Amplicon result supplementary instruction (04)

2023 / 8 / 28

04. AlphaDiversity 【alpha diversity】

1 alpha_index_table 【index of alpha diversity】

1.1 sample/group1/ 【sample/group1/】

1.1.1 alpha_diversity_index.*.txt 【index of alpha diversity】

Alpha diversity mainly focus on the microbiology community diversity within the sample.In the analysis, we choose Observed-species, chao1, Shannon, Simpson, Good-coverage index to reflect the diversity and richness in sample.

Column name	Instruction
Sample/ group	Sample/group name
Observed_species	Number of species (OTU number)
Shannon	The total number of taxa in the samples and their percentage. The higher the community diversity and the more evenly distributed the species, the greater the shannon index
Simpson	
Chao1	The diversity and evenness of species distribution within the community,the better the species evenness, the greater the Simpson index
ACE	The total number of species contained in the community sample, The more low-abundance species in the community, the greater the chao1 index
	Estimated OTU number
goods_coverage	The higher the sequencing coverage, the greater the index
PD_ whole_ tree	Reflect the homology in community, the higher value, the higher community diversity

Simpson has three form, Simpson's Index (D), Simpson's Index of Diversity(1-D) and Simpson's Reciprocal Index(1/D), they use different algorithm but have the similar effect on reflecting the community diversity. In our analysis, we use Simpson's Index of Diversity(1-D).

2 visual_specaccum 【species accumulation boxplot】

2.1 sample 【sample】

2.1.1 specaccum_test.{pdf,png} 【species accumulation boxplot】

3 visual_rankAbundance 【Rank Abundance curve】

3.1 sample/group1 【sample/group】

3.1.1 rank_abundance.{sample,group}.{pdf,png} 【Rank Abundance curve】

4 visual_rarefaction 【rarefaction curve】

4.1 sample/group1 【sample/group】

4.1.1 */*.{sample,group}.{pdf,png,xls} 【rarefaction curve of alpha diversity index】

5.visual_alphaDiversity 【boxplot of alpha diversity indices】

5. 1 * 【boxplot of alpha diversity indices】

5. 1. 1 *.{png,pdf} 【 boxplot of alpha diversity indices】

5.1.2 *_test. {txt,pdf,png} 【T-test between group (sample number >2 in each group), group name=2】

Column number	Column name	Instruction
1	Group_Pair	Group1-group2
2	P_value	P-value

5.1.3 *_two_wilcox. {txt,pdf,png} 【wilcox test（sample number>2 in each group】

Column number	Column name	Instruction
1	Group_Pair	Group1-group2
2	P_value	P-value

5.1.4 *_Tukey.{txt,pdf,png} 【Tukey test (sample number > 2 in each group, group number > 2) 】

Column number	Column name	Instruction
1		Group1-group2
2	diff	Mean difference
3	lwr	Lower confidence limit
4	upr	Upper confidence limit
5	p adj	p value

5.1.5 *_kruskalWallis.txt.{txt,pdf,png} 【kruskalWallis test (sample number >2 in each group, group number >2) 】

Column number	Column name	Instruction
1		Group1-group2
2	Difference	Mean difference
3	P value	P value
4	Sig	Significant, if $p < 0.05$, mark *, if $p < 0.01$, mark ***
5	LCL	Lower confidence limit
6	UCL	Upper confidence limit