,269E-04	3,258E-04	TRUE
KEGG_GALACTOSE_METABOLISM	PC_3	-1,849E-01	1,238E-04	3,190E-04	TRUE
ALONSO_METASTASIS_EMT_DN	PC_3	-1,937E-01	5,721E-05	1,568E-04	TRUE
KEGG_PRIMARY_IMMUNODEFICIENCY	PC_3	-1,943E-01	5,396E-05	1,486E-04	TRUE
KEGG_JAK_STAT_SIGNALING_PATHWAY	PC_3	-1,993E-01	3,413E-05	9,787E-05	TRUE
KEGG_VALINE_LEUCINE_AND_ISOLEUCINE_BIOSYNTHESIS	PC_3	-2,090E-01	1,361E-05	4,196E-05	TRUE
LU_TUMOR_ENDOTHELIAL_MARKERS_UP	PC_3	-2,104E-01	1,195E-05	3,732E-05	TRUE
KEGG_ASTMIA	PC_3	-2,110E-01	1,124E-05	3,543E-05	TRUE
KEGG_THYROID_CANCER	PC_3	-2,142E-01	8,161E-06	2,627E-05	TRUE
KEGG_GLYCEROPHOSPHOLIPID_METABOLISM	PC_3	-2,170E-01	6,189E-06	2,030E-05	TRUE
KEGG_PENTOSE_AND_GLUCURONATE_INTERCONVERSIONS	PC_3	-2,199E-01	4,634E-06	1,547E-05	TRUE
KEGG_ONE_CARBON_POOL_BY_FOLATE	PC_3	-2,334E-01	1,116E-06	4,105E-06	TRUE
HALLMARK_UNFOLDED_PROTEIN_RESPONSE	PC_3	-2,406E-01	5,034E-07	1,965E-06	TRUE
KEGG_PROSTATE_CANCER	PC_3	-2,538E-01	1,096E-07	4,667E-07	TRUE
JAEGGER_METASTASIS_DN	PC_3	-2,594E-01	5,572E-08	2,464E-07	TRUE
HALLMARK_ALLOGRAFT_REJECTION	PC_3	-2,723E-01	1,111E-08	5,301E-08	TRUE
KEGG_P53_SIGNALING_PATHWAY	PC_3	-2,765E-01	6,480E-09	3,194E-08	TRUE
KEGG_SELENOAMINO_ACID_METABOLISM	PC_3	-3,070E-01	9,514E-11	5,882E-10	TRUE
GSS_GODING	PC_3	-3,163E-01	2,364E-11	1,548E-10	TRUE

GO_WOUND_HEALING_SPREADING_OF_EPIDERMAL_CELLS	PC_3	-3,246E-01	6,544E-12	4,632E-11	TRUE
HALLMARK_MYC_TARGETS_V1	PC_3	-3,333E-01	1,653E-12	1,284E-11	TRUE
KEGG_CYTOKINE_CYTOKINE_RECEPTOR_INTERACTION	PC_3	-3,352E-01	1,204E-12	9,503E-12	TRUE
KEGG_MTOR_SIGNALING_PATHWAY	PC_3	-3,474E-01	1,587E-13	1,430E-12	TRUE
KEGG_ALANINE_ASPARTATE_AND_GLUTAMATE_METABOLISM	PC_3	-3,679E-01	4,215E-15	4,394E-14	TRUE
HALLMARK_MYC_TARGETS_V2	PC_3	-3,752E-01	1,091E-15	1,218E-14	TRUE
KEGG_ACUTE_MYELOID_LEUKEMIA	PC_3	-3,790E-01	5,333E-16	6,072E-15	TRUE
KEGG_AMINOACYL_TRNA_BIOSYNTHESIS	PC_3	-4,427E-01	7,088E-22	1,181E-20	TRUE
MXI_ChIP_Atlas_top200_targets	PC_3	-4,452E-01	3,976E-22	6,859E-21	TRUE
KEGG_GLYCINE_SERINE_AND_THREONINE_METABOLISM	PC_3	-4,753E-01	2,137E-25	4,524E-24	TRUE
Pozniak_Melanocytic	PC_3	-5,545E-01	1,045E-35	3,643E-34	TRUE
KEGG_RIBOSOME	PC_3	-5,801E-01	1,130E-39	4,695E-38	TRUE

Supplementary Table 3.
Correlation between S/V and transcriptional signature scores.

pathway	SV	rho	pvalue	p.adjust	significant
Wouters_MES	Surface	7,772E-01	2,417E-87	1,658E-84	TRUE
AP1_targets	Surface	7,670E-01	1,015E-83	3,482E-81	TRUE
RIESENBERG_MELANOMA_TNF_RESPONSE_GODING	Surface	7,383E-01	1,638E-74	3,746E-72	TRUE
AXL_SIGNATURE_GODING	Surface	7,352E-01	1,347E-73	2,310E-71	TRUE
WU_CELL_MIGRATION	Surface	7,304E-01	3,419E-72	4,691E-70	TRUE
KEGG_REGULATION_OF_ACTIN_CYTOSKELETON	Surface	7,284E-01	1,289E-71	1,474E-69	TRUE
Pozniak_Mesenchymal	Surface	7,259E-01	6,647E-71	6,514E-69	TRUE
VERF_INV	Surface	7,191E-01	5,180E-69	4,442E-67	TRUE
Wouters_INT	Surface	7,151E-01	6,339E-68	4,832E-66	TRUE
TEAD_targets	Surface	7,113E-01	6,525E-67	4,476E-65	TRUE
HALLMARK_EPITHELIAL_MESENCHYMAL_TRANSITION	Surface	7,049E-01	3,049E-65	1,901E-63	TRUE
HALLMARK_HYPOXIA	Surface	7,006E-01	3,839E-64	2,194E-62	TRUE
rambow_immune	Surface	6,951E-01	9,369E-63	4,944E-61	TRUE
REACTOME_SEMA4D_INDUCED_CELL_MIGRATION_AND_GROWTH_CON E_COLLAPSE	Surface	6,936E-01	2,214E-62	1,085E-60	TRUE
HALLMARK_APOPTOSIS	Surface	6,906E-01	1,242E-61	5,326E-60	TRUE
KEGG_COMPLEMENT_AND_COAGULATION_CASCADES	Surface	6,878E-01	5,733E-61	2,314E-59	TRUE
Pozniak_Antigen_presenting	Surface	6,857E-01	1,818E-60	6,928E-59	TRUE
SEMI_9PROvs2SEMI	Surface	6,839E-01	4,892E-60	1,766E-58	TRUE
hugo_IPRES	Surface	6,829E-01	8,754E-60	3,003E-58	TRUE
HALLMARK_APICAL_JUNCTION	Surface	6,753E-01	5,069E-58	1,656E-56	TRUE
ROY_WOUND_BLOOD_VESSEL_UP	Surface	6,710E-01	4,847E-57	1,511E-55	TRUE
LEF1_UP.V1_UP	Surface	6,641E-01	1,585E-55	4,531E-54	TRUE
HALLMARK_COAGULATION	Surface	6,618E-01	5,238E-55	1,437E-53	TRUE
GO_POSITIVE_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_ MIGRATION	Surface	6,606E-01	9,592E-55	2,531E-53	TRUE
KEGG_CELL_ADHESION_MOLECULES_CAMS	Surface	6,541E-01	2,352E-53	5,565E-52	TRUE
KARAKAS_TGFB1_SIGNALING	Surface	6,496E-01	2,015E-52	4,608E-51	TRUE
HOEK_INV	Surface	6,465E-01	8,631E-52	1,910E-50	TRUE

raj_resistance	Surface	6,459E-01	1,164E-51	2,495E-50	TRUE
ANASTASSIOU_CANCER_MESENCHYMAL_TRANSITION_SIGNATURE	Surface	6,332E-01	3,980E-49	8,030E-48	TRUE
KEGG_ECM_RECEPTOR_INTERACTION	Surface	6,267E-01	7,343E-48	1,399E-46	TRUE
GO_CELLULAR_EXTRAVASATION	Surface	6,188E-01	2,206E-46	4,090E-45	TRUE
HALLMARK_APICAL_SURFACE	Surface	6,094E-01	1,158E-44	1,937E-43	TRUE
HALLMARK_HEDGEHOG_SIGNALING	Surface	6,078E-01	2,207E-44	3,604E-43	TRUE
HALLMARK_INTERFERON_GAMMA_RESPONSE	Surface	5,981E-01	1,104E-42	1,762E-41	TRUE
HALLMARK_COMPLEMENT	Surface	5,973E-01	1,557E-42	2,428E-41	TRUE
PH_BLOOD_VESS_DEVEL_DN_IN_R	Surface	5,961E-01	2,412E-42	3,585E-41	TRUE
XU_INV	Surface	5,961E-01	2,417E-42	3,585E-41	TRUE
LEE_NEURAL_CREST_STEM_CELL_UP	Surface	5,961E-01	2,456E-42	3,585E-41	TRUE
GO_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	Surface	5,907E-01	1,998E-41	2,855E-40	TRUE
Pozniak_Neural_crest_like	Surface	5,883E-01	5,064E-41	6,948E-40	TRUE
HALLMARK_INTERFERON_ALPHA_RESPONSE	Surface	5,857E-01	1,351E-40	1,818E-39	TRUE
rambow_neuro	Surface	5,851E-01	1,718E-40	2,266E-39	TRUE
HALLMARK_MYOGENESIS	Surface	5,786E-01	1,934E-39	2,504E-38	TRUE
JEFFS_INV	Surface	5,684E-01	8,006E-38	1,017E-36	TRUE
MAPKi_INDUCED_ANGIOGENESIS	Surface	5,623E-01	6,885E-37	8,435E-36	TRUE
HALLMARK_INFLAMMATORY_RESPONSE	Surface	5,575E-01	3,673E-36	4,421E-35	TRUE
HALLMARK_PROTEIN_SECRETION	Surface	5,453E-01	2,285E-34	2,528E-33	TRUE
KEGG_GRAFT_VERSUS_HOST_DISEASE	Surface	5,424E-01	5,915E-34	6,340E-33	TRUE
KEGG_ALLOGRAFT_REJECTION	Surface	5,420E-01	6,713E-34	6,978E-33	TRUE
KEGG_AUTOIMMUNE_THYROID_DISEASE	Surface	5,420E-01	6,713E-34	6,978E-33	TRUE
HALLMARK_ANGIOGENESIS	Surface	5,373E-01	3,060E-33	3,133E-32	TRUE
HALLMARK_TNFA_SIGNALING_VIA_NFKB	Surface	5,334E-01	1,073E-32	1,082E-31	TRUE
SARRIO_EPITHELIAL_MESENCHYMAL_TRANSITION_DN	Surface	5,328E-01	1,304E-32	1,297E-31	TRUE
KEGG_HEMATOPOIETIC_CELL_LINEAGE	Surface	5,299E-01	3,277E-32	3,211E-31	TRUE
HARRIS_HYPOXIA	Surface	5,248E-01	1,626E-31	1,571E-30	TRUE
cheng_mesench_top100	Surface	5,172E-01	1,637E-30	1,560E-29	TRUE
LU_TUMOR_ANGIOGENESIS_UP	Surface	5,126E-01	6,504E-30	6,112E-29	TRUE
KEGG_FOCAL_ADHESION	Surface	5,119E-01	8,012E-30	7,428E-29	TRUE

HALLMARK_IL2_STAT5_SIGNALING	Surface	4,992E-01	3,140E-28	2,834E-27	TRUE
KEGG_OLFACTORY_TRANSDUCTION	Surface	4,942E-01	1,282E-27	1,142E-26	TRUE
YE_METASTATIC_LIVER_CANCER	Surface	4,939E-01	1,390E-27	1,222E-26	TRUE
KEGG_HYPERTROPHIC_CARDIOMYOPATHY_HCM	Surface	4,886E-01	6,032E-27	5,238E-26	TRUE
KEGG_LEISHMANIA_INFECTION	Surface	4,833E-01	2,528E-26	2,168E-25	TRUE
WINNEPENNINCKX_MELANOMA_METASTASIS_DN	Surface	4,784E-01	9,572E-26	8,107E-25	TRUE
HALLMARK_GLYCOLYSIS	Surface	4,748E-01	2,467E-25	2,064E-24	TRUE
KEGG_LEUKOCYTE_TRANSENDOTHELIAL_MIGRATION	Surface	4,603E-01	1,001E-23	8,118E-23	TRUE
HALLMARK_P53_PATHWAY	Surface	4,544E-01	4,253E-23	3,392E-22	TRUE
KEGG_DILATED_CARDIOMYOPATHY	Surface	4,495E-01	1,419E-22	1,119E-21	TRUE
KEGG_NEUROTROPHIN_SIGNALING_PATHWAY	Surface	4,473E-01	2,419E-22	1,886E-21	TRUE
WESTON_VEGFA_TARGETS_12HR	Surface	4,381E-01	2,091E-21	1,594E-20	TRUE
POST_OP_WOUNDHEALING	Surface	4,375E-01	2,411E-21	1,817E-20	TRUE
KEGG_TGF_BETA_SIGNALING_PATHWAY	Surface	4,362E-01	3,271E-21	2,439E-20	TRUE
MINN_INV	Surface	4,312E-01	1,028E-20	7,501E-20	TRUE
HALLMARK_REACTIVE_OXIGEN_SPECIES_PATHWAY	Surface	4,288E-01	1,771E-20	1,266E-19	TRUE
KEGG_TOLL_LIKE_RECEPTOR_SIGNALING_PATHWAY	Surface	4,287E-01	1,800E-20	1,273E-19	TRUE
KEGG_RIG_I_LIKE_RECEPTOR_SIGNALING_PATHWAY	Surface	4,218E-01	8,295E-20	5,748E-19	TRUE
GO_REGULATION_OF_CELL_MIGRATION_INVOLVED_IN_SPROUTING_AN					
GIOGENESIS	Surface	4,191E-01	1,513E-19	1,018E-18	TRUE
LIEN_BREAST_CARCINOMA_METAPLASTIC	Surface	4,123E-01	6,560E-19	4,327E-18	TRUE
HALLMARK_PI3K_AKT_MTOR_SIGNALING	Surface	4,115E-01	7,651E-19	4,999E-18	TRUE
KEGG_ARRHYTHMOGENIC_RIGHT_VENTRICULAR_CARDIOMYOPATHY_					
ARVC	Surface	4,099E-01	1,075E-18	6,957E-18	TRUE
KEGG_REGULATION_OF_AUTOPHAGY	Surface	4,084E-01	1,494E-18	9,578E-18	TRUE
MISHRA_CARCINOMA_ASSOCIATED_FIBROBLAST_UP	Surface	4,023E-01	5,290E-18	3,299E-17	TRUE
MAPKi_INDUCED_EMT	Surface	3,946E-01	2,551E-17	1,576E-16	TRUE
rambow_invasion	Surface	3,940E-01	2,858E-17	1,751E-16	TRUE
KEGG_VASCULAR_SMOOTH_MUSCLE_CONTRACTION	Surface	3,934E-01	3,226E-17	1,959E-16	TRUE
KEGG_FC_GAMMA_R_MEDIATED_PHAGOCYTOSIS	Surface	3,821E-01	2,966E-16	1,769E-15	TRUE
KEGG_VIBRIO_CHOLERAЕ_INFECTION	Volume	3,764E-01	8,726E-16	5,160E-15	TRUE
KEGG_PROTEASOME	Surface	3,762E-01	9,032E-16	5,296E-15	TRUE
GO_AMEBOIDAL_TYPE_CELL_MIGRATION	Surface	3,686E-01	3,695E-15	2,130E-14	TRUE

