

Table S5 The average relative numbers of forty-two significant KEGG pathways

KEGG Pathway	KEGG Sub Functional Role	ND	HFD	PRO	PRE	SYN	Kruskal-Wallis P value
Glycolysis_Gluconeogenesis	Carbohydrate metabolism	11.50618	13.11614	11.60554	11.77534	11.68909	0.0141
Ribosome	Translation	30.23902	23.93933	21.79374	23.95252	30.85984	0.0179
Cysteine_and_methionine_metabolism	Amino acid metabolism	1.669289	1.922466	1.899717	1.702992	1.376838	0.0337
Benzoate_degradation	Xenobiotics biodegradation and metabolism	1.073374	1.659983	1.458678	1.758214	1.530708	0.0056
Flagellar_assembly	Cell motility	1.116992	1.478511	1.80721	2.253162	2.182892	0.0031
Bacterial_motility_proteins	Cell motility	1.6224	2.051143	2.427224	2.795109	2.887449	0.0072
Two_component_system	Signal transduction	3.074881	3.63281	3.937243	4.494268	4.692397	0.0096
Oxidative_phosphorylation	Energy metabolism	1.737376	1.448861	1.587484	1.67909	2.054808	0.0126
Pyrimidine_metabolism	Nucleotide metabolism	2.071057	1.359397	1.503	1.590641	1.65583	0.0348
Amino_acid_related_enzymes	Amino acid metabolism	2.844785	2.410009	2.458488	2.160921	2.009236	0.0228
Transfer_RNA_biogenesis	Translation	2.061676	1.25343	1.314273	1.283195	1.289826	0.0249
Propanoate_metabolism	Carbohydrate metabolism	2.495852	2.659991	2.534162	3.106768	2.86849	0.0525
Carbohydrate_metabolism	Carbohydrate metabolism	0.299186	0.65379	0.538821	0.422158	0.280747	0.005
Sulfur_metabolism	Energy metabolism	0.48129	0.762509	0.740573	0.731075	0.762775	0.0485
Fatty_acid_degradation	Lipid metabolism	0.841783	1.176251	0.950905	1.233181	1.166711	0.0128
Synthesis_and_degradation_of_ketone_bodies	Lipid metabolism	0.539537	0.784996	0.533144	0.897008	0.791504	0.0259
Amino_acid_metabolism	Amino acid metabolism	0.414005	0.582303	0.449759	0.6655	0.685754	0.013
Lysine_biosynthesis	Amino acid metabolism	0.517969	0.811734	0.903961	0.716844	0.545721	0.0133
Lysine_degradation	Amino acid metabolism	0.765566	1.092565	0.70255	1.194927	1.153402	0.024
Tryptophan_metabolism	Amino acid metabolism	0.624925	0.94924	0.615834	1.009432	0.952519	0.0119
Valine_leucine_and_isoleucine_degradation	Amino acid metabolism	0.971127	1.169384	0.986768	1.250593	1.056844	0.029
Pantothenate_and_CoA_biosynthesis	Metabolism of cofactors and vitamins	0.836756	1.131396	1.422997	1.000363	0.883976	0.0441
Terpenoid_backbone_biosynthesis	Metabolism of terpenoids and polyketides	0.548351	0.784996	0.542795	0.897008	0.809906	0.0241
Monobactam_biosynthesis	Biosynthesis of other secondary metabolites	0.285497	0.642379	0.675849	0.485304	0.338511	0.0142
Nitrotoluene_degradation	Xenobiotics biodegradation and metabolism	0.507992	0.880847	0.74014	0.838839	0.719214	0.0256
D_Alanine_metabolism	Metabolism of other amino acids	0.101807	0	0.019301	0.008158	0.024489	0.0098
Peptidoglycan_biosynthesis	Glycan biosynthesis and metabolism	0.189264	0.05904	0.048153	0	0.034598	0.0061
Streptomycin_biosynthesis	Biosynthesis of other secondary metabolites	0.625076	0.391759	0.359127	0.362171	0.440979	0.0047
RNA_polymerase	Transcription	0.887138	0.563611	0.461208	0.503377	0.72157	0.0232
Transcription_machinery	Transcription	1.150629	0.716746	0.590695	0.603092	0.861459	0.0069
Aminoacyl_tRNA_biosynthesis	Translation	1.827155	0.982305	1.040982	0.890822	0.926251	0.0098
Ribosome_biogenesis	Translation	0.403462	0.094699	0.096013	0.092568	0.107576	0.0259
DNA_repair_and_recombination_proteins	Replication and repair	1.520739	1.043227	0.775965	0.9213	1.325709	0.0004
Protein_export	Folding, sorting and degradation	0.232911	0.17835	0.119099	0.194566	0.103019	0.0453
Protein_folding_and_associated_processing	Genetic information processing	0.498842	0.199919	0.301504	0.18623	0.281776	0.0117
Bacterial_secretion_system	Membrane transport	0.232911	0.17835	0.119099	0.194566	0.103019	0.0453
Secretion_system	Membrane transport	0.310633	0.247568	0.203793	0.398794	0.173074	0.009
Prokaryotic_Defense_System	Transport and catabolism	0.269918	0.118584	0.084895	0.098532	0.17173	0.0123
Cell_cycle_Caulobacter	Cell growth and death	0.249051	0.028298	0.058005	0.037991	0.05907	0.0051
Antimicrobial_resistance_genes	Drug resistance	0.055684	0.008098	0.009651	0	0.024489	0.0345
Cationic_antimicrobial_peptide_CAMP_resistance	Drug resistance	0.118753	0.008098	0.009651	0	0.016387	0.0053
Membrane_and_intracellular_structural_molecules	Cellular processes and signaling	0.158025	0.069376	0.069984	0.09497	0.07407	0.0446