Module Function Table

Module	Similarity Score	Class	Functions
10	0.666666666666667	sphingobacteriia	aerobic_chemoheterotrophy, nitrate_reduction, ureolysis, xylanolysis, cellulolysis
		spartobacteria	aerobic_chemoheterotrophy
		oligoflexia	nitrate_reduction, predatory_or_exoparasitic
		bacteroidetes	cellulolysis, xylanolysis, aerobic_chemoheterotrophy
		ktedonobacteria	aerobic_chemoheterotrophy, nitrate_reduction
3	0.428571428571429	bacilli	methanotrophy, methanol_oxidation, thiosulfate_respiration, arsenate_detoxification, arsenate_respiration, arsenite_oxidation_energy_yielding, nitrate_denitrification, nitrite_denitrification, nitrous_oxide_denitrification, chitinolysis, knallgas_bacteria, dark_hydrogen_oxidation, nitrate_ammonification, nitrite_respiration, cellulolysis, xylanolysis, dark_thiosulfate_oxidation, manganese_oxidation, manganese_respiration, ligninolysis, fermentation, aerobic_chemoheterotrophy, invertebrate_parasites, human_pathogens_pneumonia, human_pathogens_all, plant_pathogen, aromatic_compound_degradation, iron_respiration, nitrate_respiration, nitrate_reduction, fumarate_respiration, plastic_degradation, ureolysis, human_pathogens_meningitis, human_gut, animal_parasites_or_symbionts, nitrogen_fixation, aromatic_hydrocarbon_degradation, nitrite_ammonification, human_associated, human_pathogens_septicemia, fish_parasites, dark_sulfide_oxidation, dark_sulfur_oxidation, dark_iron_oxidation, human_pathogens_gastroenteritis, aliphatic_non_methane_hydrocarbon_degradation, oil_bioremediation

Module	Similarity Score	Class	Functions
		deltaproteobacteria	aerobic_chemoheterotrophy, predatory_or_exoparasitic, sulfate_respiration, sulfite_respiration, sulfur_respiration, fermentation, iron_respiration, thiosulfate_respiration, dark_hydrogen_oxidation, cellulolysis, nitrate_ammonification, xylanolysis, nitrogen_fixation, nitrate_reduction, arsenate_respiration, manganese_respiration, aromatic_hydrocarbon_degradation, aromatic_compound_degradation, dark_iron_oxidation, nitrate_respiration, fumarate_respiration, methanol_oxidation, dark_sulfite_oxidation, arsenate_detoxification, nitrite_ammonification, human_gut, plastic_degradation, knallgas_bacteria, chemoheterotrophy, nitrate_denitrification
		chlorobia	anoxygenic_photoautotrophy_S_oxidizing, nitrogen_fixation, dark_iron_oxidation, anoxygenic_photoautotrophy_Fe_oxidizing
12	0.4	acidobacteriia	aerobic_chemoheterotrophy, cellulolysis, xylanolysis, fermentation
		thermoflexia	fermentation, aerobic_chemoheterotrophy, fumarate_respiration
11	0.35	gemmatimonadetes	aerobic_chemoheterotrophy
		flavobacteriia	nitrate_denitrification, chitinolysis, nitrate_ammonification, nitrite_respiration, xylanolysis, fermentation, aerobic_chemoheterotrophy, nitrate_respiration, nitrate_reduction, fumarate_respiration, ureolysis, human_gut, human_pathogens_nosocomia, human_pathogens_all, intracellular_parasites, aromatic_hydrocarbon_degradation, aromatic_compound_degradation
		bacteroidia	fermentation, cellulolysis, xylanolysis, human_pathogens_diarrhea, human_pathogens_all, human_gut, ureolysis, aerobic_chemoheterotrophy, animal_parasites_or_symbionts, nitrate_ammonification