HALLMARK_KRAS_SIGNALING_DN	Surface	3,653E-01	6,836E-15	3,908E-14	TRUE
VECCHI_GASTRIC_CANCER_ADVANCED_VS_EARLY_UP	Surface	3,650E-01	7,222E-15	4,094E-14	TRUE
KEGG_SYSTEMIC_LUPUS_ERYTHEMATOSUS	Surface	3,625E-01	1,122E-14	6,306E-14	TRUE
KEGG_UBIQUITIN_MEDIATED_PROTEOLYSIS	Surface	3,623E-01	1,175E-14	6,554E-14	TRUE
KEGG_LYSOSOME	Volume	3,618E-01	1,277E-14	7,006E-14	TRUE
KEGG_GLYCOSYLPHOSPHATIDYLINOSITOL_GPI_ANCHOR_BIOSYNTHESIS	Surface	3,603E-01	1,659E-14	9,030E-14	TRUE
KEGG_FRUCTOSE_AND_MANNOSE_METABOLISM	Surface	3,569E-01	3,040E-14	1,617E-13	TRUE
KEGG_ARACHIDONIC_ACID_METABOLISM	Surface	3,544E-01	4,755E-14	2,490E-13	TRUE
KEGG_PENTOSE_PHOSPHATE_PATHWAY	Surface	3,523E-01	6,815E-14	3,515E-13	TRUE
REACTOME_SEMA4D_INDUCED_CELL_MIGRATION_AND_GROWTH_CONE_COLLAPSE	Volume	3,515E-01	7,815E-14	4,001E-13	TRUE
HALLMARK_APICAL_SURFACE	Volume	3,493E-01	1,150E-13	5,715E-13	TRUE
KEGG_OOCYTE_MEIOSIS	Surface	3,489E-01	1,230E-13	6,029E-13	TRUE
HALLMARK_COMPLEMENT	Volume	3,488E-01	1,254E-13	6,100E-13	TRUE
KEGG_VEGF_SIGNALING_PATHWAY	Surface	3,479E-01	1,452E-13	7,016E-13	TRUE
KEGG_HOMOLOGOUS_RECOMBINATION	Surface	3,464E-01	1,865E-13	8,949E-13	TRUE
HALLMARK_MITOTIC_SPINDLE	Surface	3,419E-01	3,965E-13	1,863E-12	TRUE
KEGG_GLUTATHIONE_METABOLISM	Surface	3,390E-01	6,426E-13	2,999E-12	TRUE
KEGG_STEROID_HORMONE_BIOSYNTHESIS	Surface	3,379E-01	7,693E-13	3,566E-12	TRUE
WESTON_VEGFA_TARGETS_6HR	Surface	3,345E-01	1,362E-12	6,269E-12	TRUE
KEGG_TYPE_I_DIABETES_MELLITUS	Surface	3,318E-01	2,103E-12	9,620E-12	TRUE
KEGG_ALLOGRAFT_REJECTION	Volume	3,297E-01	2,928E-12	1,314E-11	TRUE
KEGG_AUTOIMMUNE_THYROID_DISEASE	Volume	3,297E-01	2,928E-12	1,314E-11	TRUE
MS_RESP_TO_WOUNDING_UP_IN_MAPKi_aPDL1_NR	Surface	3,297E-01	2,930E-12	1,314E-11	TRUE
GO_POSITIVE_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	Volume	3,288E-01	3,379E-12	1,505E-11	TRUE
POOLA_INVASIVE_BREAST_CANCER_UP	Surface	3,276E-01	4,115E-12	1,821E-11	TRUE
GO_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	Volume	3,238E-01	7,496E-12	3,275E-11	TRUE
KEGG_PYRUVATE_METABOLISM	Surface	3,234E-01	7,913E-12	3,436E-11	TRUE
hugo_IPRES	Volume	3,231E-01	8,253E-12	3,561E-11	TRUE
KAUFFMANN_DNA_REPAIR_GENES	Surface	3,213E-01	1,102E-11	4,723E-11	TRUE

HALLMARK_FATTY_ACID_METABOLISM	Surface	3,182E-01	1,782E-11	7,591E-11	TRUE
HALLMARK_IL6_JAK_STAT3_SIGNALING	Surface	3,176E-01	1,928E-11	8,164E-11	TRUE
KEGG_VIRAL_MYOCARDITIS	Volume	3,169E-01	2,153E-11	9,062E-11	TRUE
KEGG_GRAFT_VERSUS_HOST_DISEASE	Volume	3,118E-01	4,690E-11	1,950E-10	TRUE
HALLMARK_COAGULATION	Volume	3,107E-01	5,515E-11	2,266E-10	TRUE
Pozniak_Interferon_responsive	Surface	3,106E-01	5,597E-11	2,285E-10	TRUE
KEGG_PYRIMIDINE_METABOLISM	Surface	3,094E-01	6,678E-11	2,711E-10	TRUE
HALLMARK_EPITHELIAL_MESENCHYMAL_TRANSITION	Volume	3,074E-01	8,966E-11	3,618E-10	TRUE
MAINA_VHL_TARGETS_DN	Surface	3,033E-01	1,638E-10	6,532E-10	TRUE
CHARAFE_BREAST_CANCER_BASAL_VS_MESENCHYMAL_DN	Surface	3,031E-01	1,687E-10	6,689E-10	TRUE
LEF1_UP.V1_UP	Volume	3,019E-01	1,995E-10	7,866E-10	TRUE
KEGG_GLYCOSAMINOGLYCAN_DEGRADATION	Volume	3,015E-01	2,124E-10	8,279E-10	TRUE
KEGG_EPITHELIAL_CELL_SIGNALING_IN_HELICOBACTER_PYLORI_INFECT	Volume	3,007E-01	2,374E-10	9,202E-10	TRUE
WU_CELL_MIGRATION	Volume	3,002E-01	2,545E-10	9,807E-10	TRUE
HALLMARK_ANDROGEN_RESPONSE	Surface	2,980E-01	3,470E-10	1,322E-09	TRUE
KEGG_FATTY_ACID_METABOLISM	Surface	2,976E-01	3,695E-10	1,400E-09	TRUE
AXL_SIGNATURE_GODING	Volume	2,952E-01	5,182E-10	1,953E-09	TRUE
ANASTASSIOU_CANCER_MESENCHYMAL_TRANSITION_SIGNATURE	Volume	2,931E-01	6,950E-10	2,605E-09	TRUE
KEGG_REGULATION_OF_ACTIN_CYTOSKELETON	Volume	2,929E-01	7,077E-10	2,639E-09	TRUE
WESTON_VEGFA_TARGETS_12HR	Volume	2,914E-01	8,806E-10	3,265E-09	TRUE
KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_GLOBO_SERIES	Volume	2,912E-01	8,976E-10	3,311E-09	TRUE
HALLMARK_HYPOXIA	Volume	2,901E-01	1,053E-09	3,861E-09	TRUE
HALLMARK_BILE_ACID_METABOLISM	Surface	2,885E-01	1,313E-09	4,790E-09	TRUE
KEGG_OTHER_GLYCAN_DEGRADATION	Volume	2,882E-01	1,369E-09	4,969E-09	TRUE
KEGG_COMPLEMENT_AND_COAGULATION_CASCADES	Volume	2,878E-01	1,442E-09	5,206E-09	TRUE
Pozniak_Stress_hypoxia	Surface	2,875E-01	1,489E-09	5,347E-09	TRUE
KEGG_CELL_ADHESION_MOLECULES_CAMS	Volume	2,869E-01	1,625E-09	5,774E-09	TRUE
KEGG_TYPE_I_DIABETES_MELLITUS	Volume	2,860E-01	1,838E-09	6,500E-09	TRUE
LU_TUMOR_VASCULATURE_UP	Surface	2,828E-01	2,807E-09	9,823E-09	TRUE
KEGG_DRUG_METABOLISM_OTHER_ENZYMES	Surface	2,818E-01	3,212E-09	1,119E-08	TRUE
HALLMARK_UV_RESPONSE_DN	Surface	2,805E-01	3,856E-09	1,336E-08	TRUE

Wouters_MES	Volume	2,799E-01	4,138E-09	1,419E-08	TRUE
KEGG_GLYCOLYSIS_GLUONEOGENESIS	Surface	2,793E-01	4,479E-09	1,529E-08	TRUE
HALLMARK_APOPTOSIS	Volume	2,770E-01	6,059E-09	2,058E-08	TRUE
HALLMARK_ESTROGEN_RESPONSE_LATE	Volume	2,755E-01	7,395E-09	2,487E-08	TRUE
ROY_WOUND_BLOOD_VESSEL_UP	Volume	2,752E-01	7,666E-09	2,565E-08	TRUE
KEGG_NUCLEOTIDE_EXCISION_REPAIR	Surface	2,742E-01	8,691E-09	2,866E-08	TRUE
VEER_INV	Surface	2,728E-01	1,052E-08	3,453E-08	TRUE
GO_REGULATION_OF_MONONUCLEAR_CELL_MIGRATION	Surface	2,724E-01	1,097E-08	3,584E-08	TRUE
KEGG_TYPE_II_DIABETES_MELLITUS	Surface	2,714E-01	1,249E-08	4,058E-08	TRUE
KEGG_RENIN_ANGIOTENSIN_SYSTEM	Volume	2,691E-01	1,683E-08	5,420E-08	TRUE
HALLMARK_MYOGENESIS	Volume	2,686E-01	1,785E-08	5,723E-08	TRUE
AP1_targets	Volume	2,681E-01	1,913E-08	6,102E-08	TRUE
VERF_INV	Volume	2,674E-01	2,069E-08	6,571E-08	TRUE
POOLA_INVASIVE_BREAST_CANCER_UP	Volume	2,669E-01	2,214E-08	6,904E-08	TRUE
HALLMARK_PEROXISOME	Surface	2,659E-01	2,511E-08	7,794E-08	TRUE
raj_resistance	Volume	2,657E-01	2,578E-08	7,967E-08	TRUE
KEGG_NATURAL_KILLER_CELL_MEDIATED_CYTOTOXICITY	Surface	2,633E-01	3,483E-08	1,067E-07	TRUE
KEGG_ANTIGEN_PROCESSING_AND_PRESENTATION	Volume	2,628E-01	3,700E-08	1,128E-07	TRUE
KEGG_CHEMOKINE_SIGNALING_PATHWAY	Surface	2,623E-01	3,942E-08	1,197E-07	TRUE
Pozniak_Mesenchymal	Volume	2,615E-01	4,318E-08	1,305E-07	TRUE
KEGG_VASCULAR_SMOOTH_MUSCLE_CONTRACTION	Volume	2,610E-01	4,588E-08	1,381E-07	TRUE
TEAD_targets	Volume	2,604E-01	4,936E-08	1,479E-07	TRUE
rambow_immune	Volume	2,589E-01	5,912E-08	1,763E-07	TRUE
KEGG_CELL_CYCLE	Surface	2,577E-01	6,863E-08	2,029E-07	TRUE
HALLMARK_REACTIVE_OXIGEN_SPECIES_PATHWAY	Volume	2,555E-01	8,958E-08	2,637E-07	TRUE
KEGG_NOTCH_SIGNALING_PATHWAY	Surface	2,545E-01	1,007E-07	2,953E-07	TRUE
KEGG_UBIQUITIN_MEDIATED_PROTEOLYSIS	Volume	2,544E-01	1,024E-07	2,989E-07	TRUE
KEGG_FATTY_ACID_METABOLISM	Volume	2,512E-01	1,486E-07	4,302E-07	TRUE
cheng_lymph_top100	Surface	2,512E-01	1,496E-07	4,311E-07	TRUE
Wouters_INT	Volume	2,497E-01	1,784E-07	5,099E-07	TRUE
MS_RESP_TO_HYPOXIA_UP_IN_MAPKi_aPDL1_NR	Surface	2,487E-01	1,999E-07	5,666E-07	TRUE
MAPKi_INDUCED_EMT	Volume	2,482E-01	2,120E-07	5,984E-07	TRUE

KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_GANGLIO_SERIES	Volume	2,467E-01	2,505E-07	7,044E-07	TRUE
KEGG_LYSINE_DEGRADATION	Surface	2,466E-01	2,539E-07	7,110E-07	TRUE
KEGG_HEDGEHOG_SIGNALING_PATHWAY	Surface	2,464E-01	2,612E-07	7,283E-07	TRUE
Pozniak_p_spec_A	Surface	2,462E-01	2,664E-07	7,399E-07	TRUE
RIESENBERG_MELANOMA_TNF_RESPONSE_GODING	Volume	2,460E-01	2,720E-07	7,494E-07	TRUE
HALLMARK_ANDROGEN_RESPONSE	Volume	2,432E-01	3,728E-07	1,019E-06	TRUE
cheng_mesench_top100	Volume	2,415E-01	4,518E-07	1,220E-06	TRUE
KEGG_WNT_SIGNALING_PATHWAY	Surface	2,414E-01	4,574E-07	1,231E-06	TRUE
GO_REGULATION_OF_FIBROBLAST_MIGRATION	Surface	2,390E-01	6,013E-07	1,611E-06	TRUE
KEGG_FOCAL_ADHESION	Volume	2,381E-01	6,616E-07	1,766E-06	TRUE
Pozniak_Antigen_presenting	Volume	2,371E-01	7,428E-07	1,967E-06	TRUE
KARAKAS_TGFB1_SIGNALING	Volume	2,367E-01	7,756E-07	2,046E-06	TRUE
KEGG_BETA_ALANINE_METABOLISM	Surface	2,360E-01	8,386E-07	2,196E-06	TRUE
KEGG_HEMATOPOIETIC_CELL_LINEAGE	Volume	2,359E-01	8,509E-07	2,219E-06	TRUE
ALONSO_METASTASIS_UP	Surface	2,343E-01	1,011E-06	2,608E-06	TRUE
HALLMARK_INFLAMMATORY_RESPONSE	Volume	2,332E-01	1,136E-06	2,908E-06	TRUE
KEGG_LYSINE_DEGRADATION	Volume	2,308E-01	1,481E-06	3,749E-06	TRUE
KEGG_ANTIGEN_PROCESSING_AND_PRESENTATION	Surface	2,305E-01	1,514E-06	3,818E-06	TRUE
Pozniak_Interferon_responsive	Volume	2,304E-01	1,546E-06	3,885E-06	TRUE
JAEGER_METASTASIS_UP	Surface	2,293E-01	1,724E-06	4,301E-06	TRUE
GO_CELLULAR_EXTRAVASATION	Volume	2,285E-01	1,875E-06	4,661E-06	TRUE
ALONSO_METASTASIS_UP	Volume	2,278E-01	2,035E-06	5,040E-06	TRUE
KEGG_VIRAL_MYOCARDITIS	Surface	2,275E-01	2,091E-06	5,161E-06	TRUE
LIEN_BREAST_CARCINOMA_METAPLASTIC	Volume	2,269E-01	2,223E-06	5,446E-06	TRUE
HKG_Chang_etal_PlosOne_2011	Surface	2,246E-01	2,826E-06	6,850E-06	TRUE
KEGG_ADIPOCYTOKINE_SIGNALING_PATHWAY	Surface	2,245E-01	2,859E-06	6,906E-06	TRUE
POST_OP_WOUNDHEALING	Volume	2,237E-01	3,134E-06	7,544E-06	TRUE
KEGG_LEISHMANIA_INFECTION	Volume	2,230E-01	3,353E-06	8,042E-06	TRUE
VECCHI_GASTRIC_CANCER_ADVANCED_VS_EARLY_UP	Volume	2,226E-01	3,510E-06	8,389E-06	TRUE
HALLMARK_GLYCOLYSIS	Volume	2,213E-01	4,016E-06	9,532E-06	TRUE
HALLMARK_APICAL_JUNCTION	Volume	2,210E-01	4,123E-06	9,754E-06	TRUE
KEGG_PROPANOATE_METABOLISM	Surface	2,209E-01	4,172E-06	9,835E-06	TRUE

