

Supplementary table 11: Differential predicted KEGG pathways (level 1) between SG and GC in Xi'an cohort

Predicted_function_level1	LogMaxMean	Class	LDA score	p value
Human_Diseases	4.018699801	SG	2.37697232	0.097855694
None	3.26406505	SG	2.092408193	0.300861803
Cellular_Processes	4.638571949	SG	3.194907075	0.005118644
Genetic_Information_Processing	5.239795037	GC	3.412014893	0.083922097
Unclassified	5.1491221	SG	2.395499515	0.421786093
Organismal_Systems	3.868099166	SG	1.874438161	0.223542875
Metabolism	5.685402521	SG	2.996046349	0.407857616
Environmental_Information_Processing	5.154754896	SG	2.583581983	0.798256737

Supplementary table 12: Differential predicted KEGG pathways (level 1) among SG, AG, IM and GC in Xi'an cohort

Predicted_function_level1	LogMaxMean	Class	LDA score	p value
Human_Diseases	4.018699801	SG	2.40994611	0.326085754
None	3.264424563	IM	2.201276466	0.780054825
Cellular_Processes	4.638571949	SG	3.225708334	0.036555349
Genetic_Information_Processing	5.239795037	GC	3.406829566	0.357431883
Unclassified	5.151332062	IM	2.67924077	0.29130315
Organismal_Systems	3.868099166	SG	2.249476546	0.68192269
Metabolism	5.686489613	AG	3.13008638	0.613276959
Environmental_Information_Processing	5.154754896	SG	2.754532224	0.875766842

Supplementary table 13: Differential predicted KEGG pathways (level 2) between SG and GC in Xi'an cohort

Predicted_function_level2	LogMaxMean	Class	LDA score	p value
Signal_Transduction	4.341301535	SG	2.818655785	0.007968266
Cell_Motility	4.548710197	SG	3.187397987	0.009194801
Nucleotide_Metabolism	4.551214475	GC	2.888037287	0.035231381
Nervous_System	2.935003689	GC	1.18443774	0.057594522
Signaling_Molecules_and_Interaction	3.290642423	GC	1.767019723	0.060871415
Enzyme_Families	4.287618987	GC	2.443806337	0.067889155
Circulatory_System	2.722988701	SG	1.604486901	0.075559124
Translation	4.689204628	GC	3.012109455	0.083922097
Metabolic_Diseases	2.950261188	GC	1.086625336	0.086125929
Replication_and_Repair	4.888942808	GC	3.096572179	0.08837628
Neurodegenerative_Diseases	3.537068016	SG	2.201067613	0.108130545
Amino_Acid_Metabolism	5.012239902	SG	2.927204455	0.108130545
Cancers	3.139457971	SG	1.581495391	0.113578908
Cellular_Processes_and_Signaling	4.593413958	SG	2.490081734	0.144127035
Digestive_System	2.540320201	GC	1.335669129	0.147499101
Environmental_Adaptation	3.176457544	SG	1.195904023	0.161592562
Membrane_Transport	5.08073651	GC	2.831528709	0.172813001
Transcription	4.375490745	GC	2.488724235	0.184606038
Carbohydrate_Metabolism	4.99294083	GC	2.814233925	0.209959767
Cardiovascular_Diseases	2.035958329	SG	0.985986517	0.268027376
Lipid_Metabolism	4.545255735	SG	2.619697744	0.295210899
Metabolism_of_Other_Amino_Acids	4.271376616	SG	2.291396189	0.324181891
Xenobiotics_Biodegradation_and_Metabolism	4.496846072	SG	2.902661898	0.342424447
Metabolism_of_Terpenoids_and_Polyketides	4.296175423	SG	2.269947802	0.367748212
Cell_Growth_and_Death	3.713917566	GC	1.558700336	0.367748212
Endocrine_System	3.527372976	SG	1.756779182	0.38083648
Immune_System	2.795631874	GC	1.17371724	0.387486557
Transport_and_Catabolism	3.486425081	SG	1.714859753	0.414787292
Metabolism_of_Cofactors_and_Vitamins	4.623789592	SG	2.12838321	0.511009207
Energy_Metabolism	4.74498086	SG	2.397991486	0.518865328
Biosynthesis_of_Other_Secondary_Metabolites	3.917090287	GC	2.050218777	0.583882421
Metabolism	4.390725834	SG	2.063555933	0.626354361
Excretory_System	2.409043471	SG	0.947490809	0.626354361
Genetic_Information_Processing	4.43328122	GC	2.362269017	0.635005891
Infectious_Diseases	3.622911159	SG	1.507796709	0.661257222
FoldingSorting_and_Degradation	4.379218611	GC	2.157284235	0.760906727
Glycan_Biosynthesis_and_Metabolism	4.341773955	GC	2.374298784	0.770195871

