

Supplementary table 16: Differential predicted KEGG pathways (level 3) among SG, AG, IM and GC in Xi'an cohort

Predicted function level3	LogMaxMean	Class	LDA score	p value
Human Diseases Infectious Diseases Staphylococcus aureus infection	2.354666706	GC	1.603385724	0.002171111
Unclassified Cellular Processes and Signaling Pores ion channels	3.714736076	IM	2.338335826	0.015411537
Metabolism Metabolism of Other Amino Acids Phosphonate and phosphinate metabolism	2.763441764	GC	0.99060526	0.015712598
Unclassified Cellular Processes and Signaling Membrane and intracellular structural molecules	3.870474197	IM	2.447209598	0.022613659
Cellular Processes Cell Motility Bacterial chemotaxis	3.840617644	SG	2.436360855	0.023177371
Environmental Information Processing Signal Transduction Two component system	4.313474505	SG	2.802071524	0.031986414
Environmental Information Processing Signaling Molecules and Interaction Ion channels	2.3890563	GC	1.246318215	0.04523401
Organismal Systems Digestive System Carbohydrate digestion and absorption	1.997080288	GC	1.162701882	0.048360557
Cellular Processes Cell Motility Bacterial motility proteins	4.254255092	SG	2.900513244	0.049853968
Unclassified Metabolism Glycan biosynthesis and metabolism	2.848512458	IM	1.575464449	0.051955982
Metabolism Lipid Metabolism Glycerolipid metabolism	3.534412171	GC	1.980126196	0.055946019
Human Diseases Infectious Diseases Vibrio cholerae infection	1.426610468	SG	0.61348176	0.059731747
Metabolism Nucleotide Metabolism Purine metabolism	4.307627128	GC	2.545457386	0.063630123
Metabolism Biosynthesis of Other Secondary Metabolites Clavulanic acid biosynthesis	0	AG	0.651935513	0.068760031
Environmental Information Processing Membrane Transport Bacterial secretion system	3.884793933	IM	2.321672422	0.069462984
Organismal Systems Immune System RIG I like receptor signaling pathway	1.593244891	GC	0.685729754	0.072384717
Metabolism Metabolism of Cofactors and Vitamins Thiamine metabolism	3.597299018	GC	1.853201571	0.073164276
Metabolism Carbohydrate Metabolism Glycolysis Gluconeogenesis	3.990531506	GC	2.270787992	0.077588947
Metabolism Metabolism of Other Amino Acids D Alanine metabolism	3.003626265	GC	1.601990995	0.080090242
Environmental Information Processing Membrane Transport Secretion system	4.272343102	IM	2.758415887	0.084049128
Environmental Information Processing Membrane Transport Phosphotransferase system PTS	3.45023709	GC	2.443955725	0.088424383
Metabolism Metabolism of Cofactors and Vitamins Ubiquinone and other terpenoid quinone biosynthesis	3.513090376	IM	2.001725472	0.089375561
Metabolism Carbohydrate Metabolism Fructose and mannose metabolism	3.828180886	GC	2.493194768	0.089790534
Environmental Information Processing Signaling Molecules and Interaction Cellular antigens	2.819274177	AG	1.147058371	0.095474134
Metabolism Energy Metabolism Carbon fixation pathways in prokaryotes	4.0449781	SG	2.220274747	0.098465142
Metabolism Metabolism of Terpenoids and Polyketides Biosynthesis of ansamycins	2.857506249	GC	1.443752652	0.100129566
Genetic Information Processing Replication and Repair Base excision repair	3.635442266	GC	1.689896391	0.102390031
Metabolism Metabolism of Cofactors and Vitamins Nicotinate and nicotinamide metabolism	3.601543769	GC	1.41784056	0.110460296
Metabolism Lipid Metabolism alpha Linolenic acid metabolism	2.61281651	SG	1.406301115	0.122595118
Unclassified Cellular Processes and Signaling Sporulation	3.264470661	GC	2.424465591	0.125458176
Metabolism Metabolism of Other Amino Acids Selenocompound metabolism	3.560354588	GC	1.557274883	0.126601598
Cellular Processes Cell Motility Flagellar assembly	3.912363148	SG	2.565144473	0.127031142
Genetic Information Processing Transcription RNA polymerase	3.148868483	GC	1.651656581	0.12837518
Environmental Information Processing Signaling Molecules and Interaction Glycan binding proteins	0	AG	0.858525951	0.13015648
Metabolism Energy Metabolism Carbon fixation in photosynthetic organisms	3.693263835	GC	2.085215961	0.134993134
Metabolism Energy Metabolism Sulfur metabolism	3.47101555	IM	1.731251491	0.138330907
