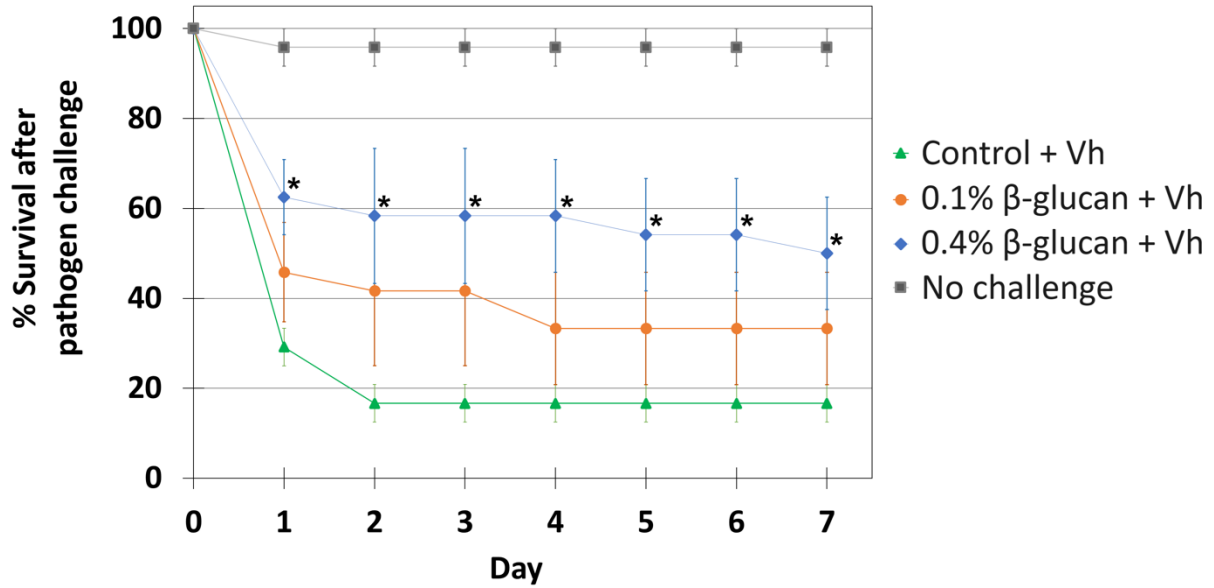
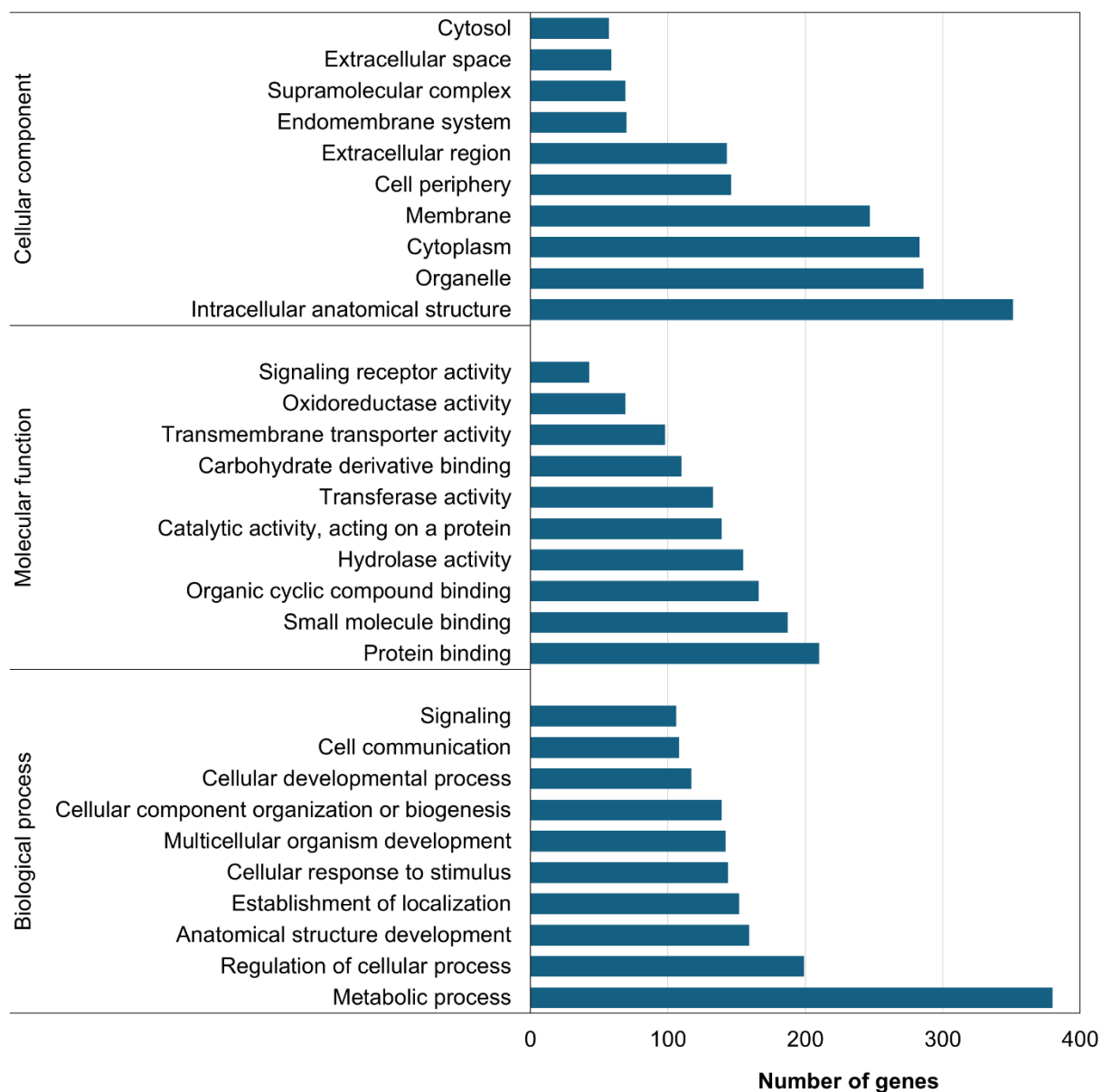