Module	Similarity Score	Class	Functions
27	0.241379310344828	epsilonproteobacteria	sulfur_respiration, sulfite_respiration, thiosulfate_respiration, nitrite_ammonification, human_pathogens_septicemia, human_pathogens_meningitis, human_pathogens_gastroenteritis, human_pathogens_diarrhea, human_pathogens_all, human_gut, animal_parasites_or_symbionts, nitrate_respiration, nitrate_reduction, fumarate_respiration, dark_hydrogen_oxidation, dark_sulfide_oxidation, dark_sulfur_oxidation, dark_thiosulfate_oxidation, ureolysis, nitrate_denitrification, knallgas_bacteria, dark_oxidation_of_sulfur_compounds, nitrogen_fixation, aerobic_chemoheterotrophy, nitrate_ammonification, arsenate_respiration, manganese_respiration, fermentation, iron_respiration
		hydrogenophilalia	sulfur_respiration, knallgas_bacteria, dark_hydrogen_oxidation, iron_respiration, nitrate_respiration, fumarate_respiration, ureolysis
13	0.222222222222222	acidimicrobiia	aerobic_chemoheterotrophy, iron_respiration, dark_iron_oxidation, nitrate_denitrification
		thermoanaerobaculia	manganese_respiration, fermentation, iron_respiration
		acidithiobacillia	dark_sulfur_oxidation, dark_thiosulfate_oxidation, dark_oxidation_of_sulfur_compounds, dark_iron_oxidation
7	0.181818181818182	opitutae	xylanolysis, fermentation, nitrate_reduction, nitrogen_fixation, aerobic_chemoheterotrophy, ureolysis
		mollicutes	plant_pathogen, aerobic_chemoheterotrophy, human_pathogens_pneumonia, human_pathogens_all, animal_parasites_or_symbionts, chemoheterotrophy, fermentation
5	0.166666666666667	thermoleophilia	aerobic_chemoheterotrophy, aromatic_compound_degradation, aliphatic_non_methane_hydrocarbon_degradation, nitrate_reduction
		firmicutes	fermentation
		nitriliruptoria	aerobic_chemoheterotrophy, ureolysis

Module	Similarity Score	Class	Functions
17	0.157894736842105	clostridia	nitrogen_fixation, fermentation, photoheterotrophy, methanol_oxidation, sulfate_respiration, sulfur_respiration, sulfite_respiration, thiosulfate_respiration, arsenate_respiration, dark_hydrogen_oxidation, nitrite_respiration, manganese_respiration, aromatic_compound_degradation, iron_respiration, nitrate_respiration, fumarate_respiration, plastic_degradation, aerobic_chemoheterotrophy, reductive_acetogenesis, chitinolysis, nitrate_ammonification, nitrite_ammonification, cellulolysis, xylanolysis, invertebrate_parasites, human_pathogens_diarrhea, human_pathogens_all, human_gut, nitrate_reduction, ureolysis, dark_sulfur_oxidation, dark_iron_oxidation, manganese_oxidation, aromatic_hydrocarbon_degradation, animal_parasites_or_symbionts
		aquificae	sulfur_respiration, dark_hydrogen_oxidation, nitrate_denitrification, knallgas_bacteria, dark_sulfur_oxidation, dark_thiosulfate_oxidation, aerobic_chemoheterotrophy, dark_iron_oxidation, iron_respiration
2	0.15625	actinomycetia	aerobic_chemoheterotrophy, methanol_oxidation, arsenate_detoxification, chitinolysis, nitrate_ammonification, manganese_oxidation, ligninolysis, fermentation, plant_pathogen, aliphatic_non_methane_hydrocarbon_degradation, nitrate_respiration, nitrate_reduction, plastic_degradation, ureolysis, cellulolysis, xylanolysis, oil_bioremediation, hydrocarbon_degradation, human_pathogens_pneumonia, human_pathogens_all, aromatic_hydrocarbon_degradation, nitrate_denitrification, aromatic_compound_degradation, aerobic_ammonia_oxidation, knallgas_bacteria, iron_respiration, human_pathogens_septicemia, human_pathogens_nosocomia, human_gut, animal_parasites_or_symbionts
		ignavibacteria	arsenate_respiration, nitrite_respiration, cellulolysis, xylanolysis, fermentation, aerobic_chemoheterotrophy, iron_respiration