Genetic Information Processing Replication and Repair DNA repair and recombination proteins	4.399123797	GC	2.634289544	0.139181181
Organismal Systems Nervous System Glutamatergic synapse	2.935003689	GC	1.187521172	0.143234278
Metabolism Energy Metabolism Methane metabolism	4.02039548	GC	2.070649472	0.145619977
Metabolism Enzyme Families Peptidases	4.196929094	GC	2.507146165	0.151605513
Metabolism Xenobiotics Biodegradation and Metabolism Toluene degradation	3.286091215	IM	1.890990739	0.151966517
Metabolism Carbohydrate Metabolism Glyoxylate and dicarboxylate metabolism	3.876280669	SG	2.459734933	0.156212226
Metabolism Biosynthesis of Other Secondary Metabolites Butirosin and neomycin biosynthesis	2.707226999	GC	1.397850183	0.171217534
Genetic Information Processing Translation Ribosome Biogenesis	4.100740929	GC	2.248142844	0.172865078
Metabolism Metabolism of Other Amino Acids Glutathione metabolism	3.603940996	IM	2.100732081	0.17616025
Genetic Information Processing Replication and Repair Nucleotide excision repair	3.534016672	GC	1.954452892	0.178434237
Metabolism Lipid Metabolism Synthesis and degradation of ketone bodies	3.214100986	SG	1.952087133	0.181980225
Metabolism Glycan Biosynthesis and Metabolism Peptidoglycan biosynthesis	3.834312046	GC	2.278805425	0.182782867
Environmental Information Processing Membrane Transport Transporters	4.774264584	GC	3.13316271	0.193552311
Metabolism Enzyme Families Cytochrome P450	0.814878893	GC	0.313813539	0.202336087

Metabolism_Carbohydrate_Metabolism_Amino_sugar_and_nucleotide_sugar_metabolism	4.03763298	GC	2.587121878	0.209939564
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Drug_metabolism_others_enzymes	3.416089493	GC	1.977855047	0.213044841
Metabolism_Carbohydrate_Metabolism_Pentose_phosphate_pathway	3.856390601	GC	2.180164837	0.214132235
Unclassified_Metabolism_Energy_metabolism	3.942318136	AG	2.092327106	0.223994058
Metabolism_Metabolism_of_Cofactors_and_Vitamins_Riboflavin_metabolism	3.423544135	IM	1.6679978	0.224030544
Environmental_Information_Processing_Signal_Transduction_Calcium_signaling_pathway	0	GC	0.337623369	0.225645999
Genetic_Information_Processing_Translation_Ribosome_biogenesis_in_eukaryotes	2.755536909	IM	1.133760478	0.229510385
Metabolism_Glycan_Biosynthesis_and_Metabolism_Other_types_of_O_glycan_biosynthesis	0	IM	1.12300774	0.229776708
Metabolism_Energy_Metabolism_Oxidative_phosphorylation	4.104158878	IM	2.38661867	0.230586671
Metabolism_Metabolism_of_Cofactors_and_Vitamins_One_carbon_pool_by_folate	3.716056207	GC	2.054956086	0.231205024
Unclassified_Cellular_Processes_and_Signaling_Germination	1.894527709	GC	1.061005631	0.231228963
Environmental_Information_Processing_Signaling_Molecules_and_Interaction_Bacterial_toxins	3.030572967	GC	1.830011283	0.233748719
Unclassified_Metabolism_Others	3.962213789	GC	2.372071151	0.236021981
Metabolism_Amino_Acid_Metabolism_Valineleucine_and_isoleucine_degradation	3.924488564	SG	2.662646599	0.236027888
Metabolism_Glycan_Biosynthesis_and_Metabolism_Lipopolysaccharide_biosynthesis_proteins	3.724793746	IM	2.257301174	0.239512006
Human_Diseases_Infectious_Diseases_Pertussis	2.499963367	IM	1.203763758	0.242652043
Metabolism_Carbohydrate_Metabolism_Citrate_cycle_TCA_cycle	3.85236603	IM	2.111021955	0.243796588
Unclassified_Genetic_Information_Processing_Protein_folding_and_associated_processing	3.919176347	IM	2.054427476	0.244134362
Metabolism_Carbohydrate_Metabolism_Galactose_metabolism	3.650363824	GC	2.442207635	0.245021675
Metabolism_Amino_Acid_Metabolism_Lysine_degradation	3.654487612	SG	2.392368213	0.247231116
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Carotenoid_biosynthesis	2.35089129	AG	1.283594096	0.248429798
Metabolism_Glycan_Biosynthesis_and_Metabolism_Lipopolysaccharide_biosynthesis	3.630766428	IM	2.251887274	0.252378405
Human_Diseases_Neurodegenerative_Diseases_Parkinson_s_disease	2.785070177	SG	1.640613166	0.253091361
Metabolism_Glycan_Biosynthesis_and_Metabolism_Glycosaminoglycan_biosynthesis_chondroitin_sulfate	0	AG	1.405726142	0.260728357
Metabolism_Glycan_Biosynthesis_and_Metabolism_N_Glycan_biosynthesis	2.421184522	AG	1.172210827	0.264652819