Immune_System_Diseases	2.669055221	GC	0.793855795	0.779518102
Poorly_Characterized	4.70475005	SG	2.23366203	0.855132141
Cell_Communication	0.334780848	SG	1.121631148	0.922430266
Sensory_System	0	SG	1.503228268	0.922430266

Supplementary table 14: Differential predicted KEGG pathways (level 2) among SG, AG, IM and GC in Xi'an cohort

Predicted_function_level2	LogMaxMean	Class	LDA score	p value
Signal_Transduction	4.341301535	SG	2.819974115	0.033371698
Cell_Motility	4.548710197	SG	3.204195882	0.060348078
Cellular_Processes_and_Signaling	4.597826188	IM	2.689079609	0.137754649
Nervous_System	2.935003689	GC	1.200757944	0.143234278
Nucleotide_Metabolism	4.551214475	GC	2.891520932	0.160360354
Amino_Acid_Metabolism	5.013288985	AG	2.979119168	0.214388784
Signaling_Molecules_and_Interaction	3.290642423	GC	1.869250419	0.234537197
Enzyme_Families	4.287618987	GC	2.418485847	0.244439983
Circulatory_System	2.722988701	SG	1.621936497	0.287242237
Metabolic_Diseases	2.950261188	GC	1.119893911	0.29288015
Neurodegenerative_Diseases	3.537068016	SG	2.207501451	0.339556946
Carbohydrate_Metabolism	4.99294083	GC	2.914404581	0.340084882
Replication_and_Repair	4.888942808	GC	3.112855999	0.343689428
Translation	4.689204628	GC	3.029685877	0.345477302
Transport_and_Catabolism	3.494219833	AG	1.856569857	0.354818673
Membrane_Transport	5.08073651	GC	2.967783556	0.393697215
Digestive_System	2.540320201	GC	1.326780552	0.394360112
Cancers	3.139457971	SG	1.592557594	0.468365427
Immune_System_Diseases	2.679152086	IM	1.076298306	0.46973127
Transcription	4.375490745	GC	2.501138842	0.488016247
Sensory_System	0	SG	1.632978658	0.518850243
Cell_Communication	0.334780848	SG	1.17334048	0.531512252
Endocrine_System	3.534334963	AG	1.885270239	0.533667038
Metabolism_of_Other_Amino_Acids	4.271376616	SG	2.289925007	0.549098887
Poorly_Characterized	4.706754675	IM	2.380331098	0.558385389
Cardiovascular_Diseases	2.0564851	AG	1.011648107	0.64353798
Lipid_Metabolism	4.546837528	AG	2.666766483	0.646099458
Environmental_Adaptation	3.17669162	IM	1.257465912	0.653955004
Metabolism_of_Cofactors_and_Vitamins	4.627038987	IM	2.317287749	0.65622049
Metabolism_of_Terpenoids_and_Polyketides	4.298201879	AG	2.363786746	0.693188424
Energy_Metabolism	4.74498086	SG	2.524292531	0.736138473
Cell_Growth_and_Death	3.71446053	AG	1.643818747	0.747396911
Infectious_Diseases	3.622911159	SG	1.557057751	0.776371091
Genetic_Information_Processing	4.43328122	GC	2.54483708	0.777644001
Immune_System	2.795631874	GC	1.246192817	0.78416457
Metabolism	4.393493357	AG	2.234533722	0.794730426
Biosynthesis_of_Other_Secondary_Metabolites	3.918634735	AG	2.03435722	0.802284692
Xenobiotics_Biodegradation_and_Metabolism	4.49891152	AG	2.928936727	0.80523585
FoldingSorting_and_Degradation	4.382175203	IM	2.34671348	0.911201362
Excretory_System	2.419204404	AG	1.022551828	0.971463947
Glycan_Biosynthesis_and_Metabolism	4.341773955	GC	2.468042209	0.996030104

SG: Superficial gastritis

AG: Atrophic gastritis

IM: Intestinal metaplasia

GC: Gastric cancer