Module	Similarity Score	Class	Functions
4	0.122448979591837	betaproteobacteria	arsenate_detoxification, arsenite_oxidation_detoxification, nitrate_denitrification, aerobic_chemoheterotrophy, dissimilatory_arsenite_oxidation, knallgas_bacteria, dark_hydrogen_oxidation, cellulolysis, plant_pathogen, dark_iron_oxidation, nitrate_respiration, aerobic_nitrite_oxidation, dark_sulfite_oxidation, chitinolysis, nitrogen_fixation, dark_sulfur_oxidation, dark_thiosulfate_oxidation, human_pathogens_pneumonia, human_pathogens_all, animal_parasites_or_symbionts, aromatic_hydrocarbon_degradation, aromatic_compound_degradation, nitrate_reduction, plastic_degradation, ureolysis, nitrite_respiration, anoxygenic_photoautotrophy_H2_oxidizing, aerobic_anoxygenic_phototrophy, photoheterotrophy, fermentation, manganese_respiration, iron_respiration, aerobic_ammonia_oxidation, sulfite_respiration, arsenite_oxidation_energy_yielding, dark_sulfide_oxidation, dark_oxidation_of_sulfur_compounds, predatory_or_exoparasitic, methanol_oxidation, manganese_oxidation, sulfate_respiration, fumarate_respiration, chlorate_reducers, invertebrate_parasites, ligninolysis, nitrite_denitrification, xylanolysis, human_pathogens_septicemia, human_pathogens_meningitis
		chitinophagia	aerobic_chemoheterotrophy, chitinolysis, cellulolysis, nitrate_reduction, ureolysis
		nitrospinia	aerobic_nitrite_oxidation

Module	Similarity Score	Class	Functions
9	0.107692307692308	gammaproteobacteria	methanotrophy, methanol_oxidation, arsenate_respiration, arsenite_oxidation_energy_yielding, anammox, nitrate_denitrification, nitrous_oxide_denitrification, denitrification, dark_hydrogen_oxidation, nitrite_respiration, cellulolysis, xylanolysis, dark_thiosulfate_oxidation, manganese_oxidation, ligninolysis, aerobic_chemoheterotrophy, invertebrate_parasites, human_pathogens_septicemia, human_pathogens_pneumonia, human_pathogens_all, plant_pathogen, oil_bioremediation, aromatic_hydrocarbon_degradation, aromatic_compound_degradation, nitrate_respiration, nitrate_reduction, plastic_degradation, ureolysis, nitrogen_fixation, chitinolysis, nitrate_ammonification, fermentation, human_pathogens_nosocomia, human_gut, animal_parasites_or_symbionts, aliphatic_non_methane_hydrocarbon_degradation, anoxygenic_photoautotrophy_H2_oxidizing, anoxygenic_photoautotrophy_S_oxidizing, photoheterotrophy, human_pathogens_gastroenteritis, dark_sulfite_oxidation, dark_sulfur_oxidation, arsenate_detoxification, human_pathogens_meningitis, dark_sulfide_oxidation, iron_respiration, dark_oxidation_of_sulfur_compounds, hydrocarbon_degradation, dark_iron_oxidation, aerobic_anoxygenic_phototrophy, fumarate_respiration, aerobic_ammonia_oxidation, intracellular_parasites, nitrite_ammonification, human_pathogens_diarrhea, fish_parasites, sulfur_respiration, sulfite_respiration, thiosulfate_respiration, nitrite_denitrification, manganese_respiration, aerobic_nitrite_oxidation, knallgas_bacteria, arsenite_oxidation_detoxification
		negativicutes	fermentation, nitrate_reduction, dark_hydrogen_oxidation, reductive_acetogenesis, human_gut, iron_respiration
		ardenticatenia	aerobic_chemoheterotrophy, iron_respiration, nitrate_respiration

Module	Similarity Score	Class	Functions
1	0	alphaproteobacteria	fermentation, aerobic_chemoheterotrophy, nitrate_reduction, ureolysis, nitrate_denitrification, nitrogen_fixation, nitrate_respiration, ligninolysis, plant_pathogen, aromatic_hydrocarbon_degradation, aromatic_compound_degradation, aerobic_anoxygenic_phototrophy, plastic_degradation, anoxygenic_photoautotrophy_S_oxidizing, photoheterotrophy, nitrate_ammonification, iron_respiration, fumarate_respiration, methanol_oxidation, methylotrophy, dark_thiosulfate_oxidation, aerobic_nitrite_oxidation, anoxygenic_photoautotrophy, nitrite_respiration, dark_sulfide_oxidation, dark_iron_oxidation, anoxygenic_photoautotrophy_H2_oxidizing, anoxygenic_photoautotrophy_Fe_oxidizing, dark_oxidation_of_sulfur_compounds, manganese_oxidation, animal_parasites_or_symbionts, human_pathogens_all, methanotrophy, aliphatic_non_methane_hydrocarbon_degradation, knallgas_bacteria, dark_hydrogen_oxidation, dark_sulfur_oxidation, arsenate_detoxification, arsenite_oxidation_energy_yielding, nitrous_oxide_denitrification, predatory_or_exoparasitic, arsenite_oxidation_detoxification, hydrocarbon_degradation, dark_sulfite_oxidation, nitrite_denitrification, human_gut, xylanolysis
		cytophagia	aerobic_chemoheterotrophy, chitinolysis, nitrate_reduction, xylanolysis, cellulolysis, fermentation, ureolysis, nitrogen_fixation
		planctomycetia	aerobic_chemoheterotrophy, xylanolysis, ureolysis, nitrate_respiration, nitrate_reduction
		phycisphaerae	aerobic_chemoheterotrophy, ureolysis, fermentation
		saprospiria	cellulolysis, aerobic_chemoheterotrophy, nitrate_reduction
		caldilineae	aerobic_chemoheterotrophy
		erysipelotrichia	fish_parasites, fermentation, human_gut
		chthonomonadetes	NA
		tissierellia	fermentation, sulfur_respiration, human_gut
		thermolithobacteria	thiosulfate_respiration, dark_hydrogen_oxidation, fumarate_respiration
		synergistia	fermentation, sulfate_respiration, sulfur_respiration, thiosulfate_respiration