Human_Diseases_Infectious_Diseases_Vibrio_cholerae_pathogenic_cycle	3.022069475	IM	1.482378008	0.266729588
Genetic_Information_Processing_Translation_Aminoacyl_tRNA_biosynthesis	4.023637975	GC	2.388277345	0.270386414
Unclassified_Metabolism_Lipid_metabolism	3.041443163	GC	1.347922993	0.274080101
Metabolism_Metabolism_of_Other_Amino_Acids_beta_Alanine_metabolism	3.672229876	SG	2.359053071	0.275657633
Genetic_Information_Processing_FoldingSorting_and_Degradation_Sulfur_relay_system	3.534225173	IM	1.855849223	0.275906031
Metabolism_Carbohydrate_Metabolism_Propanoate_metabolism	3.974237354	SG	2.504925381	0.277079912
Metabolism_Metabolism_of_Cofactors_and_Vitamins_Lipoic_acid_metabolism	2.730454589	AG	1.185386134	0.27830761
Metabolism_Carbohydrate_Metabolism_Butanoate_metabolism	4.028809026	SG	2.508053417	0.284630458
Metabolism_Nucleotide_Metabolism_Pyrimidine_metabolism	4.183969008	GC	2.612901605	0.286381149
Organismal_Systems_Circulatory_System_Cardiac_muscle_contraction	2.722988701	SG	1.586647141	0.287242237
Human_Diseases_Metabolic_Diseases_Type_I_diabetes_mellitus	2.705604935	GC	0.79222417	0.289576207
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Isoflavonoid_biosynthesis	0.786047532	AG	0.300874506	0.293439105
Human_Diseases_Neurodegenerative_Diseases_Huntington_s_disease	3.024859139	SG	1.68915576	0.29957771
Metabolism_Carbohydrate_Metabolism_Starch_and_sucrose_metabolism	3.785297819	GC	2.478607667	0.308996605
Unclassified_Poorly_Characterized_Function_unknown	4.219186288	IM	2.445649109	0.309384004
Cellular_Processes_Transport_and_Catabolism_Peroxisome	3.395929692	AG	1.886447927	0.311127503
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Caprolactam_degradation	3.378371846	SG	2.181814043	0.311151881
Human_Diseases_Infectious_Diseases_Tuberculosis	3.136840907	GC	1.124063487	0.312661512
Metabolism_Metabolism_of_Other_Amino_Acids_Cyanoamino_acid_metabolism	3.353187999	GC	1.635175417	0.313731965
Metabolism_Metabolism_of_Other_Amino_Acids_D_Glutamine_and_D_glutamate_metabolism	3.106673555	GC	1.363473927	0.314770101
Unclassified_Metabolism_Biosynthesis_and_biodegradation_of_secondary_metabolites	2.945949326	SG	1.520447988	0.316047403
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Flavonoid_biosynthesis	2.169655288	AG	0.966353793	0.317895363
Metabolism_Amino_Acid_Metabolism_Cysteine_and_methionine_metabolism	3.922455288	GC	1.95493553	0.320992318
Genetic_Information_Processing_Translation_Ribosome	4.293044719	GC	2.709863671	0.334383079

Organismal_Systems__Excretory_System__Vasopressin_regulated_water_reabsorption	0.78760129	GC	0.295252243	0.335064444
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Geraniol_degradation	3.537571915	AG	2.34365802	0.33580812
Human_Diseases_Neurodegenerative_Diseases_Alzheimer_s_disease	3.080861886	SG	1.711265992	0.343509348
Metabolism_Amino_Acid_Metabolism_Tryptophan_metabolism	3.735092619	SG	2.427739504	0.34798229
Metabolism_Lipid_Metabolism_Arachidonic_acid_metabolism	2.809902933	IM	1.267603358	0.350538081
Metabolism_Amino_Acid_Metabolism_Phenylalanine_metabolism	3.509506105	SG	1.986491407	0.354349188
Metabolism_Glycan_Biosynthesis_and_Metabolism_Glycosphingolipid_biosynthesis_lacto_and_neolacto_series	0	AG	0.2755618	0.355918071
Genetic_Information_Processing_Transcription_Basal_transcription_factors	1.342140132	GC	0.33785066	0.356290635
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Atrazine_degradation	2.778604048	SG	1.433249832	0.373257211
Unclassified_Poorly_Characterized_General_function_prediction_only	4.538430295	GC	2.155230559	0.374563954
Genetic_Information_Processing_Replication_and_Repair_Homologous_recombination	3.896246287	GC	2.211307975	0.377767908
Metabolism_Lipid_Metabolism_Fatty_acid_metabolism	3.827281674	AG	2.50003825	0.384892596
Unclassified_Cellular_Processes_and_Signaling_Cell_motility_and_secretion	3.411013767	IM	1.77715345	0.3876578
Metabolism_Glycan_Biosynthesis_and_Metabolism_Various_types_of_N_glycan_biosynthesis	0.462694295	GC	0.26418388	0.392230664
Metabolism_Energy_Metabolism_Photosynthesis	3.504589555	GC	1.873406892	0.394066094