KEGG_PROTEIN_EXPORT	Surface	2,203E-01	4,421E-06	1,035E-05	TRUE
HOEK_INV	Volume	2,197E-01	4,696E-06	1,096E-05	TRUE
KEGG_STEROID_HORMONE_BIOSYNTHESIS	Volume	2,195E-01	4,789E-06	1,114E-05	TRUE
KEGG_ECM_RECEPTOR_INTERACTION	Volume	2,189E-01	5,132E-06	1,189E-05	TRUE
KEGG_VIBRIO_CHOLERAЕ_INFECTION	Surface	2,182E-01	5,509E-06	1,272E-05	TRUE
HALLMARK_INTERFERON_GAMMA_RESPONSE	Volume	2,181E-01	5,531E-06	1,273E-05	TRUE
MAINA_VHL_TARGETS_DN	Volume	2,179E-01	5,634E-06	1,288E-05	TRUE
HALLMARK_IL2_STAT5_SIGNALING	Volume	2,166E-01	6,433E-06	1,466E-05	TRUE
WESTON_VEGFA_TARGETS_6HR	Volume	2,165E-01	6,543E-06	1,486E-05	TRUE
Pozniak_Neural_crest_like	Volume	2,143E-01	8,079E-06	1,829E-05	TRUE
KEGG_PRIMARY_BILE_ACID_BIOSYNTHESIS	Surface	2,136E-01	8,671E-06	1,957E-05	TRUE
HALLMARK_ANGIOGENESIS	Volume	2,133E-01	8,937E-06	2,010E-05	TRUE
GO_REGULATION_OF_MONONUCLEAR_CELL_MIGRATION	Volume	2,133E-01	9,006E-06	2,019E-05	TRUE
SEMI_9PROvs2SEMI	Volume	2,129E-01	9,319E-06	2,076E-05	TRUE
KEGG_OLFACTORY_TRANSDUCTION	Volume	2,115E-01	1,069E-05	2,374E-05	TRUE
KEGG_BETA_ALANINE_METABOLISM	Volume	2,114E-01	1,077E-05	2,383E-05	TRUE
KEGG_N_GLYCAN_BIOSYNTHESIS	Volume	2,104E-01	1,196E-05	2,638E-05	TRUE
KEGG_ENDOCYTOSIS	Volume	2,099E-01	1,246E-05	2,740E-05	TRUE
KEGG_SMALL_CELL_LUNG_CANCER	Surface	2,099E-01	1,250E-05	2,740E-05	TRUE
KEGG_GLYCOSAMINOGLYCAN_DEGRADATION	Surface	2,098E-01	1,259E-05	2,751E-05	TRUE
HARRIS_HYPOXIA	Volume	2,088E-01	1,395E-05	3,037E-05	TRUE
ALONSO_METASTASIS_EMT_UP	Volume	2,082E-01	1,472E-05	3,196E-05	TRUE
PH_BLOOD_VESS_DEVEL_DN_IN_R	Volume	2,063E-01	1,769E-05	3,827E-05	TRUE
KEGG_ALDOSTERONE_REGULATED_SODIUM_REABSORPTION	Surface	2,057E-01	1,874E-05	4,029E-05	TRUE
KEGG_GLUTATHIONE_METABOLISM	Volume	2,039E-01	2,226E-05	4,742E-05	TRUE
KEGG_N_GLYCAN_BIOSYNTHESIS	Surface	2,036E-01	2,282E-05	4,846E-05	TRUE
KEGG_BASAL_TRANSCRIPTION_FACTORS	Surface	2,036E-01	2,292E-05	4,852E-05	TRUE
MAPKi_INDUCED_ANGIOGENESIS	Volume	2,022E-01	2,606E-05	5,501E-05	TRUE
KEGG_ENDOCYTOSIS	Surface	2,022E-01	2,615E-05	5,502E-05	TRUE
KEGG_INTESTINAL_IMMUNE_NETWORK_FOR_IGA_PRODUCTION	Surface	2,005E-01	3,057E-05	6,413E-05	TRUE
MS_RESP_TO_WOUNDING_UP_IN_MAPKi_aPDL1_NR	Volume	1,995E-01	3,374E-05	7,057E-05	TRUE

HALLMARK_TNFA_SIGNALING_VIA_NFKB	Volume	1,993E-01	3,412E-05	7,114E-05	TRUE
KEGG_LYSOSOME	Surface	1,992E-01	3,464E-05	7,200E-05	TRUE
YE_METASTATIC_LIVER_CANCER	Volume	1,976E-01	3,998E-05	8,285E-05	TRUE
LEE_NEURAL_CREST_STEM_CELL_UP	Volume	1,972E-01	4,157E-05	8,589E-05	TRUE
KEGG_LIMONENE_AND_PINENE_DEGRADATION	Volume	1,969E-01	4,285E-05	8,826E-05	TRUE
HALLMARK_PROTEIN_SECRETION	Volume	1,924E-01	6,393E-05	1,309E-04	TRUE
KEGG_PPAR_SIGNALING_PATHWAY	Volume	1,919E-01	6,685E-05	1,361E-04	TRUE
JAEGER_METASTASIS_UP	Volume	1,885E-01	9,042E-05	1,835E-04	TRUE
rambow_neuro	Volume	1,876E-01	9,846E-05	1,992E-04	TRUE
KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_GANGLIO_SERIES	Surface	1,874E-01	1,002E-04	2,015E-04	TRUE
HALLMARK_ESTROGEN_RESPONSE_EARLY	Surface	1,871E-01	1,025E-04	2,057E-04	TRUE
HALLMARK_PI3K_AKT_MTOR_SIGNALING	Volume	1,870E-01	1,034E-04	2,068E-04	TRUE
CHARAFE_BREAST_CANCER_BASAL_VS_MESENCHYMAL_DN	Volume	1,869E-01	1,045E-04	2,084E-04	TRUE
KEGG_NON_HOMOLOGOUS_END_JOINING	Surface	1,868E-01	1,054E-04	2,096E-04	TRUE
SARRIO_EPITHELIAL_MESENCHYMAL_TRANSITION_DN	Volume	1,859E-01	1,141E-04	2,262E-04	TRUE
KEGG_BUTANOATE_METABOLISM	Volume	1,854E-01	1,189E-04	2,350E-04	TRUE
KEGG_ALDOSTERONE_REGULATED_SODIUM_REABSORPTION	Volume	1,848E-01	1,252E-04	2,467E-04	TRUE
KEGG_NOD_LIKE_RECEPTOR_SIGNALING_PATHWAY	Volume	1,837E-01	1,375E-04	2,703E-04	TRUE
XU_INV	Volume	1,836E-01	1,387E-04	2,719E-04	TRUE
KEGG_SMALL_CELL_LUNG_CANCER	Volume	1,828E-01	1,488E-04	2,907E-04	TRUE
KEGG_RENIN_ANGIOTENSIN_SYSTEM	Surface	1,827E-01	1,493E-04	2,910E-04	TRUE
HALLMARK_HEDGEHOG_SIGNALING	Volume	1,824E-01	1,538E-04	2,989E-04	TRUE
KEGG_TGF_BETA_SIGNALING_PATHWAY	Volume	1,818E-01	1,616E-04	3,131E-04	TRUE
raj_drug_response	Surface	1,809E-01	1,736E-04	3,355E-04	TRUE
KEGG_ABC_TRANSPORTERS	Surface	1,803E-01	1,825E-04	3,516E-04	TRUE
MS_RESP_TO_HYPOXIA_UP_IN_MAPKi_aPDL1_NR	Volume	1,790E-01	2,047E-04	3,934E-04	TRUE
KEGG_PRION_DISEASES	Surface	1,789E-01	2,059E-04	3,946E-04	TRUE
KEGG_VEGF_SIGNALING_PATHWAY	Volume	1,770E-01	2,405E-04	4,570E-04	TRUE
KEGG_NOD_LIKE_RECEPTOR_SIGNALING_PATHWAY	Surface	1,768E-01	2,443E-04	4,630E-04	TRUE
HALLMARK_INTERFERON_ALPHA_RESPONSE	Volume	1,764E-01	2,533E-04	4,787E-04	TRUE
KEGG_NEUROTROPHIN_SIGNALING_PATHWAY	Volume	1,757E-01	2,684E-04	5,058E-04	TRUE

KEGG_RIG_I_LIKE_RECEPTOR_SIGNALING_PATHWAY	Volume	1,750E-01	2,847E-04	5,351E-04	TRUE
KEGG_FC_GAMMA_R_MEDIATED_PHAGOCYTOSIS	Volume	1,747E-01	2,900E-04	5,436E-04	TRUE
HALLMARK_ADIPOGENESIS	Volume	1,746E-01	2,938E-04	5,492E-04	TRUE
MINN_INV	Volume	1,733E-01	3,271E-04	6,081E-04	TRUE
GO_REGULATION_OF_CELL_MIGRATION_INVOLVED_IN_SPROUTING_ANGIOGENESIS	Volume	1,732E-01	3,296E-04	6,112E-04	TRUE
MINN_PRO	Surface	1,725E-01	3,470E-04	6,417E-04	TRUE
KAUFFMANN_DNA_REPLICATION_GENES	Surface	1,708E-01	3,978E-04	7,336E-04	TRUE
HALLMARK_MITOTIC_SPINDLE	Volume	1,706E-01	4,054E-04	7,456E-04	TRUE
cheng_lymph_top100	Volume	1,705E-01	4,076E-04	7,476E-04	TRUE
KEGG_REGULATION_OF_AUTOPHAGY	Volume	1,681E-01	4,923E-04	9,006E-04	TRUE
HALLMARK_SPERMATOGENESIS	Volume	1,665E-01	5,582E-04	1,018E-03	TRUE
MISHRA_CARCINOMA_ASSOCIATED_FIBROBLAST_UP	Volume	1,661E-01	5,791E-04	1,054E-03	TRUE
KEGG_DNA_REPLICATION	Surface	1,639E-01	6,821E-04	1,235E-03	TRUE
KEGG_O_GLYCAN_BIOSYNTHESIS	Surface	1,628E-01	7,467E-04	1,348E-03	TRUE
KEGG_CALCIUM_SIGNALING_PATHWAY	Surface	1,626E-01	7,576E-04	1,364E-03	TRUE
KEGG_ASTHMA	Surface	1,620E-01	7,879E-04	1,411E-03	TRUE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_CHONDROITIN_SULFATE	Surface	1,618E-01	8,047E-04	1,438E-03	TRUE
KEGG_BASAL_TRANSCRIPTION_FACTORS	Volume	1,601E-01	9,146E-04	1,625E-03	TRUE
KEGG_AMINO_SUGAR_AND_NUCLEOTIDE_SUGAR_METABOLISM	Volume	1,588E-01	1,002E-03	1,775E-03	TRUE
KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_GLOBO_SERIES	Surface	1,588E-01	1,006E-03	1,775E-03	TRUE
KEGG_OTHER_GLYCAN_DEGRADATION	Surface	1,588E-01	1,007E-03	1,775E-03	TRUE
KEGG_DILATED_CARDIOMYOPATHY	Volume	1,581E-01	1,056E-03	1,848E-03	TRUE
KEGG_PROTEIN_EXPORT	Volume	1,571E-01	1,145E-03	1,994E-03	TRUE
KEGG_NEUROACTIVE_LIGAND_RECEPTOR_INTERACTION	Surface	1,559E-01	1,243E-03	2,158E-03	TRUE
Pozniak_Stress_hypoxia	Volume	1,559E-01	1,249E-03	2,164E-03	TRUE
KEGG_HYPERTROPHIC_CARDIOMYOPATHY_HCM	Volume	1,550E-01	1,329E-03	2,289E-03	TRUE
HALLMARK_KRAS_SIGNALING_UP	Surface	1,550E-01	1,331E-03	2,289E-03	TRUE
RAMASWAMY_PRO	Volume	1,526E-01	1,583E-03	2,708E-03	TRUE
KEGG_PENTOSE_PHOSPHATE_PATHWAY	Volume	1,516E-01	1,706E-03	2,911E-03	TRUE