Module	Similarity Score	Class	Functions
		fibrobacteria	cellulolysis, xylanolysis, fermentation, animal_parasites_or_symbionts
		candidatus saccharibacteria	NA
		thermodesulfobacteria	dark_hydrogen_oxidation, iron_respiration, sulfate_respiration, sulfur_respiration, sulfite_respiration, thiosulfate_respiration
		lentisphaeria	aerobic_chemoheterotrophy
6		rubrobacteria	xylanolysis, aerobic_chemoheterotrophy, nitrate_reduction
		deferribacteres	iron_respiration, nitrate_respiration, fumarate_respiration
8		blastocatellia	chitinolysis, cellulolysis, aerobic_chemoheterotrophy, xylanolysis, ureolysis
		methylacidiphilae	methanotrophy, nitrogen_fixation
14		verrucomicrobiae	fermentation, aerobic_chemoheterotrophy, ureolysis, nitrate_reduction, human_gut
15		cyanobacteria	anoxygenic_photoautotrophy_H2_oxidizing, nitrogen_fixation
16		chloroflexia	cellulolysis, anoxygenic_photoautotrophy_H2_oxidizing, anoxygenic_photoautotrophy_S_oxidizing, photoheterotrophy, ureolysis, aerobic_chemoheterotrophy, aerobic_anoxygenic_phototrophy
		thermomicrobia	aerobic_nitrite_oxidation
		fusobacteriia	fermentation, human_pathogens_all, animal_parasites_or_symbionts, nitrate_reduction, aromatic_compound_degradation
18		nitrospira	aerobic_ammonia_oxidation, aerobic_nitrite_oxidation
		chlamydiia	intracellular_parasites, human_pathogens_all
19		anaerolineae	fermentation
		armatimonadia	NA
20		fimbriimonadia	NA
		deinococci	nitrate_reduction, fermentation, chemoheterotrophy, sulfite_respiration, arsenate_respiration, arsenite_oxidation_detoxification, iron_respiration, sulfur_respiration, nitrite_respiration, aerobic_chemoheterotrophy, nitrate_respiration, knallgas_bacteria, xylanolysis, dark_thiosulfate_oxidation, fumarate_respiration
		cloacimonetes	NA
21		candidatus brocadiae	NA
		coriobacteriia	fermentation, aerobic_chemoheterotrophy, human_gut
22		thermotogae	thiosulfate_respiration, cellulolysis, xylanolysis, fermentation, iron_respiration

Module	Similarity Score	Class	Functions
		chrysiogenetes	arsenate_respiration, nitrate_ammonification, nitrite_respiration, nitrate_reduction
23		thermodesulfovibrionia	sulfate_respiration, thiosulfate_respiration, nitrate_respiration
		florideophyceae	NA
24		candidatus tectomicrobia	NA
		dehalococcoidia	dark_hydrogen_oxidation, aromatic_compound_degradation
		gloeobacteria	NA
25		endomicrobia	NA
		holophagae	manganese_respiration, fermentation, iron_respiration, nitrate_respiration, aromatic_compound_degradation, reductive_acetogenesis
26		spirochaetia	dark_hydrogen_oxidation, nitrogen_fixation, fermentation, human_pathogens_all, reductive_acetogenesis, animal_parasites_or_symbionts, cellulolysis, nitrate_reduction, human_pathogens_diarrhea
		caldisericia	NA
28		dictyoglomia	xylanolysis, ligninolysis, fermentation