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Metabolism_of_xenobiotics_by_cytochrome_P450	3.161063743	AG	2.001311281	0.399970673
Organismal_Systems_Immune_System_Fc_gamma_R_mediated_phagocytosis	0.844549132	IM	0.461379663	0.401395194
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Flavone_and_flavonol_biosynthesis	1.833415942	AG	0.816185512	0.404282388
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Terpenoid_backbone_biosynthesis	3.710042517	GC	1.902086151	0.404469646
Cellular_Processes_Transport_and_Catabolism_Endocytosis	0.844116439	IM	0.459516505	0.404506751
Organismal_Systems_Endocrine_System_GnRH_signaling_pathway	0.844116439	IM	0.459516505	0.404506751
Organismal_Systems_Digestive_System_Fat_digestion_and_absorption	0	SG	1.3309498	0.409365547
Metabolism_Lipid_Metabolism_Sphingolipid_metabolism	3.034913101	GC	1.867744463	0.410593421
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Biosynthesis_of_12_14_and_16_membered_macrolides	1.06248157	IM	0.392811208	0.417405716
Unclassified_Metabolism_Carbohydrate_metabolism	3.065394607	GC	1.683356972	0.419214399
Metabolism_Energy_Metabolism_Photosynthesis_antenna_proteins	1.005354298	GC	0.539656929	0.421896173
Genetic_Information_Processing_Replication_and_Repair_Mismatch_repair	3.839748212	GC	2.141191075	0.422997215
Metabolism_Amino_Acid_Metabolism_Arginine_and_proline_metabolism	4.088454494	SG	2.213670649	0.423766335
Cellular_Processes_Cell_Motility_Cytoskeleton_proteins	3.381589833	GC	1.738123691	0.423938301
Metabolism_Energy_Metabolism_Photosynthesis_proteins	3.526937221	GC	1.824407053	0.425367888
Unclassified_Cellular_Processes_and_Signaling_Inorganic_ion_transport_and_metabolism	3.492543272	IM	1.96386832	0.425917679
Unclassified_Cellular_Processes_and_Signaling_Other_ion_coupled_transporters	4.081969808	IM	2.025173905	0.426924834
Unclassified_Metabolism_Metabolism_of_cofactors_and_vitamins	3.287615273	IM	1.812014472	0.43528676
Unclassified_Genetic_Information_Processing_Translation_proteins	3.90933824	GC	1.909428586	0.436517989
Environmental_Information_Processing_Signaling_Molecules_and_Interaction_Cytokine_receptors	0	AG	1.444240419	0.445864338
Environmental_Information_Processing_Signaling_Molecules_and_Interaction_Cytokine_cytokine_receptor_interaction	0	AG	1.533846062	0.445864338
Metabolism_Lipid_Metabolism_Steroid_hormone_biosynthesis	2.277800324	AG	0.900459454	0.449047413
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Phenylpropanoid_biosynthesis	2.998538731	AG	1.61470011	0.451231083
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Zeatin_biosynthesis	2.60156751	GC	1.167712987	0.462061862
Metabolism_Glycan_Biosynthesis_and_Metabolism_Other_glycan_degradation	3.154216741	GC	2.045487615	0.463055905
Metabolism_Lipid_Metabolism_Biosynthesis_of_unsaturated_fatty_acids	3.379030576	AG	1.976849784	0.463263777
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Styrene_degradation	2.965226214	SG	1.671724562	0.464721713
Genetic_Information_Processing_Translation_Translation_factors	3.650055701	GC	1.999592478	0.466356675
Human_Diseases_Infectious_Diseases_Bacterial_invasion_of_epithelial_cells	1.431495171	SG	0.367546291	0.467123814
Organismal_Systems_Immune_System_Hematopoietic_cell_lineage	0.666576271	GC	0.363320438	0.468197231
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Polyketide_sugar_unit_biosynthesis	3.173097195	AG	1.501349008	0.471960219
Metabolism_Glycan_Biosynthesis_and_Metabolism_Glycosphingolipid_biosynthesis_globo_series	2.708644564	GC	1.554145553	0.473957412
Metabolism_Amino_Acid_Metabolism_Valineleucine_and_isoleucine_biosynthesis	3.823170985	AG	1.845909101	0.4750191
Unclassified_Cellular_Processes_and_Signaling_Cell_division	2.883730683	IM	1.196127001	0.482696981
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Drug_metabolism_cytochrome_P450	3.189553614	AG	2.017288671	0.485618708
Cellular_Processes_Transport_and_Catabolism_Lysosome	2.813925442	GC	1.62322817	0.487643374
Metabolism_Metabolism_of_Cofactors_and_Vitamins_Biotin_metabolism	3.211049918	SG	1.642207467	0.488904951

Metabolism_Glycan_Biosynthesis_and_Metabolism_Glycosaminoglycan_degradation	2.495659362	GC	1.28738912	0.497903923