KEGG_GLYCOSYLPHOSPHATIDYLINOSITOL_GPI_ANCHOR_BIOSYNTHESIS	Volume	1,515E-01	1,711E-03	2,912E-03	TRUE
KEGG_ARGININE_AND_PROLINE_METABOLISM	Volume	1,508E-01	1,806E-03	3,058E-03	TRUE
KEGG_ETHER_LIPID_METABOLISM	Surface	1,506E-01	1,826E-03	3,086E-03	TRUE
KEGG_P53_SIGNALING_PATHWAY	Volume	1,504E-01	1,859E-03	3,133E-03	TRUE
KEGG_GNRH_SIGNALING_PATHWAY	Surface	1,496E-01	1,965E-03	3,304E-03	TRUE
HALLMARK_P53_PATHWAY	Volume	1,486E-01	2,106E-03	3,532E-03	TRUE
cheng_mitotic_top100	Volume	1,485E-01	2,116E-03	3,541E-03	TRUE
Pozniak_Mitotic	Volume	1,458E-01	2,552E-03	4,229E-03	TRUE
KEGG_PYRIMIDINE_METABOLISM	Volume	1,453E-01	2,638E-03	4,350E-03	TRUE
JEON_SMAD6_TARGETS_DN	Surface	1,438E-01	2,924E-03	4,810E-03	TRUE
KEGG_HOMOLOGOUS_RECOMBINATION	Volume	1,437E-01	2,946E-03	4,835E-03	TRUE
KEGG_NATURAL_KILLER_CELL_MEDIATED_CYTOTOXICITY	Volume	1,421E-01	3,297E-03	5,397E-03	TRUE
GO_NEGATIVE_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	Surface	1,397E-01	3,854E-03	6,294E-03	TRUE
KAUFFMANN_MELANOMA_RELAPSE_UP	Volume	1,393E-01	3,980E-03	6,485E-03	TRUE
KEGG_PATHOGENIC_ESCHERICHIA_COLI_INFECTION	Surface	1,392E-01	4,000E-03	6,502E-03	TRUE
KEGG_CELL_CYCLE	Volume	1,386E-01	4,168E-03	6,759E-03	TRUE
KEGG_MISMATCH_REPAIR	Surface	1,382E-01	4,262E-03	6,896E-03	TRUE
KEGG_LEUKOCYTE_TRANSENDOTHELIAL_MIGRATION	Volume	1,374E-01	4,497E-03	7,258E-03	TRUE
KEGG_FOLATE_BIOSYNTHESIS	Surface	1,355E-01	5,098E-03	8,210E-03	TRUE
KAUFFMANN_DNA_REPLICATION_GENES	Volume	1,353E-01	5,155E-03	8,262E-03	TRUE
KEGG_PATHOGENIC_ESCHERICHIA_COLI_INFECTION	Volume	1,352E-01	5,195E-03	8,307E-03	TRUE
HALLMARK_ESTROGEN_RESPONSE_LATE	Surface	1,350E-01	5,267E-03	8,403E-03	TRUE
KEGG_CALCIUM_SIGNALING_PATHWAY	Volume	1,332E-01	5,915E-03	9,393E-03	TRUE
KEGG_TERPENOID_BACKBONE_BIOSYNTHESIS	Surface	1,329E-01	5,998E-03	9,503E-03	TRUE
KEGG_TIGHT_JUNCTION	Surface	1,322E-01	6,266E-03	9,881E-03	TRUE
VEER_INV	Volume	1,310E-01	6,769E-03	1,063E-02	FALSE
KEGG_PANTOTHENATE_AND_COA_BIOSYNTHESIS	Surface	1,309E-01	6,814E-03	1,067E-02	FALSE
KEGG_NEUROACTIVE_LIGAND_RECEPTOR_INTERACTION	Volume	1,308E-01	6,869E-03	1,073E-02	FALSE
HALLMARK_NOTCH_SIGNALING	Surface	1,306E-01	6,935E-03	1,081E-02	FALSE
KEGG_PEROXISOME	Surface	1,302E-01	7,111E-03	1,106E-02	FALSE
KEGG_PRIMARY_BILE_ACID_BIOSYNTHESIS	Volume	1,293E-01	7,554E-03	1,172E-02	FALSE

RAMASWAMY_PRO	Surface	1,269E-01	8,733E-03	1,352E-02	FALSE
KEGG_NUCLEOTIDE_EXCISION_REPAIR	Volume	1,266E-01	8,917E-03	1,378E-02	FALSE
GO_CELL_MIGRATION_INVOLVED_IN_GASTRULATION	Surface	1,212E-01	1,233E-02	1,885E-02	FALSE
KEGG_OOCYTE_MEIOSIS	Volume	1,211E-01	1,234E-02	1,885E-02	FALSE
HALLMARK_UV_RESPONSE_DN	Volume	1,205E-01	1,279E-02	1,950E-02	FALSE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_KERATAN_SULFATE	Surface	1,194E-01	1,368E-02	2,081E-02	FALSE
KEGG_INTESTINAL_IMMUNE_NETWORK_FOR_IGA_PRODUCTION	Volume	1,191E-01	1,391E-02	2,111E-02	FALSE
GO_REGULATION_OF_FIBROBLAST_MIGRATION	Volume	1,188E-01	1,414E-02	2,137E-02	FALSE
ALONSO_METASTASIS_EMT_UP	Surface	1,173E-01	1,546E-02	2,332E-02	FALSE
KEGG_ASTMHA	Volume	1,172E-01	1,553E-02	2,336E-02	FALSE
GO_NEGATIVE_REGULATION_OF_BLOOD_VESSEL_ENDOTHELIAL_CELL_MIGRATION	Volume	1,163E-01	1,632E-02	2,450E-02	FALSE
KAUFFMANN_MELANOMA_RELAPSE_DN	Surface	1,161E-01	1,648E-02	2,469E-02	FALSE
HALLMARK_XENOBIOTIC_METABOLISM	Volume	1,149E-01	1,764E-02	2,630E-02	FALSE
KEGG_BUTANOATE_METABOLISM	Surface	1,147E-01	1,783E-02	2,654E-02	FALSE
HALLMARK_DNA_REPAIR	Surface	1,142E-01	1,833E-02	2,722E-02	FALSE
KEGG_SYSTEMIC_LUPUS_ERYTHEMATOSUS	Volume	1,126E-01	2,012E-02	2,975E-02	FALSE
HALLMARK_FATTY_ACID_METABOLISM	Volume	1,121E-01	2,063E-02	3,043E-02	FALSE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_HEPARAN_SULFATE	Surface	1,115E-01	2,130E-02	3,129E-02	FALSE
LU_TUMOR_ANGIOGENESIS_UP	Volume	1,115E-01	2,139E-02	3,135E-02	FALSE
KEGG_SNARE_INTERACTIONS_IN_VESICULAR_TRANSPORT	Surface	1,113E-01	2,158E-02	3,157E-02	FALSE
KEGG_FRUCTOSE_AND_MANNOSE_METABOLISM	Volume	1,109E-01	2,209E-02	3,225E-02	FALSE
KAUFFMANN_MELANOMA_RELAPSE_UP	Surface	1,108E-01	2,222E-02	3,236E-02	FALSE
GO_AMEBOIDAL_TYPE_CELL_MIGRATION	Volume	1,103E-01	2,278E-02	3,311E-02	FALSE
KEGG_LIMONENE_AND_PINENE_DEGRADATION	Surface	1,097E-01	2,361E-02	3,425E-02	FALSE
HALLMARK_ESTROGEN_RESPONSE_EARLY	Volume	1,096E-01	2,367E-02	3,426E-02	FALSE
KEGG_TOLL_LIKE_RECEPTOR_SIGNALING_PATHWAY	Volume	1,081E-01	2,568E-02	3,701E-02	FALSE
KEGG_CIRCADIAN_RHYTHM_MAMMAL	Surface	1,080E-01	2,579E-02	3,709E-02	FALSE
WINNEPENINCKX_MELANOMA_METASTASIS_DN	Volume	1,076E-01	2,638E-02	3,786E-02	FALSE
KEGG_PRION_DISEASES	Volume	1,075E-01	2,645E-02	3,788E-02	FALSE

HALLMARK_UV_RESPONSE_UP	Volume	1,067E-01	2,770E-02	3,959E-02	FALSE
GO_POSITIVE_REGULATION_OF_FIBROBLAST_MIGRATION	Surface	1,059E-01	2,889E-02	4,120E-02	FALSE
HALLMARK_ALLOGRAFT_REJECTION	Surface	1,055E-01	2,944E-02	4,190E-02	FALSE
KEGG_VALINE_LEUCINE_AND_ISOLEUCINE_DEGRADATION	Volume	1,055E-01	2,954E-02	4,196E-02	FALSE
KEGG_STEROID_BIOSYNTHESIS	Volume	1,049E-01	3,048E-02	4,320E-02	FALSE
KEGG_AMYOTROPHIC_LATERAL_SCLEROSIS_ALS	Volume	1,037E-01	3,244E-02	4,589E-02	FALSE
KEGG_ARACHIDONIC_ACID_METABOLISM	Volume	1,035E-01	3,263E-02	4,606E-02	FALSE
HALLMARK_KRAS_SIGNALING_DN	Volume	1,033E-01	3,296E-02	4,643E-02	FALSE
JEFFS_INV	Volume	1,025E-01	3,443E-02	4,839E-02	FALSE
HALLMARK_UV_RESPONSE_UP	Surface	1,010E-01	3,712E-02	5,207E-02	FALSE
KEGG_LONG_TERM_POTENTIATION	Surface	1,007E-01	3,768E-02	5,275E-02	FALSE
KEGG_OXIDATIVE_PHOSPHORYLATION	Volume	9,943E-02	4,025E-02	5,612E-02	FALSE
HALLMARK_NOTCH_SIGNALING	Volume	9,943E-02	4,025E-02	5,612E-02	FALSE
KEGG_B_CELL_RECEPTOR_SIGNALING_PATHWAY	Surface	9,867E-02	4,179E-02	5,815E-02	FALSE
KEGG_RENAL_CELL_CARCINOMA	Volume	9,808E-02	4,305E-02	5,966E-02	FALSE
KEGG_APOPTOSIS	Volume	9,791E-02	4,341E-02	6,000E-02	FALSE
KEGG_SNARE_INTERACTIONS_IN_VESICULAR_TRANSPORT	Volume	9,788E-02	4,347E-02	6,000E-02	FALSE
SARRIO_EPITHELIAL_MESENCHYMAL_TRANSITION_UP	Volume	9,764E-02	4,400E-02	6,049E-02	FALSE
HALLMARK_ADIPOGENESIS	Surface	9,732E-02	4,470E-02	6,121E-02	FALSE
KEGG_VASOPRESSIN_REGULATED_WATER_REABSORPTION	Volume	9,656E-02	4,640E-02	6,316E-02	FALSE
GO_WOUND_HEALING_SPREADING_OF_EPIDERMAL_CELLS	Volume	9,591E-02	4,789E-02	6,506E-02	FALSE
KEGG_RETINOL_METABOLISM	Volume	9,574E-02	4,829E-02	6,533E-02	FALSE
KEGG_GALACTOSE_METABOLISM	Volume	9,499E-02	5,008E-02	6,724E-02	FALSE
KEGG_STEROID_BIOSYNTHESIS	Surface	9,260E-02	5,616E-02	7,481E-02	FALSE
KEGG_GNRH_SIGNALING_PATHWAY	Volume	9,220E-02	5,725E-02	7,611E-02	FALSE
KEGG_GLYCOLYSIS_GLUONEOGENESIS	Volume	9,149E-02	5,918E-02	7,838E-02	FALSE
KEGG_DRUG_METABOLISM_CYTOCHROME_P450	Volume	9,104E-02	6,047E-02	7,993E-02	FALSE
KEGG_METABOLISM_OF_XENOBIOTICS_BY_CYTOCHROME_P450	Volume	9,056E-02	6,185E-02	8,159E-02	FALSE
KEGG_WNT_SIGNALING_PATHWAY	Volume	9,023E-02	6,279E-02	8,268E-02	FALSE
KEGG_O_GLYCAN_BIOSYNTHESIS	Volume	8,949E-02	6,498E-02	8,523E-02	FALSE
KAUFFMANN_MELANOMA_RELAPSE_DN	Volume	8,899E-02	6,651E-02	8,690E-02	FALSE
KEGG_CARDIAC_MUSCLE_CONTRACTION	Volume	8,818E-02	6,903E-02	8,985E-02	FALSE

KEGG_PROTEASOME	Volume	8,786E-02	7,006E-02	9,103E-02	FALSE
KEGG_HUNTINGTONS_DISEASE	Volume	8,745E-02	7,137E-02	9,255E-02	FALSE
KEGG_PHOSPHATIDYLINOSITOL_SIGNALING_SYSTEM	Volume	8,614E-02	7,575E-02	9,804E-02	FALSE
HALLMARK_BILE_ACID_METABOLISM	Volume	8,522E-02	7,894E-02	1,018E-01	FALSE
KEGG_TASTE_TRANSDUCTION	Volume	8,493E-02	7,996E-02	1,029E-01	FALSE
KEGG_GLYCEROLIPID_METABOLISM	Volume	8,368E-02	8,450E-02	1,079E-01	FALSE
KEGG_NICOTINATE_AND_NICOTINAMIDE_METABOLISM	Surface	8,351E-02	8,516E-02	1,086E-01	FALSE
Pozniak_Mitotic	Surface	8,275E-02	8,804E-02	1,120E-01	FALSE
LU_TUMOR_ENDOTHELIAL_MARKERS_UP	Surface	8,246E-02	8,914E-02	1,132E-01	FALSE
KAUFFMANN_DNA_REPAIR_GENES	Volume	8,239E-02	8,943E-02	1,134E-01	FALSE
ALONSO_METASTASIS_EMT_DN	Surface	8,103E-02	9,487E-02	1,196E-01	FALSE
KEGG_HISTIDINE_METABOLISM	Surface	8,086E-02	9,558E-02	1,203E-01	FALSE
KEGG_PANCREATIC_CANCER	Volume	8,009E-02	9,878E-02	1,241E-01	FALSE
KEGG_EPITHELIAL_CELL_SIGNALING_IN_HELICOBACTER_PYLORI_INFECTION	Surface	7,777E-02	1,090E-01	1,364E-01	FALSE
KEGG_ALZHEIMERS_DISEASE	Volume	7,436E-02	1,254E-01	1,564E-01	FALSE
HKG_Chang_etal_PlosOne_2011	Volume	7,334E-02	1,307E-01	1,624E-01	FALSE
KEGG_LONG_TERM_POTENTIATION	Volume	7,313E-02	1,318E-01	1,635E-01	FALSE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_CHONDROITIN_SULFATE	Volume	7,295E-02	1,328E-01	1,644E-01	FALSE
KEGG_BIOSYNTHESIS_OF_UNSATURATED_FATTY_ACIDS	Volume	7,059E-02	1,458E-01	1,789E-01	FALSE
KEGG_AXON_GUIDANCE	Surface	6,914E-02	1,543E-01	1,886E-01	FALSE
GO_CELL_MIGRATION_INVOLVED_IN_GASTRULATION	Volume	6,888E-02	1,558E-01	1,902E-01	FALSE
KEGG_PYRUVATE_METABOLISM	Volume	6,826E-02	1,596E-01	1,945E-01	FALSE
KEGG_CYSTEINE_AND_METHIONINE_METABOLISM	Volume	6,745E-02	1,646E-01	1,999E-01	FALSE
KEGG_TERPENOID_BACKBONE_BIOSYNTHESIS	Volume	6,685E-02	1,685E-01	2,042E-01	FALSE
HALLMARK_OXIDATIVE_PHOSPHORYLATION	Volume	6,649E-02	1,707E-01	2,062E-01	FALSE
KEGG_ARRHYTHMOGENIC_RIGHT_VENTRICULAR_CARDIOMYOPATHY_ARVC	Volume	6,642E-02	1,712E-01	2,064E-01	FALSE
KEGG_SULFUR_METABOLISM	Surface	6,608E-02	1,734E-01	2,083E-01	FALSE
HALLMARK_HEME_METABOLISM	Volume	6,601E-02	1,739E-01	2,085E-01	FALSE
KEGG_PRIMARY_IMMUNODEFICIENCY	Surface	6,585E-02	1,749E-01	2,094E-01	FALSE
HALLMARK_SPERMATOGENESIS	Surface	6,580E-02	1,753E-01	2,095E-01	FALSE