Human_Diseases_Immune_System_Diseases_Primary_immunodeficiency	2.669408185	IM	0.984253887	0.504640585
Metabolism_Carbohydrate_Metabolism_C5_Branched_dibasic_acid_metabolism	3.445780501	AG	1.731233272	0.511760369
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Prenyltransferases	3.470206298	GC	1.606551	0.51254798
Metabolism_Carbohydrate_Metabolism_Pentose_and_glucuronate_interconversions	3.586763126	GC	1.965598875	0.515091761
Metabolism_Glycan_Biosynthesis_and_Metabolism_Glycosyltransferases	3.542607066	GC	1.70843426	0.51734255
Human_Diseases_Cardiovascular_Diseases_Arrhythmogenic_right_ventricular_cardio_myopathy_ARVC	0	SG	0.195963114	0.518850243
Organismal_Systems_Immune_System_Leukocyte_transendothelial_migration	0	SG	0.195963114	0.518850243
Organismal_Systems_Sensory_System_Phototransduction_fly	0	SG	0.195963114	0.518850243
Cellular_Processes_Cell_Communication_Adherens_junction	0	SG	0.195963114	0.518850243
Human_Diseases_Cardiovascular_Diseases_Dilated_cardiomyopathy_DCM	0	SG	0.195963114	0.518850243
Cellular_Processes_Cell_Motility_Regulation_of_actin_cytoskeleton	0	SG	0.195963114	0.518850243
Human_Diseases_Infectious_Diseases_Pathogenic_Escherichia_coli_infection	0	SG	0.195963114	0.518850243
Cellular_Processes_Transport_and_Catabolism_Phagosome	0	SG	0.195963114	0.518850243
Cellular_Processes_Cell_Communication_Tight_junction	0	SG	0.195963114	0.518850243
Cellular_Processes_Cell_Communication_Focal_adhesion	0	SG	0.654953772	0.519841555
Genetic_Information_Processing_Replication_and_Repair_DNA_replication	3.759050136	GC	2.02763278	0.520275148
Metabolism_Energy_Metabolism_Nitrogen_metabolism	3.875725264	IM	1.693240953	0.522105754
Organismal_Systems_Endocrine_System_Adipocytokine_signaling_pathway	2.922433856	AG	1.503642942	0.524925348
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Biosynthesis_of_vancomycin_group_antibiotics	2.699837575	AG	1.15902716	0.525136681
Metabolism_Amino_Acid_Metabolism_Lysine_biosynthesis	3.802737568	GC	1.91072444	0.525602861
Genetic_Information_Processing_FoldingSorting_and_Degradation_Protein_processing_in_endoplasmic_reticulum	2.767099553	AG	1.050203982	0.542255759
Metabolism_Metabolism_of_Cofactors_and_Vitamins_Folate_biosynthesis	3.641994506	IM	1.840283452	0.544898178
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Ethylbenzene_degradation	2.84953558	GC	1.333168865	0.545537184
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Benzoate_degradation	3.709437302	AG	2.267875097	0.546384793
Metabolism_Lipid_Metabolism_Steroid_biosynthesis	2.096903345	AG	0.987465425	0.546702321
Human_Diseases_Cardiovascular_Diseases_Hypertrophic_cardiomyopathy_HCM	1.437842101	IM	0.455942844	0.549627326
Organismal_Systems_Digestive_System_Bile_secretion	1.059648325	AG	0.338056996	0.55551366
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Biosynthesis_of_type_II_polyketide_products	0.988050439	AG	0.491667282	0.56059266
Genetic_Information_Processing_Replication_and_Repair_Chromosome	4.135795137	GC	2.183679515	0.573187511
Metabolism_Metabolism_of_Other_Amino_Acids_D_Arginine_and_D_ornithine_metabolism	1.806395878	AG	0.581854474	0.57422566
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_beta_Lactam_resistance	2.503295062	AG	1.134667296	0.575219995
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Isoquinoline_alkaloid_biosynthesis	2.764212665	GC	1.007021299	0.575348176
Metabolism_Amino_Acid_Metabolism_Amino_acid_related_enzymes	4.125930935	GC	2.19095709	0.579378272
Metabolism_Amino_Acid_Metabolism_Glycineserine_and_threonine_metabolism	3.961152322	IM	1.935839198	0.585459008
Genetic_Information_Processing_Transcription_Transcription_machinery	3.893369535	AG	1.85586164	0.588673644
Cellular_Processes_Cell_Growth_and_Death_p53_signaling_pathway	1.956451944	AG	0.991093668	0.59148154
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Streptomycin_biosynthesis	3.420158913	AG	1.652877867	0.599677016
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Biosynthesis_of_siderophore_group_nonribosomal_peptides	2.700517155	IM	1.32949009	0.601117935
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Nitrotoluene_degradation	2.982957075	SG	1.572436762	0.601806265
Human_Diseases_Cancers_Bladder_cancer	2.063361256	IM	0.973130244	0.605497793
Human_Diseases_Cancers_Renal_cell_carcinoma	2.374201285	SG	0.993058795	0.605719084
Genetic_Information_Processing_FoldingSorting_and_Degradation_Protein_export	3.730517881	GC	1.846545405	0.606990468
Organismal_Systems_Endocrine_System_PPAR_signaling_pathway	3.240804954	AG	1.781033111	0.607334674
Genetic_Information_Processing_Translation_RNA_transport	3.025607378	GC	1.323500558	0.608336963
Unclassified_Metabolism_Amino_acid_metabolism	3.289271579	AG	1.582766432	0.608371909
Unclassified_Genetic_Information_Processing_Restriction_enzyme	3.269909531	GC	2.107111319	0.608683713
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Penicillin_and_cephalosporin_biosynthesis	2.692731702	AG	1.269557737	0.60984603
Metabolism_Glycan_Biosynthesis_and_Metabolism_Glycosphingolipid_biosynthesis_ganglio_series	2.273682256	GC	1.12501675	0.610483724
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Limonene_and_pinene_degradation	3.534020135	AG	2.132015813	0.613622863

Metabolism_Amino Acid Metabolism_Alanineaspartate_and glutamate metabolism	3.974932692	GC	1.771192868	0.619989426
Metabolism Metabolism of Cofactors and Vitamins Vitamin B6 metabolism	3.246467829	IM	1.18700622	0.6228362
Environmental_Information_Processing_Signaling_Molecules_and_Interaction_G_protein coupled receptors	0.004301906	GC	0.23062262	0.623609773
Metabolism Metabolism of Cofactors and Vitamins Retinol metabolism	2.854590028	AG	1.514117895	0.636965879
Environmental_Information_Processing_Signaling_Molecules_and_Interaction_ECM_receptor interaction	0	AG	1.31692428	0.637319445
Environmental_Information_Processing_Signaling_Molecules_and_Interaction_CAM_ligands	0	AG	1.297089953	0.637319445
Organismal Systems Environmental Adaptation Plant pathogen interaction	3.164840704	SG	1.24712007	0.647098979
Human_Diseases_Infectious_Diseases_Chagas_disease_American trypanosomiasis	2.19591124	IM	0.997680537	0.653681618
Genetic_Information_Processing_Replication_and_Repair_DNA_replication_proteins	4.004844038	GC	2.271831743	0.657615088
Organismal Systems Digestive System Protein digestion and absorption	2.066282602	GC	0.805840087	0.66600902
Metabolism Amino Acid Metabolism Histidine metabolism	3.73529213	AG	1.838758654	0.672310848
Human Diseases Infectious Diseases Influenza A	1.943111868	AG	0.987411929	0.675069167
Human Diseases Cardiovascular Diseases Viral myocarditis	1.940998208	AG	0.983943823	0.680164169
Human Diseases Cancers Pathways in cancer	2.772381235	SG	1.077617022	0.681100389
Metabolism Carbohydrate Metabolism Inositol phosphate metabolism	3.300499269	IM	1.786016604	0.681242755
Genetic_Information_Processing_Translation mRNA surveillance pathway	0.720317587	SG	0.297419445	0.682219328
Human Diseases Cancers Small cell lung cancer	1.941035759	AG	0.985161981	0.687935449
Organismal Systems Digestive System Pancreatic secretion	0	AG	0.71184298	0.688881381
Metabolism_Metabolism_of_Other_Amino_Acids_Taurine_and_hypotaurine_metabolism	3.15853664	IM	1.315170278	0.689890978
Human Diseases Metabolic Diseases Type II diabetes mellitus	2.584432661	GC	0.8871118	0.696094201
Human Diseases Infectious Diseases Toxoplasmosis	1.938010823	AG	0.982562893	0.698798351
Human Diseases Cancers Colorectal cancer	1.937869873	AG	0.982414938	0.699750669
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_111 Trichloro_22_bis_4_chlorophenyl ethane DDT degradation	1.435923206	GC	0.414606043	0.7032992
Environmental_Information_Processing_Signal_Transduction_Phosphatidylinositol signaling system	2.986624507	IM	1.082610913	0.708944981
Metabolism Lipid Metabolism Fatty acid elongation in mitochondria	0.16245111	IM	0.342507063	0.712285585
Metabolism Lipid Metabolism Lipid biosynthesis proteins	3.871954398	AG	2.041735508	0.714175837
Metabolism_Metabolism_of_Cofactors_and_Vitamins_Pantothenate_and_CoA_biosynthesis	3.746674555	IM	1.361851832	0.714275804
Metabolism Enzyme Families Protein kinases	3.575434392	IM	1.741139521	0.721485621