KEGG_ADHERENS_JUNCTION	Surface	6,558E-02	1,767E-01	2,108E-01	FALSE
KEGG_BLADDER_CANCER	Volume	6,545E-02	1,776E-01	2,115E-01	FALSE
WINNEPENNINGX_MELANOMA_METASTASIS_UP	Volume	6,487E-02	1,814E-01	2,157E-01	FALSE
KEGG_TAURINE_AND_HYPOTAURINE_METABOLISM	Surface	6,250E-02	1,980E-01	2,346E-01	FALSE
KEGG_ABC_TRANSPORTERS	Volume	6,196E-02	2,019E-01	2,388E-01	FALSE
MAHADEVAN_GIST_MORPHOLOGICAL_SWITCH	Volume	6,127E-02	2,069E-01	2,443E-01	FALSE
KEGG_VALINE_LEUCINE_AND_ISOLEUCINE_DEGRADATION	Surface	5,969E-02	2,189E-01	2,576E-01	FALSE
KEGG_PATHWAYS_IN_CANCER	Volume	5,879E-02	2,259E-01	2,654E-01	FALSE
KEGG_MATURITY_ONSET_DIABETES_OF_THE_YOUNG	Surface	5,861E-02	2,274E-01	2,665E-01	FALSE
KEGG_CHEMOKINE_SIGNALING_PATHWAY	Volume	5,858E-02	2,276E-01	2,665E-01	FALSE
KEGG_APOPTOSIS	Surface	5,851E-02	2,282E-01	2,667E-01	FALSE
KEGG_RENAL_CELL_CARCINOMA	Surface	5,718E-02	2,389E-01	2,788E-01	FALSE
GO_POSITIVE_REGULATION_OF_FIBROBLAST_MIGRATION	Volume	5,709E-02	2,397E-01	2,792E-01	FALSE
KEGG_PORPHYRIN_AND_CHLOROPHYLL_METABOLISM	Surface	5,516E-02	2,560E-01	2,971E-01	FALSE
KEGG_NITROGEN_METABOLISM	Volume	5,327E-02	2,726E-01	3,143E-01	FALSE
SARRIO_EPITHELIAL_MESENCHYMAL_TRANSITION_UP	Surface	5,322E-02	2,731E-01	3,143E-01	FALSE
rambow_invasion	Volume	5,142E-02	2,896E-01	3,322E-01	FALSE
ALONSO_METASTASIS_DN	Surface	4,971E-02	3,060E-01	3,487E-01	FALSE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_KERATAN_SULFATE	Volume	4,827E-02	3,203E-01	3,643E-01	FALSE
KEGG_GAP_JUNCTION	Volume	4,775E-02	3,255E-01	3,697E-01	FALSE
HALLMARK_ALLOGRAFT_REJECTION	Volume	4,757E-02	3,273E-01	3,710E-01	FALSE
HKG_Eisenberg_etal_TIG_2013	Volume	4,704E-02	3,328E-01	3,761E-01	FALSE
LU_TUMOR_VASCULATURE_UP	Volume	4,478E-02	3,565E-01	4,016E-01	FALSE
KEGG_ETHER_LIPID_METABOLISM	Volume	4,403E-02	3,646E-01	4,101E-01	FALSE
KEGG_SULFUR_METABOLISM	Volume	4,000E-02	4,102E-01	4,598E-01	FALSE
HALLMARK_PEROXISOME	Volume	3,982E-02	4,123E-01	4,614E-01	FALSE
KEGG_PARKINSONS_DISEASE	Volume	3,908E-02	4,211E-01	4,697E-01	FALSE
KEGG_DNA_REPLICATION	Volume	3,882E-02	4,242E-01	4,716E-01	FALSE
MINN_PRO	Volume	3,783E-02	4,360E-01	4,840E-01	FALSE
KEGG_NOTCH_SIGNALING_PATHWAY	Volume	3,712E-02	4,448E-01	4,930E-01	FALSE
KEGG_SPHINGOLIPID_METABOLISM	Volume	3,649E-02	4,525E-01	5,007E-01	FALSE
HALLMARK_DNA_REPAIR	Volume	3,320E-02	4,944E-01	5,426E-01	FALSE

VEER_PRO	Volume	3,209E-02	5,089E-01	5,576E-01	FALSE
KEGG_ASCORBATE_AND_ALDARATE_METABOLISM	Volume	3,084E-02	5,255E-01	5,750E-01	FALSE
MAHADEVAN_GIST_MORPHOLOGICAL_SWITCH	Surface	2,929E-02	5,466E-01	5,961E-01	FALSE
KEGG_TYPE_II_DIABETES_MELLITUS	Volume	2,919E-02	5,479E-01	5,966E-01	FALSE
KEGG_MAPK_SIGNALING_PATHWAY	Volume	2,908E-02	5,495E-01	5,974E-01	FALSE
KEGG_PROPANOATE_METABOLISM	Volume	2,732E-02	5,738E-01	6,219E-01	FALSE
SALUBRINAL_SIGNATURE_GODING	Surface	2,690E-02	5,798E-01	6,264E-01	FALSE
HALLMARK_TGF_BETA_SIGNALING	Surface	2,656E-02	5,845E-01	6,305E-01	FALSE
KEGG_NON_HOMOLOGOUS_END_JOINING	Volume	2,632E-02	5,880E-01	6,333E-01	FALSE
KEGG_ASCORBATE_AND_ALDARATE_METABOLISM	Surface	2,500E-02	6,069E-01	6,495E-01	FALSE
KEGG_PHOSPHATIDYLINOSITOL_SIGNALING_SYSTEM	Surface	2,493E-02	6,079E-01	6,496E-01	FALSE
KEGG_MATURITY_ONSET_DIABETES_OF_THE_YOUNG	Volume	2,453E-02	6,136E-01	6,537E-01	FALSE
ALONSO_METASTASIS_EMT_DN	Volume	2,361E-02	6,270E-01	6,668E-01	FALSE
KEGG_CYTOKINE_CYTOKINE_RECEPTOR_INTERACTION	Volume	2,255E-02	6,426E-01	6,814E-01	FALSE
HALLMARK_KRAS_SIGNALING_UP	Volume	2,255E-02	6,426E-01	6,814E-01	FALSE
KEGG_TAURINE_AND_HYPOTAURINE_METABOLISM	Volume	2,115E-02	6,634E-01	7,023E-01	FALSE
KEGG_RNA_POLYMERASE	Surface	2,087E-02	6,676E-01	7,056E-01	FALSE
KEGG_NICOTINATE_AND_NICOTINAMIDE_METABOLISM	Volume	2,035E-02	6,753E-01	7,127E-01	FALSE
KEGG_BASE_EXCISION_REPAIR	Surface	1,899E-02	6,959E-01	7,311E-01	FALSE
KEGG_RNA_POLYMERASE	Volume	1,411E-02	7,715E-01	8,068E-01	FALSE
KEGG_HEDGEHOG_SIGNALING_PATHWAY	Volume	1,380E-02	7,763E-01	8,106E-01	FALSE
KEGG_METABOLISM_OF_XENOBIOTICS_BY_CYTOCHROME_P450	Surface	1,206E-02	8,041E-01	8,357E-01	FALSE
KEGG_MISMATCH_REPAIR	Volume	1,169E-02	8,099E-01	8,405E-01	FALSE
KEGG_CHRONIC_MYELOID_LEUKEMIA	Volume	9,226E-03	8,494E-01	8,802E-01	FALSE
KEGG_B_CELL_RECEPTOR_SIGNALING_PATHWAY	Volume	7,839E-03	8,718E-01	9,021E-01	FALSE
KEGG_T_CELL_RECEPTOR_SIGNALING_PATHWAY	Volume	7,431E-03	8,784E-01	9,059E-01	FALSE
JAEGER_METASTASIS_DN	Volume	7,413E-03	8,787E-01	9,059E-01	FALSE
KEGG_TIGHT_JUNCTION	Volume	7,366E-03	8,795E-01	9,059E-01	FALSE
KEGG_ADHERENS_JUNCTION	Volume	6,867E-03	8,876E-01	9,129E-01	FALSE
ALONSO_METASTASIS_NEURAL_UP	Volume	5,797E-03	9,050E-01	9,280E-01	FALSE
HALLMARK_IL6_JAK_STAT3_SIGNALING	Volume	5,596E-03	9,083E-01	9,300E-01	FALSE
KEGG_DRUG_METABOLISM_CYTOCHROME_P450	Surface	5,460E-03	9,105E-01	9,308E-01	FALSE

KEGG_GLIOMA	Volume	4,746E-03	9,222E-01	9,400E-01	FALSE
RAMASWAMY_INV	Volume	4,518E-03	9,259E-01	9,418E-01	FALSE
raj_drug_response	Volume	4,007E-03	9,343E-01	9,467E-01	FALSE
WINNEPENNINGX_MELANOMA_METASTASIS_UP	Surface	3,174E-03	9,479E-01	9,591E-01	FALSE
KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_LACTO_AND_NEOLACTO_SERIES	Surface	2,897E-03	9,525E-01	9,623E-01	FALSE
KEGG_ADIPOCYTOKINE_SIGNALING_PATHWAY	Volume	2,536E-03	9,584E-01	9,662E-01	FALSE
KEGG_GLYCOSAMINOGLYCAN_BIOSYNTHESIS_HEPARAN_SULFATE	Volume	2,434E-03	9,600E-01	9,662E-01	FALSE
KEGG_PURINE_METABOLISM	Volume	2,314E-03	9,620E-01	9,662E-01	FALSE
KEGG_TRYPTOPHAN_METABOLISM	Volume	6,086E-04	9,900E-01	9,915E-01	FALSE
KEGG_PANCREATIC_CANCER	Surface	-3,299E-04	9,946E-01	9,946E-01	FALSE
KEGG_CYTOSOLIC_DNA_SENSING_PATHWAY	Surface	-1,663E-03	9,727E-01	9,755E-01	FALSE
HALLMARK_TGF_BETA_SIGNALING	Volume	-2,363E-03	9,612E-01	9,662E-01	FALSE
KEGG_DORSO_VENTRAL_AXIS_FORMATION	Volume	-4,199E-03	9,311E-01	9,449E-01	FALSE
Pozniak_p_spec_A	Volume	-4,469E-03	9,267E-01	9,418E-01	FALSE
KEGG_GLIOMA	Surface	-5,382E-03	9,118E-01	9,308E-01	FALSE
KEGG_PEROXISOME	Volume	-6,203E-03	8,984E-01	9,226E-01	FALSE
KEGG_T_CELL_RECEPTOR_SIGNALING_PATHWAY	Surface	-1,222E-02	8,014E-01	8,342E-01	FALSE
HKG_Eisenberg_etal_TIG_2013	Surface	-1,242E-02	7,982E-01	8,322E-01	FALSE
KEGG_PPAR_SIGNALING_PATHWAY	Surface	-1,724E-02	7,227E-01	7,569E-01	FALSE
cheng_mitotic_top100	Surface	-1,874E-02	6,997E-01	7,340E-01	FALSE
SALUBRINAL_SIGNATURE_GODING	Volume	-1,954E-02	6,875E-01	7,234E-01	FALSE
KEGG_INOSITOL_PHOSPHATE_METABOLISM	Volume	-1,956E-02	6,873E-01	7,234E-01	FALSE
HALLMARK_MTORC1_SIGNALING	Volume	-2,469E-02	6,113E-01	6,522E-01	FALSE
KEGG_CYTOKINE_CYTOKINE_RECEPTOR_INTERACTION	Surface	-2,581E-02	5,953E-01	6,381E-01	FALSE
KEGG_PENTOSE_AND_GLUCURONATE_INTERCONVERSIONS	Volume	-2,613E-02	5,907E-01	6,341E-01	FALSE
KEGG_ERBB_SIGNALING_PATHWAY	Surface	-2,621E-02	5,895E-01	6,339E-01	FALSE
KEGG_AXON_GUIDANCE	Volume	-2,721E-02	5,755E-01	6,227E-01	FALSE
HALLMARK_CHOLESTEROL_HOMEOSTASIS	Volume	-2,818E-02	5,619E-01	6,099E-01	FALSE
ALONSO_METASTASIS_DN	Volume	-2,984E-02	5,391E-01	5,889E-01	FALSE
KEGG_PANTOTHENATE_AND_COA_BIOSYNTHESIS	Volume	-3,464E-02	4,758E-01	5,230E-01	FALSE
HALLMARK_HEME_METABOLISM	Surface	-3,531E-02	4,673E-01	5,145E-01	FALSE

KEGG_FC_EPSILON_RI_SIGNALING_PATHWAY	Volume	-3,578E-02	4,614E-01	5,089E-01	FALSE
KEGG_PHENYLALANINE_METABOLISM	Surface	-3,626E-02	4,554E-01	5,031E-01	FALSE
KEGG_PRIMARY_IMMUNODEFICIENCY	Volume	-3,885E-02	4,238E-01	4,716E-01	FALSE
KEGG_CITRATE_CYCLE_TCA_CYCLE	Volume	-3,964E-02	4,145E-01	4,631E-01	FALSE
HALLMARK_G2M_CHECKPOINT	Volume	-4,334E-02	3,722E-01	4,179E-01	FALSE
KEGG_AMYOTROPHIC_LATERAL_SCLEROSIS_ALS	Surface	-4,600E-02	3,436E-01	3,877E-01	FALSE
KEGG_COLORECTAL_CANCER	Volume	-4,753E-02	3,277E-01	3,710E-01	FALSE
KEGG_PATHWAYS_IN_CANCER	Surface	-5,024E-02	3,008E-01	3,434E-01	FALSE
rambow_mitosis	Volume	-5,113E-02	2,924E-01	3,343E-01	FALSE
KEGG_ARGININE_AND_PROLINE_METABOLISM	Surface	-5,134E-02	2,904E-01	3,326E-01	FALSE
rambow_MITF_targets	Volume	-5,175E-02	2,865E-01	3,292E-01	FALSE
XU_PRO	Volume	-5,426E-02	2,638E-01	3,046E-01	FALSE
KEGG_RETINOL_METABOLISM	Surface	-5,428E-02	2,636E-01	3,046E-01	FALSE
KEGG_BLADDER_CANCER	Surface	-5,503E-02	2,571E-01	2,979E-01	FALSE
KEGG_DORSO_VENTRAL_AXIS_FORMATION	Surface	-5,542E-02	2,537E-01	2,950E-01	FALSE
KEGG_STARCH_AND_SUCROSE_METABOLISM	Volume	-6,052E-02	2,125E-01	2,505E-01	FALSE
KEGG_BASE_EXCISION_REPAIR	Volume	-6,258E-02	1,974E-01	2,343E-01	FALSE
KEGG_DRUG_METABOLISM_OTHER_ENZYMES	Volume	-6,628E-02	1,721E-01	2,071E-01	FALSE
KEGG_PURINE_METABOLISM	Surface	-6,658E-02	1,702E-01	2,059E-01	FALSE
JEFFS_PRO	Volume	-6,769E-02	1,631E-01	1,984E-01	FALSE
KEGG_GLYCEROPHOSPHOLIPID_METABOLISM	Volume	-6,938E-02	1,529E-01	1,873E-01	FALSE
KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_LACTO_AND_NEOLACTO_SERIES	Volume	-7,107E-02	1,431E-01	1,759E-01	FALSE
KEGG_RIBOFLAVIN_METABOLISM	Volume	-7,242E-02	1,356E-01	1,670E-01	FALSE
HALLMARK_CHOLESTEROL_HOMEOSTASIS	Surface	-7,263E-02	1,345E-01	1,659E-01	FALSE
JEON_SMAD6_TARGETS_DN	Volume	-7,270E-02	1,341E-01	1,658E-01	FALSE
KEGG_PROXIMAL_TUBULE_BICARBONATE_RECLAMATION	Volume	-7,383E-02	1,282E-01	1,596E-01	FALSE
KEGG_NON_SMALL_CELL_LUNG_CANCER	Volume	-7,607E-02	1,170E-01	1,461E-01	FALSE
KEGG_FC_EPSILON_RI_SIGNALING_PATHWAY	Surface	-7,872E-02	1,047E-01	1,313E-01	FALSE
VEER_PRO	Surface	-8,144E-02	9,320E-02	1,178E-01	FALSE
HALLMARK_MTORC1_SIGNALING	Surface	-8,158E-02	9,265E-02	1,173E-01	FALSE
Pozniak_Mitochondrial	Volume	-8,448E-02	8,158E-02	1,044E-01	FALSE
VERF_PRO	Volume	-8,470E-02	8,079E-02	1,036E-01	FALSE

KEGG_CYSTEINE_AND_METHIONINE_METABOLISM	Surface	-8,485E-02	8,024E-02	1,031E-01	FALSE
SOX10_targets	Volume	-8,559E-02	7,763E-02	1,003E-01	FALSE
KEGG_TASTE_TRANSDUCTION	Surface	-8,834E-02	6,854E-02	8,938E-02	FALSE
HALLMARK_XENOBIOTIC_METABOLISM	Surface	-8,908E-02	6,625E-02	8,673E-02	FALSE
KEGG_CIRCADIEN_RHYTHM_MAMMAL	Volume	-9,005E-02	6,332E-02	8,321E-02	FALSE
HALLMARK_G2M_CHECKPOINT	Surface	-9,200E-02	5,778E-02	7,667E-02	FALSE
HALLMARK_E2F_TARGETS	Volume	-9,312E-02	5,480E-02	7,314E-02	FALSE
SEMI_4INVvs2SEMI	Volume	-9,318E-02	5,464E-02	7,307E-02	FALSE
KEGG_INSULIN_SIGNALING_PATHWAY	Volume	-9,362E-02	5,350E-02	7,169E-02	FALSE
GO_PIGMENTATION	Volume	-9,534E-02	4,924E-02	6,623E-02	FALSE
MITF_targets	Volume	-9,545E-02	4,898E-02	6,601E-02	FALSE
KEGG_MAPK_SIGNALING_PATHWAY	Surface	-9,554E-02	4,876E-02	6,585E-02	FALSE
KEGG_PORPHYRIN_AND_CHLOROPHYLL_METABOLISM	Volume	-9,585E-02	4,804E-02	6,513E-02	FALSE
KEGG_PHENYLALANINE_METABOLISM	Volume	-9,702E-02	4,536E-02	6,186E-02	FALSE
SEMI_4INVvs2SEMI	Surface	-9,708E-02	4,522E-02	6,180E-02	FALSE
KEGG_P53_SIGNALING_PATHWAY	Surface	-9,736E-02	4,461E-02	6,120E-02	FALSE
KEGG_GLYCEROLIPID_METABOLISM	Surface	-9,772E-02	4,382E-02	6,037E-02	FALSE
KEGG_CYTOSOLIC_DNA_SENSING_PATHWAY	Volume	-9,827E-02	4,265E-02	5,923E-02	FALSE
KEGG_ALANINE_ASPARTATE_AND_GLUTAMATE_METABOLISM	Volume	-1,089E-01	2,454E-02	3,545E-02	FALSE
KEGG_ERBB_SIGNALING_PATHWAY	Volume	-1,119E-01	2,092E-02	3,080E-02	FALSE
KEGG_GAP_JUNCTION	Surface	-1,136E-01	1,899E-02	2,813E-02	FALSE
KEGG_TYROSINE_METABOLISM	Volume	-1,152E-01	1,739E-02	2,598E-02	FALSE
KEGG_RNA_DEGRADATION	Volume	-1,189E-01	1,406E-02	2,129E-02	FALSE
HOEK_PRO	Volume	-1,219E-01	1,183E-02	1,816E-02	FALSE
KEGG_HISTIDINE_METABOLISM	Volume	-1,222E-01	1,162E-02	1,787E-02	FALSE
LU_TUMOR_ENDOTHELIAL_MARKERS_UP	Volume	-1,253E-01	9,607E-03	1,481E-02	FALSE
GO_WOUND_HEALING_SPREADING_OF_EPIDERMAL_CELLS	Surface	-1,310E-01	6,765E-03	1,063E-02	FALSE
KEGG_FOLATE_BIOSYNTHESIS	Volume	-1,324E-01	6,212E-03	9,819E-03	TRUE
KEGG_GLYOXYLATE_AND_DICARBOXYLATE_METABOLISM	Volume	-1,336E-01	5,760E-03	9,168E-03	TRUE
KEGG_CHRONIC_MYELOID_LEUKEMIA	Surface	-1,354E-01	5,120E-03	8,225E-03	TRUE
KEGG_SELENOAMINO_ACID_METABOLISM	Volume	-1,457E-01	2,583E-03	4,270E-03	TRUE
Wouters_MEL	Volume	-1,468E-01	2,393E-03	3,975E-03	TRUE
Pozniak_p_spec_B	Volume	-1,469E-01	2,372E-03	3,950E-03	TRUE

KEGG_RNA_DEGRADATION	Surface	-1,479E-01	2,207E-03	3,683E-03	TRUE
KEGG_VASOPRESSIN_REGULATED_WATER_REABSORPTION	Surface	-1,508E-01	1,804E-03	3,058E-03	TRUE
HALLMARK_UNFOLDED_PROTEIN_RESPONSE	Volume	-1,536E-01	1,474E-03	2,528E-03	TRUE
KEGG_BIOSYNTHESIS_OF_UNSATURATED_FATTY_ACIDS	Surface	-1,551E-01	1,325E-03	2,289E-03	TRUE
KEGG_MELANOMA	Volume	-1,575E-01	1,104E-03	1,928E-03	TRUE
KEGG_GALACTOSE_METABOLISM	Surface	-1,584E-01	1,038E-03	1,821E-03	TRUE
KEGG_JAK_STAT_SIGNALING_PATHWAY	Surface	-1,586E-01	1,019E-03	1,792E-03	TRUE
KEGG_MELANOGENESIS	Volume	-1,616E-01	8,161E-04	1,454E-03	TRUE
rambow_pigmentation	Volume	-1,621E-01	7,826E-04	1,405E-03	TRUE
KEGG_JAK_STAT_SIGNALING_PATHWAY	Volume	-1,643E-01	6,613E-04	1,200E-03	TRUE
KEGG_CITRATE_CYCLE_TCA_CYCLE	Surface	-1,742E-01	3,026E-04	5,642E-04	TRUE
KEGG_STARCH_AND_SUCROSE_METABOLISM	Surface	-1,777E-01	2,281E-04	4,346E-04	TRUE
HALLMARK_PANCREAS_BETA_CELLS	Surface	-1,778E-01	2,262E-04	4,322E-04	TRUE
Pozniak_Stress_paraspeckles	Volume	-1,874E-01	9,985E-05	2,015E-04	TRUE
KEGG_ACUTE_MYELOID_LEUKEMIA	Volume	-1,921E-01	6,582E-05	1,344E-04	TRUE
XU_PRO	Surface	-1,930E-01	6,082E-05	1,249E-04	TRUE
GO_CEREBRAL_CORTEX_RADIALY_ORIENTED_CELL_MIGRATION	Volume	-2,043E-01	2,135E-05	4,563E-05	TRUE
HALLMARK_MYC_TARGETS_V2	Volume	-2,055E-01	1,914E-05	4,103E-05	TRUE
HALLMARK_PANCREAS_BETA_CELLS	Volume	-2,060E-01	1,829E-05	3,945E-05	TRUE
KEGG_INSULIN_SIGNALING_PATHWAY	Surface	-2,131E-01	9,167E-06	2,048E-05	TRUE
JAEGER_METASTASIS_DN	Surface	-2,180E-01	5,603E-06	1,286E-05	TRUE
KEGG_HUNTINGTONS_DISEASE	Surface	-2,204E-01	4,380E-06	1,029E-05	TRUE
ALONSO_METASTASIS_NEURAL_UP	Surface	-2,219E-01	3,748E-06	8,928E-06	TRUE
KEGG_ENDOMETRIAL_CANCER	Volume	-2,249E-01	2,765E-06	6,726E-06	TRUE
KEGG_SPLICEOSOME	Volume	-2,259E-01	2,468E-06	6,025E-06	TRUE
KEGG_CARDIAC_MUSCLE_CONTRACTION	Surface	-2,271E-01	2,182E-06	5,366E-06	TRUE
MXI_ChIP_Atlas_top200_targets	Volume	-2,302E-01	1,566E-06	3,920E-06	TRUE
KEGG_TRYPTOPHAN_METABOLISM	Surface	-2,310E-01	1,443E-06	3,665E-06	TRUE
Pozniak_p_spec_B	Surface	-2,315E-01	1,360E-06	3,469E-06	TRUE
KEGG_LONG_TERM_DEPRESSION	Volume	-2,337E-01	1,082E-06	2,779E-06	TRUE
KEGG_THYROID_CANCER	Volume	-2,349E-01	9,454E-07	2,447E-06	TRUE
KEGG_PROGESTERONE_MEDIATED_OOCYTE_MATURATION	Volume	-2,355E-01	8,846E-07	2,299E-06	TRUE

KEGG_SPLICEOSOME	Surface	-2,365E-01	7,956E-07	2,091E-06	TRUE
KEGG_LONG_TERM_DEPRESSION	Surface	-2,377E-01	6,965E-07	1,852E-06	TRUE
HALLMARK_MYC_TARGETS_V1	Volume	-2,425E-01	4,046E-07	1,097E-06	TRUE
Pozniak_Mitochondrial	Surface	-2,430E-01	3,829E-07	1,042E-06	TRUE
KEGG_PROSTATE_CANCER	Volume	-2,439E-01	3,465E-07	9,507E-07	TRUE
GO_CEREBRAL_CORTEX_RADIALY_ORIENTED_CELL_MIGRATION	Surface	-2,460E-01	2,718E-07	7,494E-07	TRUE
KEGG_GLYOXYLATE_AND_DICARBOXYLATE_METABOLISM	Surface	-2,495E-01	1,815E-07	5,165E-07	TRUE
KEGG_GLYCINE_SERINE_AND_THREONINE_METABOLISM	Volume	-2,507E-01	1,575E-07	4,520E-07	TRUE
KEGG_NITROGEN_METABOLISM	Surface	-2,528E-01	1,230E-07	3,576E-07	TRUE
RAMASWAMY_INV	Surface	-2,583E-01	6,372E-08	1,892E-07	TRUE
rambow_mitosis	Surface	-2,646E-01	2,939E-08	9,040E-08	TRUE
HALLMARK_OXIDATIVE_PHOSPHORYLATION	Surface	-2,672E-01	2,141E-08	6,706E-08	TRUE
KEGG_AMINO_SUGAR_AND_NUCLEOTIDE_SUGAR_METABOLISM	Surface	-2,672E-01	2,141E-08	6,706E-08	TRUE
HALLMARK_E2F_TARGETS	Surface	-2,672E-01	2,119E-08	6,700E-08	TRUE
KEGG_BASAL_CELL_CARCINOMA	Volume	-2,714E-01	1,254E-08	4,058E-08	TRUE
KEGG_RIBOSOME	Volume	-2,744E-01	8,528E-09	2,826E-08	TRUE
KEGG_PENTOSE_AND_GLUCURONATE_INTERCONVERSIONS	Surface	-2,747E-01	8,193E-09	2,728E-08	TRUE
HALLMARK_UNFOLDED_PROTEIN_RESPONSE	Surface	-2,759E-01	7,026E-09	2,374E-08	TRUE
KEGG_OXIDATIVE_PHOSPHORYLATION	Surface	-2,804E-01	3,912E-09	1,349E-08	TRUE
Pozniak_Melanocytic	Volume	-2,852E-01	2,052E-09	7,220E-09	TRUE
KEGG_COLORECTAL_CANCER	Surface	-2,873E-01	1,535E-09	5,484E-09	TRUE
KEGG_SELENOAMINO_ACID_METABOLISM	Surface	-2,995E-01	2,808E-10	1,076E-09	TRUE
KEGG_ALZHEIMERS_DISEASE	Surface	-3,015E-01	2,119E-10	8,279E-10	TRUE
KEGG_INOSITOL_PHOSPHATE_METABOLISM	Surface	-3,040E-01	1,465E-10	5,876E-10	TRUE
GSS_GODING	Volume	-3,108E-01	5,392E-11	2,228E-10	TRUE
KEGG_NON_SMALL_CELL_LUNG_CANCER	Surface	-3,153E-01	2,759E-11	1,154E-10	TRUE
KEGG_RIBOFLAVIN_METABOLISM	Surface	-3,257E-01	5,526E-12	2,430E-11	TRUE
KEGG_AMINOACYL_TRNA_BIOSYNTHESIS	Volume	-3,420E-01	3,941E-13	1,863E-12	TRUE
KEGG_MTOR_SIGNALING_PATHWAY	Volume	-3,447E-01	2,513E-13	1,197E-12	TRUE
KEGG_RIBOSOME	Surface	-3,489E-01	1,218E-13	6,010E-13	TRUE
MXI_ChIP_Atlas_top200_targets	Surface	-3,497E-01	1,075E-13	5,380E-13	TRUE