Unclassified Cellular Processes and Signaling Other transporters	3.354339941	AG	1.333944312	0.722105581
Human_Diseases_Neurodegenerative_Diseases_Amyotrophic_lateral_sclerosis_ALS	2.650647091	SG	1.16961354	0.724173296
Cellular Processes Cell Growth and Death Cell cycle Caulobacter	3.678807189	GC	1.683386431	0.729138513
Metabolism_Glycan_Biosynthesis_and_Metabolism_Glycosylphosphatidylinositol_GPI_anchor biosynthesis	0	AG	1.532690319	0.738913701
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Stilbenoiddiarylheptanoid and gingerol biosynthesis	2.274825296	AG	1.0933637	0.743307602
Organismal Systems Endocrine System Insulin signaling pathway	2.744145537	GC	1.328019612	0.744912454
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Tetracycline_biosynthesis	3.150557765	GC	1.412191047	0.765831995
Organismal Systems Environmental Adaptation Circadian rhythm plant	1.628031719	AG	0.614456861	0.769762364
Human Diseases Infectious Diseases Amoebiasis	2.183716974	SG	0.861390652	0.775875205
Genetic_Information_Processing_Transcription Transcription factors	4.161355114	GC	2.288379442	0.779533255
Human Diseases Infectious Diseases African trypanosomiasis	2.180251462	IM	0.93347913	0.779667547
Unclassified Genetic Information Processing Transcription related proteins	2.088651476	IM	0.749492952	0.781846962
Metabolism Lipid Metabolism Ether lipid metabolism	2.008486576	AG	0.821099798	0.785825617
Cellular Processes Cell Growth and Death Apoptosis	2.059218405	AG	0.885796497	0.78723654
Organismal Systems Immune System NOD like receptor signaling pathway	2.475245422	GC	1.018580071	0.791872479
Metabolism_Metabolism_of_Cofactors_and_Vitamins_Porphyrin_and_chlorophyll metabolism	3.956246959	SG	1.917552418	0.795449918
Genetic_Information_Processing_FoldingSorting_and_Degradation_Chaperones_and_folding catalysts	3.996878543	IM	2.003409124	0.797901942
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Xylene degradation	2.73687753	GC	1.254411383	0.803456122
Environmental_Information_Processing_Signal_Transduction_Wnt_signaling pathway	0.271675529	AG	0.149909224	0.824277727
Environmental_Information_Processing_Signal_Transduction_Notch_signaling pathway	0.271675529	AG	0.149909224	0.824277727
Human Diseases Cancers Chronic myeloid leukemia	0.271675529	AG	0.149909224	0.824277727

Human Diseases Infectious Diseases Shigellosis	0	SG	0.635267552	0.824925142
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Aminobenzoate degradation	3.548617297	AG	2.057260118	0.838404668
Organismal Systems Digestive System Salivary secretion	0	SG	1.045282023	0.839271229
Organismal Systems_Excretory_System_Endocrine_and_other_factor_regulated_calcium reabsorption	0	SG	1.045282023	0.839271229
Organismal Systems Digestive System Gastric acid secretion	0	SG	1.045282023	0.839271229
Organismal Systems Digestive System Mineral absorption	2.109747246	IM	0.881958656	0.844374448
Organismal Systems Endocrine System Melanogenesis	0.912106966	AG	0.293819795	0.844382641
Metabolism Lipid Metabolism Primary bile acid biosynthesis	2.308906505	AG	0.748530479	0.845850989
Metabolism Lipid Metabolism Secondary bile acid biosynthesis	2.12647182	GC	0.836162029	0.849178787
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Biosynthesis_of_type_II_polyketide backbone	0.416454568	AG	0.375851081	0.850869719
Metabolism Lipid Metabolism Fatty acid biosynthesis	3.706068449	GC	1.530420567	0.853097095
Metabolism Lipid Metabolism Glycerophospholipid metabolism	3.72952011	IM	1.612794414	0.855756614
Metabolism Biosynthesis of Other Secondary Metabolites Caffeine metabolism	1.396012086	GC	0.42396306	0.856172602
Unclassified Cellular Processes and Signaling Signal transduction mechanisms	3.651159977	GC	1.696512946	0.862111389
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Chlorocyclohexane_and_chlorobenzene degradation	2.928444119	AG	1.612342407	0.867069025
Environmental Information Processing_Signal_Transduction_VEGF_signaling_pathway	0	SG	0.702330249	0.869889972
Environmental Information Processing_Signaling_Molecules_and_Interaction_Neuroactive ligand receptor interaction	0	AG	0.671715635	0.870113993