KEGG_PROGESTERONE_MEDIATED_OOCYTE_MATURATION	Surface	-3,506E-01	9,176E-14	4,628E-13	TRUE
HALLMARK_WNT_BETA_CATENIN_SIGNALING	Volume	-3,506E-01	9,066E-14	4,607E-13	TRUE
KEGG_SPHINGOLIPID_METABOLISM	Surface	-3,539E-01	5,126E-14	2,664E-13	TRUE
HALLMARK_MYC_TARGETS_V1	Surface	-3,559E-01	3,658E-14	1,930E-13	TRUE
KEGG_PARKINSONS_DISEASE	Surface	-3,584E-01	2,320E-14	1,243E-13	TRUE
Pozniak_Stress_paraspeckles	Surface	-3,602E-01	1,694E-14	9,148E-14	TRUE
KEGG_VALINE_LEUCINE_AND_ISOLEUCINE_BIOSYNTHESIS	Volume	-3,621E-01	1,209E-14	6,688E-14	TRUE
KEGG_ONE_CARBON_POOL_BY_FOLATE	Surface	-3,755E-01	1,038E-15	6,036E-15	TRUE
KEGG_ONE_CARBON_POOL_BY_FOLATE	Volume	-3,864E-01	1,272E-16	7,652E-16	TRUE
KEGG_ALANINE_ASPARTATE_AND_GLUTAMATE_METABOLISM	Surface	-4,058E-01	2,570E-18	1,617E-17	TRUE
KEGG_MTOR_SIGNALING_PATHWAY	Surface	-4,083E-01	1,520E-18	9,652E-18	TRUE
GSS_GODING	Surface	-4,182E-01	1,811E-19	1,206E-18	TRUE
Pozniak_Melanocytic	Surface	-4,213E-01	9,346E-20	6,348E-19	TRUE
KEGG_VALINE_LEUCINE_AND_ISOLEUCINE_BIOSYNTHESIS	Surface	-4,217E-01	8,511E-20	5,838E-19	TRUE
KEGG_GLYCINE_SERINE_AND_THREONINE_METABOLISM	Surface	-4,279E-01	2,136E-20	1,495E-19	TRUE
KEGG_PROXIMAL_TUBULE_BICARBONATE_RECLAMATION	Surface	-4,302E-01	1,277E-20	9,221E-20	TRUE
HALLMARK_MYC_TARGETS_V2	Surface	-4,338E-01	5,611E-21	4,139E-20	TRUE
KEGG_GLYCEROPHOSPHOLIPID_METABOLISM	Surface	-4,448E-01	4,378E-22	3,374E-21	TRUE
rambow_MITF_targets	Surface	-4,603E-01	1,006E-23	8,118E-23	TRUE
KEGG_TYROSINE_METABOLISM	Surface	-4,684E-01	1,298E-24	1,073E-23	TRUE
KEGG_AMINOACYL_TRNA_BIOSYNTHESIS	Surface	-5,114E-01	9,113E-30	8,335E-29	TRUE
KEGG_ENDOMETRIAL_CANCER	Surface	-5,431E-01	4,638E-34	5,051E-33	TRUE
SOX10_targets	Surface	-5,484E-01	8,103E-35	9,113E-34	TRUE
JEFFS_PRO	Surface	-5,506E-01	3,890E-35	4,447E-34	TRUE
VERF_PRO	Surface	-5,512E-01	3,174E-35	3,691E-34	TRUE
MITF_targets	Surface	-5,515E-01	2,907E-35	3,438E-34	TRUE
KEGG_MELANOMA	Surface	-5,653E-01	2,443E-37	3,047E-36	TRUE
KEGG_MELANOGENESIS	Surface	-5,885E-01	4,661E-41	6,525E-40	TRUE
KEGG_BASAL_CELL_CARCINOMA	Surface	-6,101E-01	8,528E-45	1,462E-43	TRUE
GO_PIGMENTATION	Surface	-6,112E-01	5,445E-45	9,578E-44	TRUE
KEGG_ACUTE_MYELOID_LEUKEMIA	Surface	-6,182E-01	2,876E-46	5,192E-45	TRUE
Wouters_MEL	Surface	-6,323E-01	6,168E-49	1,209E-47	TRUE
HOEK_PRO	Surface	-6,376E-01	5,470E-50	1,137E-48	TRUE

rambow_pigmentation
KEGG_PROSTATE_CANCER
HALLMARK_WNT_BETA_CATENIN_SIGNALING
KEGG_THYROID_CANCER

Surface	-6,557E-01	1,084E-53	2,656E-52	TRUE
Surface	-6,601E-01	1,229E-54	3,124E-53	TRUE
Surface	-6,648E-01	1,131E-55	3,373E-54	TRUE
Surface	-6,914E-01	7,926E-62	3,625E-60	TRUE

Supplementary Table 4.
Newly defined transcriptional signatures for untreated melanoma states.

MEL	Transitory	NCL	MES
HTRA3	BCL2A1	TFAP2B	SOX9
DPP4	CA8	SOX11	RAB27B
SLC38A8	MCTP2	CD96	AREG
THSD7A	SLAMF7	RAMP1	PLAU
RAB3C	MTCYBP18	TGFA	BDNF
CDH1	GIPC3	B3GNT7	IL6
GPR173	TRIM51CP	IL13RA2	MMP3
MAPK4	SPRR2D	FCGR2C	SCNN1A
PDK4	ALDH1A1	FCGR2A	IGFN1
SLC37A1	SCARA5	LPL	THY1
SLC7A4	VSTM2B	CT45A2	G0S2
CDH3	DDX43	CT45A10	ACSL5
TCFL5	TDRD9	CT45A7	COLEC10
NECAB2	CEACAM1	CT45A5	F2RL1
EPHA4	MID2	CT45A3	IRF1
OSBPL2	RNLS	SYTL5	GPRC5C
GNAL	LRRRC61	SNAI1	AADAC
SELENBP1	CLDN14	SHISA2	KRT83
SKP2	LRRN4CL	GRM8	IL1B
NADK2	ASB4	DNAH9	EREG
ULK4	NRROS	TESC	APOL1
KCTD21-AS1	KRBOX1	TRPV4	CFH
SV2B	CYP51A1	BGN	SCN9A
BEAN1	RPS6KA5	SERPINA3	CPZ
SS18L1	SPX		ABCC3
NMRK2	SERINC5		RAC2
	NT5DC2		CLU
	NUPR1		CDC42EP2
	FAM210A		VASN
	MSC		FPR1
	ZNF703		CMKLR1
	LINC00520		JUP
	ANGPT2		VCAM1
	SELENOS		LINC01444
	MMP8		TOR4A
			S1PR1
			PTPRE
			SLC35F3
			GPR39
			SLC28A3
			CFB
			ITGBL1
			SPOCK1
			IL7R
			PCDHGA6
			KLHL4

Supplementary Table 5.
Transcriptional signatures used in this paper

Reference name of the signature	Wouters et al., Nat Cell Biol 2020, 10.1038/s41556-020-0547- 3	Wouters et al., Nat Cell Biol 2020, 10.1038/s41556-020-0547-3	Wouters et al., Nat Cell Biol 2020, 10.1038/s41556-020-0547- 3	Hoek et al., Cancer Res 2008, 10.1158/0008-5472.CAN- 07-2491
	Melanocytic_Wouters	Mesenchymal_Wouters	Transitory_Wouters	Proliferative_Hoek
	BCL2L13	CPA4	NELL1	ACP5
	SLC5A6	F2RL2	LRRC61	ADCY2
	LIG3	CTD-2171N6.1	ITIH6	APOE
	DGCR6L	PLAU	ZBED6CL	ASAH1
	EEF1A1P11	EDN1	ENPP4	BIRC7
	REPS1	SLC14A1	CSPG4	C21orf91
	LRPPRC	MXRA5	ZNF702P	CAPN3
	STK40	SLCO2A1	EBF3	CDH1
	GPHN	ADRA1D	IFITM1	CDK2
	HECTD2	PSG5	SH2D4A	CDK5R1
	SLC35B4	SYNDIG1	LRRTM4	CEACAM1
	NDUFAF6	PSG1	SFRP1	DAPK1
	TMEM64	RP11-865I6.2	RP11-141M1.3	DCT
	KLHL22	FPR3	HLA-DRA	FAM174B
	RP11-644F5.11	FENDRR	XAF1	GALNT3
	PHLPP1	VIT	MAP10	GNPTAB
	NPHP4	IL1A	ZNF662	GPM6B
	SLC6A8	COL8A1	DDX43	GPR143
	YBX1P2	SPANXC	AC095067.1	GPRC5B
	C17orf76-AS1	CDH6	TF	GYG2
	ADIPOR2	TENM2	ACAN	HPS4
	MTOR	LINC00704	SLC38A1	INPP4B
	DPH2	TLL1	RP11-474O21.5	IRF4

AHCYL1	CACNG4	SLC9A7	IVNS1ABP
ATAD3A	RP5-1172A22.1	CARD16	KAZ
NCAPH2	KISS1	MT1A	MBP
ZCCHC17	ALPK2	TM4SF1	MICAL1
SLC11A2	MEG3	ZFP3	MITF
TRAPPC6A	NETO1	IFITM3	MLANA
ULK3	VCAN	CCDC8	MYO1D
TYSND1	TMEM40	RAMP1	NR4A3
MAP3K11	STMN2	ZNF385D	OCA2
ZNF330	NDP	PDE1C	PHACTR1
IGHMBP2	TRHDE	SERPINA3	PIR
HIRA	RP13-463N16.6	SLC17A9	PLXNC1
MTHFR	ADAMTS12	RP11-267A15.1	PMEL
NSUN5	POSTN	IFI44L	RAB27A
HDDC2	CTA-392C11.1	CX3CL1	RAB38
HADHB	ESM1	APOBEC3G	RGS20
RAD54L2	ZMAT4	LINC00890	RHOQ
AKR7A2	CLSTN2	BST2	RRAGD
ADSL	SERPINE1	FAM109B	SEMA6A
HSPA9	CCL2	OPCML	SIRPA
ASB13	COL1A1	RP11-574H6.1	SLC45A2
SMS	DARC	GALC	ST3GAL6
PRICKLE3	SERPINB7	VSTM2B	STX7
SARS	GALNT5	KCNMA1	TNFRSF14
PARS2	COL1A2	SLAMF9	TRPM1
RHBDD3	CXCL12	ISLR	TYR
MDN1	COL5A1	MGP	TYRP1
FAM118A	RP11-1E6.1	CFI	WDR91
HEATR5A	AC187652.1	AXL	ZFYVE16
ESRRA	LINC00922	NAALADL1	
ORAI1	TMEM200A	HCN1	

NPM3	IDO1	TRIM48
NUDT8	FPR1	SH3GL2
AC141586.5	VGLL2	THBS1
BNC2	GPR39	FXYD3
ACOT7	C6orf141	RP11-399D6.2
NIN	WNT7B	MEST
LITAF	COL4A6	KRT27
TMEM55A	PAPPA	CDCP1
PAAF1	ASTN1	NGFR
HMG20B	CLDN11	FREM1
LRP8	HEPH	ASB11
FRAT1	GDF5	DNASE2B
PIGH	CCL26	LOXL3
RP11-295D4.1	AC006262.4	ANKRD18A
RP5-821D11.7	ACKR5	VIT
CHCHD3	CA9	COL1A2
LACE1	CACNA2D3	TNFAIP6
TBRG4	RGS4	OLIG2
OTX1	AKR1C3	LRRC15
FAM45A	NPBWR1	POMC
PARVB	GLIPR1	MATN2
NRL	PTGER3	ADAMTS9
GAS2L3	IL32	S100A3
ABHD6	BDKRB2	SCRG1
PRMT7	INHBA	F2RL1
FIG4	ADAMTSL1	XKR5
TST	LYPD6B	GJA5
SNHG16	PLA2G5	TLR5
PQLC2	CDH13	HLA-B
VPS18	TMEM100	TRIM51GP
DHX33	INHBB	SOX9

SHMT2
SLC25A5
HPS1
SGSM3
GPAM
IDH3A
C12orf76
EIF3L
FBXO25
STAM
IVNS1ABP
ROR1
ANKRD39
FADD
DANCR

COLEC10
CCDC80
GJA1
AC145676.2
RP11-527D7.1
ITGA11
RP11-554I8.2
TAGLN
PDGFRB
VCAM1
ADAMTS6
FOXF1
TINAGL1
C5orf46
EFEMP1

LRFN5
PCDHA10
TGFB1
LAMC2
SLITRK6
RP1-140K8.5
SCML4
PCSK5
EHF
AP006222.2
CTD-2531D15.4
SLC9A7P1
RP4-565E6.1
RP11-644L4.1
PLA1A

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Invasive_Hoek

ADAM12
AMOTL2
AXL
BIRC3
CDH13
CDK14
COL13A1
CRIM1
CRISPLD2
CYR61
DPYD
EFEMP1
EGFR
F2RL1
FGF2
FLNB
FOXD1
FST
FZD2
HEG1
HS3ST3A1
ITGA2
ITGA3

Proliferative_Verfaillie

MAD2L1BP
TXN2
ADAM10
NAGA
ACO2
MT-CO1
TRUB1
HMGCR
CCNC
TANC1
TRAK2
RPLP1
BCL2L13
SGSM3
KCP
POPCDC3
TTL
PTCD3
ATE1
LMBRD1
RSAD1
GGCT
WDR11

Invasive_Verfaillie

MXRA5
GABRE
DDX3Y
VCAM1
POSTN
CD248
ABCC3
ANPEP
TMEM200A
ADAMTS12
F2RL2
IL1B
RPS4Y1
EREG
COL1A1
SERPINB7
ADAMTSL1
KDM5D
TXLNG2P
GPR128
ALPK2
SLC14A1
VIPR1

Melanocytic_Tsoi

CCDC171
CFAP61
ZDHHC11B
VEPH1
TNFRSF14
TDRD3
TPPP
TRIM63
TRPM1
TTC39A
TSPAN10
SLC7A8
SLC16A6
SLAMF7
SEMA6A
RUNX3
RNF144B
RNLS
RGS12
PYCARD
PRUNE2
PRKCB
PRDM7

NeuralCrestLike_Tsoi

PXYLP1
CXCL8
CEMIP
TCAF2
ZNF469
WNT5A
TMEM47
TMEM171
TGFB1
TGFA
TFAP2C
TSPAN13
SQRD1
SULF1
ST8SIA5
SOX2
SLC24A3
SLITRK6
SHISA2
SH3PXD2A
SERTAD4
STK32B
SEMA3B

KCNMA1	RHBDD3	CDH13	KCNAB2	SFRP1
LOXL2	ATP6V1E1	PTGFR	OCA2	S100A6
MYOF	ABCC5	PTX3	NR4A3	RAMP1
NRP1	TMEM33	CPA4	NAV2	PMEPA1
NTM	NDUFAF4	SERPINE1	MYO1D	PCSK5
NUAK1	TCTN3	CCL2	MAPK4	PHLDA2
OSMR	DDI2	CCDC68	MAT1A	PLA2G7
PDGFC	TAB3	NETO1	MLANA	OPRD1
PODXL	CD320	EDN1	LXN	NTM
S100A2	MCOLN1	ELTD1	KCP	NRXN3
SLC22A4	PTEN	PLAU	IL16	NES
SYNJ2	CABIN1	RP11-48O20.4	IL12RB2	MUC5B
TCF4	GNPTG	CDH6	HSD17B14	MAP1LC3A
THBS1	FBXO7	EIF1AY	HMOX1	LRRC15
TLE4	CLN3	RGS4	H2AFJ	KIAA1755
TNFRSF11B	USP6NL	COL8A1	GOLGA7B	ITGB8
TPBG	RP11-159F24.1	GPR39	QPCT	IER3
TPM1	DUSP22	FENDRR	GFOD1	HHEX
TRAM2	ESRRA	ESM1	GPR143	GDNF
WNT5A	CLUH	CTA-392C11.1	FYB	GLI2
ZEB1	PPA1	DPEP3	FAM83H	FOXC2
	LOH12CR1	SSTR1	FAM174B	FLT1
	FASN	PRKY	EPHA5	FAT3
	MINPP1	FPR3	ENTHD1	FEZ1
	NPM3	SMEK3P	DNAJA4	FAM135B
	GGA2	TNFRSF9	DENND2D	EHF
	ZNF74	PXDN	C2orf88	EML1
	MOAP1	FPR1	CCL18	DRD2
	TLE1	MAGEA4	CEACAM1	DEPDC7
	ZNF706	FAM196B	CAPG	CYB5R2
	FOXO4	COL1A2	CDH3	CSRP2