Metabolism_Metabolism_of_Terpenoids_and_Polyketides_Sesquiterpenoid_biosynthesis	0.334409437	AG	0.323292016	0.870399466
Genetic Information Processing_FoldingSorting_and_Degradation_RNA_degradation	3.640830647	GC	1.627394259	0.872508247
Human Diseases Infectious Diseases Leishmaniasis	0	SG	0.663091068	0.872919596
Genetic Information Processing_FoldingSorting_and_Degradation_Ubiquitin_system	2.236724892	IM	0.859626382	0.875123069
Genetic Information Processing_Replication_and_Repair_Non_homologous_end_joining	2.538573184	AG	1.276025444	0.880609563
Unclassified Cellular Processes and Signaling Electron transfer carriers	2.558388879	SG	1.120045129	0.882367636
Unclassified_Genetic_Information_Processing_Replicationrecombination_and_repair_proteins	3.900819583	GC	2.097956813	0.886233721
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Novobiocin_biosynthesis	3.083341046	GC	1.150441511	0.89005902
Metabolism Biosynthesis of Other Secondary Metabolites Betalain biosynthesis	1.359287203	AG	0.367000623	0.890819168
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Dioxin_degradation	2.858602577	GC	1.165610762	0.891496669
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Polycyclic_aromatic_hydrocarbon degradation	3.174385786	GC	1.56351596	0.894705104
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Indole_alkaloid_biosynthesis	1.267113093	GC	0.343055187	0.898759912
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Naphthalene_degradation	3.389065131	AG	1.768162167	0.903101659
Human Diseases Immune System Diseases Systemic lupus erythematosus	1.025237818	IM	0.52556018	0.903233728
Environmental Information Processing_Signal_Transduction_MAPK_signaling_pathway yeast	2.610190332	IM	0.985648143	0.906975173
Organismal Systems_Excretory_System_Aldosterone_regulated_sodium_reabsorption	0	SG	1.528074951	0.908278903
Metabolism_Biosynthesis_of_Other_Secondary_Metabolites_Tropanepiperidine_and_pyridine alkaloid biosynthesis	3.068741448	GC	1.263359792	0.918670073
Genetic Information Processing_Folding_Sorting_and_Degradation_Proteasome	2.534634536	GC	0.865048418	0.920843421
Cellular Processes_Cell_Growth_and_Death_Meiosis_yeast	2.396024072	AG	1.132595711	0.923711823
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Chloroalkane_and_chloroalkene degradation	3.40825036	AG	1.77655914	0.927261064
Human Diseases Neurodegenerative Diseases Prion diseases	2.100332943	IM	0.556531768	0.932524741
Unclassified Metabolism Nucleotide metabolism	2.6802529	IM	1.111026688	0.932727863
Metabolism_Xenobiotics_Biodegradation_and_Metabolism_Fluorobenzoate_degradation	2.595547087	AG	1.41175282	0.937106077
Human Diseases_Infectious_Diseases_Epithelial_cell_signaling_in_Helicobacter_pylori infection	2.83520567	GC	1.436545542	0.942307352
Metabolism Lipid Metabolism Linoleic acid metabolism	2.824432177	GC	1.361916738	0.94720983
Organismal Systems_Excretory_System_Proximal_tubule_bicarbonate_reclamation	2.408322899	AG	1.047607761	0.96361346
Metabolism_Amino_Acid_Metabolism_Phenylalanine_tyrosine_and_tryptophan_biosynthesis	3.859668932	IM	1.784365276	0.968397845

Metabolism Amino Acid Metabolism Tyrosine metabolism	3.617061647	AG	1.648837864	0.970428018
Metabolism Carbohydrate Metabolism Pyruvate metabolism	4.032396718	AG	1.57936964	0.972402848
Organismal Systems Endocrine System Renin angiotensin system	1.66507688	IM	0.494214315	0.982372358
Metabolism Carbohydrate Metabolism Ascorbate and aldarate metabolism	3.129419051	AG	1.394210315	0.983158847
Metabolism Xenobiotics Biodegradation and Metabolism Bisphenol degradation	3.067114296	GC	1.617037275	0.984276448
Environmental Information Processing Membrane Transport ABC transporters	4.526419622	AG	2.441622472	0.98488297
Human Diseases Cancers Prostate cancer	2.443225425	GC	0.86882128	0.988278934
Organismal_Systems_Endocrine_System_Progesterone_mediated_oocyte_maturation	2.442934098	GC	0.869133686	0.988951084
Organismal Systems Immune System Antigen processing and presentation	2.442934098	GC	0.869133686	0.988951084

SG: Superficial gastritis
AG: Atrophic gastritis
IM: Intestinal metaplasia
GC: Gastric cancer
LDA: Linear discriminant analysis