WDFY1	ANXA10	CDH1	CCL2
DHTKD1	MKX	ATP6V0D2	CADM3
CNNM3	WNT7B	ABCD1	CADM1
MMS19	ARMC4	ABCB5	CD96
PSEN2	FGF5	APOLD1	CTSS
GBAS	MUC13	ANKRD30B	CHST2
PCMT1	UTY	ADCY2	CHST1
FARP1	GALNT5	ADAM23	CACNA2D3
FAM89A	GDF5		BST1
MSI2	LRRC15		ABCA6
RPS12	KAL1		ANGPTL4
TSPAN3	SPANXD		AIM2
ANKRD46	LRRC17		
DMXL2	SMOC1		
HS1BP3	NTNG1		
STX3	BDNF		
SREBF2	IFI27		
TMEM64	ZFY		
ABRACL	PAPPA		
SSH2	LOXL2		
SNHG16	IL1A		
TOM1	USP9Y		
PPP2R5A	TSPYL5		
DTNB	SPANXC		
MYLIP	CCBE1		
OSBPL1A	LYPD6B		
MED15	PAPPA2		
FAM217B	ADAMTS6		
TRAF4	C7orf69		
DGCR6L	CPA3		
SEC11C	IGFN1		

ZNF138	C3
PEBP1	G0S2
THEM6	TRHDE
AGPAT6	ITGA11
NECAB3	CDA
TYRO3	CTD-2171N6.1
GYPC	ABCC9
SRP14-AS1	APBB1IP
NHLRC3	IL6
ZFYVE27	FAM43B
GSTM4	ITGBL1
BIN3	CREB3L1
MYO10	TTY15
CTNNB1	FOXF1
ATM	FOXR2

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Undifferentiated_Tsoi

AJUBA
TOR4A
MARCH4
ZDHHC2
ZNF467
ZNF185
ZIC2
VASN
UCP2
GALNT6
TNFAIP2
TNFSF18
TMEM40
TMEM200A
TMEM184A
TBL1X
TRERF1
TOX
TBC1D2
SFN
SAMD12
SAMD11
SOX9

Transitory_Tsoi

SPRY4
SORCS1
SLC35F1
SERPINA5
RFTN2
PCDH1
PTPRZ1
PRICKLE2
OLIG2
LOXL4
LOXL3
LGI4
LAMA4
GAS7
GRIK2
FREM2
FREM1
EPHB3
CRIP2
COL4A1
CADM4
BAALC
ABCA8

Melanocytic_Andrews

ACP5
AP1S2
APOE
APOLD1
ASAH1
BCL2A1
BEST1
BIRC7
C10orf90
CA14
CABLES1
CAPN3
CDK2
CEACAM1
CHCHD10
CHCHD6
CPVL
CYP27A1
DCT
EDNRB
ERBB3
FAM69B
FCRLA

Mesenchymal_Andrews

ABCC3
ADAM12
ADAM19
ADAMTS12
ADAMTS6
AFAP1
AKR1C3
ALCAM
ALPK2
AMOTL2
ANGPT1
ANTXR2
AOX1
ARHGEF28
ARL4C
ARNTL2
ATP8B1
AXL
BASP1
BDNF
C12orf75
CAV1
CCBE1

SLC8A1	AGMO	FMN1	CCDC80
SLC38A4	ALDH1A3	GALNT3	CCL2
SLC16A14		GAS7	CDH13
SCN5A		GJB1	CDH2
SCNN1A		GPM6B	CFH
SH3RF2		GPR137B	CITED2
SERPINB7		GPR143	CLMP
SLPI		GYG2	CLU
SECTM1		HES6	CNN2
RUNX2		HPS4	COL12A1
ARHGAP29		IGSF11	COL13A1
REN		IGSF3	COL1A1
PAWR		IGSF8	COL5A1
PSG9		IL16	COL6A1
PSG5		IL6R	COL6A2
PSG4		IRF4	COL8A1
PBX1		ITGA9	CPA4
PLAGL1		IVNS1ABP	CRIM1
PHLDB2		LAMA1	CSF1
PLEKHA6		LONRF1	CYR61
PDGFC		LZTS1	DDAH1
PLAU		MBP	DDX58
PKP2		MCF2L	DKK3
PLAC8		MFSD12	DPYD
PADI3		MICAL1	DSE
PITX1		MITF	EDIL3
NUAK1		MLANA	EGFR
NTNG1		MYEF2	EHD2
NMT2		NR4A1	EPHA2
MYEOV		NR4A3	EPHB2
MICAL2		OCA2	ERRFI1

MGST1
MECOM
LYPD6B
LAMA5
KISS1
KRT86
KRT81
KRT80
KRT8
KRT7
KRT18
JUP
IL7R
IL4R
IRS1
IGFN1
HES7
GDA
GLIS2
GATA2
GPRC5C
GPRC5A
FMNL1
FOXA1
FLNC
FERMT1
FAT4
FAM196B
ELFN2
EGFR
DSE

OVOS2
P2RX7
PHACTR1
PIR
PLEKHH1
PLP1
PLXNC1
PMEL
PRDM7
RAB27A
RAP1GAP
RENBP
RNF144A
RRAGD
RUNX3
SCARB1
SEMA6A
SGK1
SHTN1
SLC16A6
SLC19A2
SLC1A4
SLC24A5
SLC45A2
SLC7A5
SNCA
SORT1
SOX10
SOX6
ST3GAL6
ST6GALNAC3

ESM1
EXT1
F3
FBN1
FGF5
FHL1
FLNC
FSCN1
FZD2
GAS6
GBP1
GBP3
GLIPR1
GLIS3
GPR176
GPR39
HECW2
HEG1
HRH1
IGFBP6
IRF1
ITGA11
ITGA2
ITGA5
ITGB1
KCNMA1
KRT18
KRT8
LIFR
LMO7
LOX

DMBT1
DIO2
DOCK2
CYP2S1
CRIM1
CDK15
CORO6
COLEC10
CCDC88C
CCDC69
F3
F2RL1
CLU
CDYL2
CITED2
CARD11
CPA4
CREB3L1
CNN1
CALB2
CDH4
BTBD11
BDNF
BASP1
BNC1
ATP8B1
ABCG2
ARMC4
ANKRD1
AR
AMIGO2

STK32A
TBC1D16
TBC1D7
TNFRSF14
TRIM2
TRIM63
TRPM1
TSPAN10
TTYH2
TYR
WDR91
ZFYVE16
ZNF704

LOXL2
LPAR1
LRIG1
LTBP1
LTBP2
MAP1B
MICAL2
MYLK
NNMT
NRG1
NRP1
NTM
NTN4
OSMR
PAPPA

ADAMTSL1
ACSL5

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Neural_Andrews	Pigmentation_Rambow	NCSC_Rambow	Melanocytic_Pozniak	Mesenchymal_Pozniak
AIF1L	APOE	A2M	RPS7	PDGFRB
ARHGEF6	EDNRB	ADAMTS4	RPS18	NRP1
ART3	FABP7	ADGB	RPS23	COL5A1
B4GALT6	GPR143	ANXA1	RPL7A	COL1A1
BFSP1	KIT	AQP1	RPL12	COL3A1
C4orf19	MLANA	ATP1A2	RPS6	LUM
CADM3	MLPH	ATP1B2	RPS13	THY1
CADM4	PMEL	CNN3	RPS14	TCF4
CDC42EP5	RAB27A	CADM1	RPS3	ID3
CFI	SLC24A5	COL1A1	RPL41	PMEPA1
CLMN	SLC45A2	COL4A1	RPS15A	MRC2
COL22A1	SNAI2	GFRA1	RPL9	DCN
COL9A3	TRPM1	GFRA2	RPS8	COL1A2
DNAH9	TYR	GFRA3	RPL8	COL4A1
EPHB3	TYRP1	IGF1	NACA	MXRA8
FAM134B		IL1RAP	RPL32	TMSB4X
FAM78B		ITGA1	RPL30	COL6A2
FGFBP2		ITGA6	RPL37	COL6A3
FHDC1		L1CAM	RPL6	COL5A2
FLRT3		LAMC1	RPL19	COL4A2
FLT1		MATN2	RPL35	COL6A1
FREM2		MPZ	RPL29	AQP1
GAS7		NGFR	RPLP1	FBLN1

GDNF
GNG2
GPC4
GRASP
GRIK2
HLA-DRA
ID4
INPP5F
ITIH6
JPH1
KALRN
KAT2B
KHDRBS3
KIF13A
LAMA4
LGI4
LOXL3
MGP
MMP15
MMP16
NFATC2
PGAP1
PLEKHB1
PPP2R2B
PRIMA1
PRKAR2B
PTPRZ1
RFTN2
RNASE1
SEMA3E
SERPINA3

NLGN3
NRXN1
PDGFB
PLAT
PRIMA1
RSPO3
S100A4
SEMA3B
SLC22A17
SLITRK6
SYT11
THBS2
TMEM176B
VCAN

RPL18A
RPL5
RPS2
RPS3A
RPS15
RPL10A
RPS24
RPL35A
RACK1
RPL10
RPS27A
RPL18
RPL3
RPL14
RPS19
RPS4X
RPL24
RPL36
RPS9
RPLP2
RPL34
RPL15
RPS5
RPL11
RPL37A
RPS28
FAU
RPL28
RPS16
RPL39
RPL7

IGFBP7
COL12A1
BGN
PCOLCE
VCAN
ANTXR2
PBX1
HTRA1
C1R
SELENOM
FBN1
SPARC
MARCKS
FN1
COL15A1
PALLD
CALD1
ITGA1
POSTN
CFH
PTN
ITGB1
H3F3B
TPM2
TIMP1
TMEM47
PRRX1
PTMA
C1S
COL18A1
TUBA1A

SERPINE2
SHROOM4
SLC26A2
SLC35F1
SLC5A3
SNRPB2
SNTB1
SORCS1
SPATA13
SPRY2
SPRY4
ST6GAL1
STK32B
SVIL
SYNM
TMEM229B
TMTC2
TNFRSF19
TRIM51
TRIM9
TRPM3
TRPM8
UGT8
WWTR1

BTF3
RPSA
RPS27
RPLP0
RPL13
ATP5MC2
RPL31
RPL21
RPL23A
UBA52
ZFAS1
RPS25
RPS12
RPS21
EEF1A1
RPL36A
RPL4
RPL22
EIF3H
EIF3E
PFDN5
TPT1
EEF1B2
RPL27
RPL26
UQCRH
SLC25A3
EIF3F
RPL36AL
NPM1
RPS26

TPM1
IGFBP2
AHNAK
CCDC80
TMSB10
MMP2
IGFBP4
CD9
PGRMC1
NR2F2
TPM4
CNN3
S100A4
LAMB1
EMP2
HMGB1
GSN
CTHRC1
TGFB2
TNFRSF12A
FGFR1
S100A6
IFITM2
LGALS1
VCL
LAMC1
TGFB1
MGP
PTMS
ANXA2
ANXA1

COX7C	LAPTM4A
FTH1	GNG11
RPL17	ITM2B
UQCRB	TIMP3
EEF2	LHFPL6
EIF3K	H3F3A
PABPC1	FERMT2
HNRNPA1	DEK
COX5A	FSTL1
SLC25A5	ARGLU1
YBX1	RAP1B
TXN	UTRN
FTL	MYL9
RPL38	CAVIN1
CLTA	NDRG2

Pozniak et al., Cell 2024,
10.1016/j.cell.2023.11.037

NeuralCrest_Pozniak

DCSTAMP

COL8A1

NGFR

AXL

MRC2

BMP8B

ECE1

NTM

TNC

PMEPA1

FREM2

ITGB8

COL4A1

SLC20A1

LOXL3

OLFML3

COL5A2

ITGA3

IL1RAP

ITIH5

IGFBP3

COL12A1

THBS2

KCNN4
COL4A2
LYPD1
CALU
KCNMA1
FLRT3
ITGA6
ITGB3
ACTN4
MAP1B
TNFRSF19
PTN
P4HB
SCN9A
ADAMTS1
FNDC3B
ITGB1
LTBP1
NT5E
SERPINE2
PCDH9
COL9A3
DCBLD2
CHST6
CADM1
HSP90B1
SEMA3B
TGFB1
DAG1
TIMP1
CDCP1

TIMP3
PRNP
MICALL2
EMILIN1
PDIA4
PPFIBP1
COL15A1
CREB5
IGFBP5
FN1
PDIA6
ITGA1
CDH2
SPARC
RAB31
PDIA3
PLEC
COL18A1
SEMA3A
AMOTL1
COL1A2
HYOU1
PLAT
TANC2
PDGFA
SDC3
DPY19L1
FAM3C
CD109
ALDH1A3
JAG1

PLAUR
RUNX1
COL6A2
SKI
COL6A1
SEC24D
TNFRSF12A
SH3PXD2A
SCARB2
APLP2
RTN4
PLOD2
ECM1
CREB3L2
ITGA2

Supplementary Table 6.
Compounds used in lysosomal perturbation mini-screen

Drug name	Main reference
Nigericin	10.1016/j.cell.2009.06.034
Salinomycin	10.1016/j.cell.2009.06.034
Bafilomycin A1	10.1016/S0021-9258(19)47429-2
EN-6	10.1038/s41589-019-0308-4
Chloroquine	10.1080/15548627.2018.1474314
ROC-325	10.1186/s40880-019-0418-0

Supplementary Table 7.
Compounds selected for surface decreasing mini-screen

Pathways	Lipid production or regulation	Traficking	Cytoskeleton disrupting agents	Metabolism
Abrocitinib	Atorvastatin	BFA	Albendazole	Dactolisib
T5224	Diallyl disulfide	Golgicide a	Blebbistatin	Metformin
TPCA1	Fenofibrate	Tunicamycin	Cytochalasin D	Nifuroxazide
Salubrinal	Fumonisin b	Thapsigargin	Etoposide	Riboflavin
Adezmapimod	Guggulsterone		Ivermectine	
Vismodegib	Orlistat		Paclitaxel	
Chloroquine				
VT104				
Trametinib				
Palbociclib				
T-5224				
TPCA1				
Adezmapimod				
Salubrinal				
Vismodegib				
IMD-0354				
KI-696				
Sertraline				

Supplementary Table 8.
Proteomics informations

dia-PASEF isolation window placement.

Cycle Id	Start [1/K ₀]	IM End [1/K ₀]	IM [m/z]	Start Mass [m/z]	End Mass [m/z]
1	0.64	0.83	400		425
2	0.64	0.85	425		450
3	0.64	0.87	450		475
4	0.64	0.9	475		500
5	0.64	0.92	500		525
6	0.64	0.94	525		550
7	0.64	0.97	550		575
8	0.64	0.99	575		600
1	0.83	1.01	600		625
2	0.85	1.04	625		650
3	0.87	1.06	650		675
4	0.9	1.09	675		700
5	0.92	1.11	700		725
6	0.94	1.13	725		750
7	0.97	1.16	750		775
8	0.99	1.18	775		800
1	1.01	1.37	800		825
2	1.04	1.37	825		850
3	1.06	1.37	850		875
4	1.09	1.37	875		900
5	1.11	1.37	900		925
6	1.13	1.37	925		950
7	1.16	1.37	950		975
8	1.18	1.37	975		1000

Supplementary Table 9.
PEG formulations and drug contents used for implantable microdevice
(IMD)

Individual drugs	Mechanism of action	[drug] in PEG-3400 (%)
Nigericin	H ⁺ , K ⁺ , and Pb ²⁺ ionophore (antibiotic)	30
Brefeldin A (BFA)	protein trafficking inhibitor (lactone antibiotic)	40
Nigericin + BFA	see upper	15 + 20