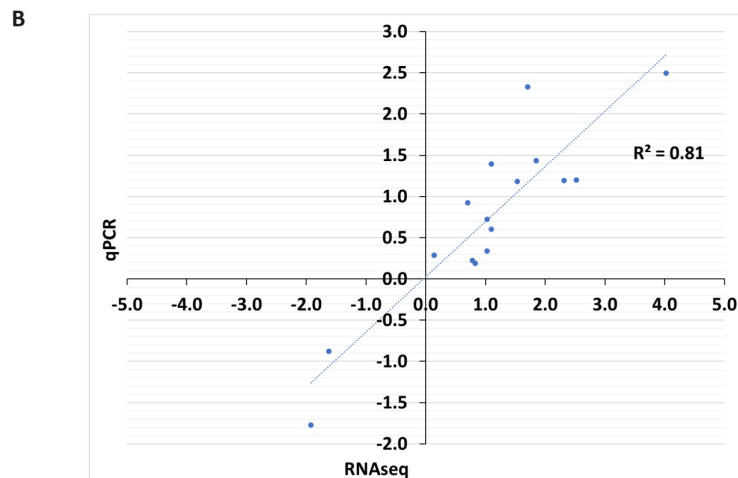
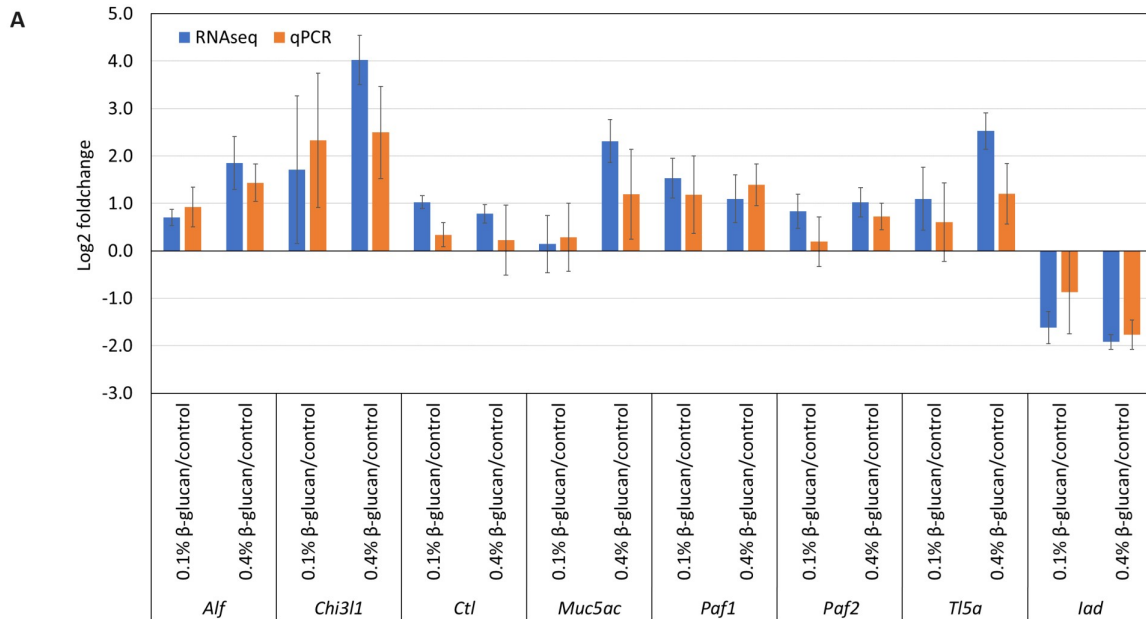




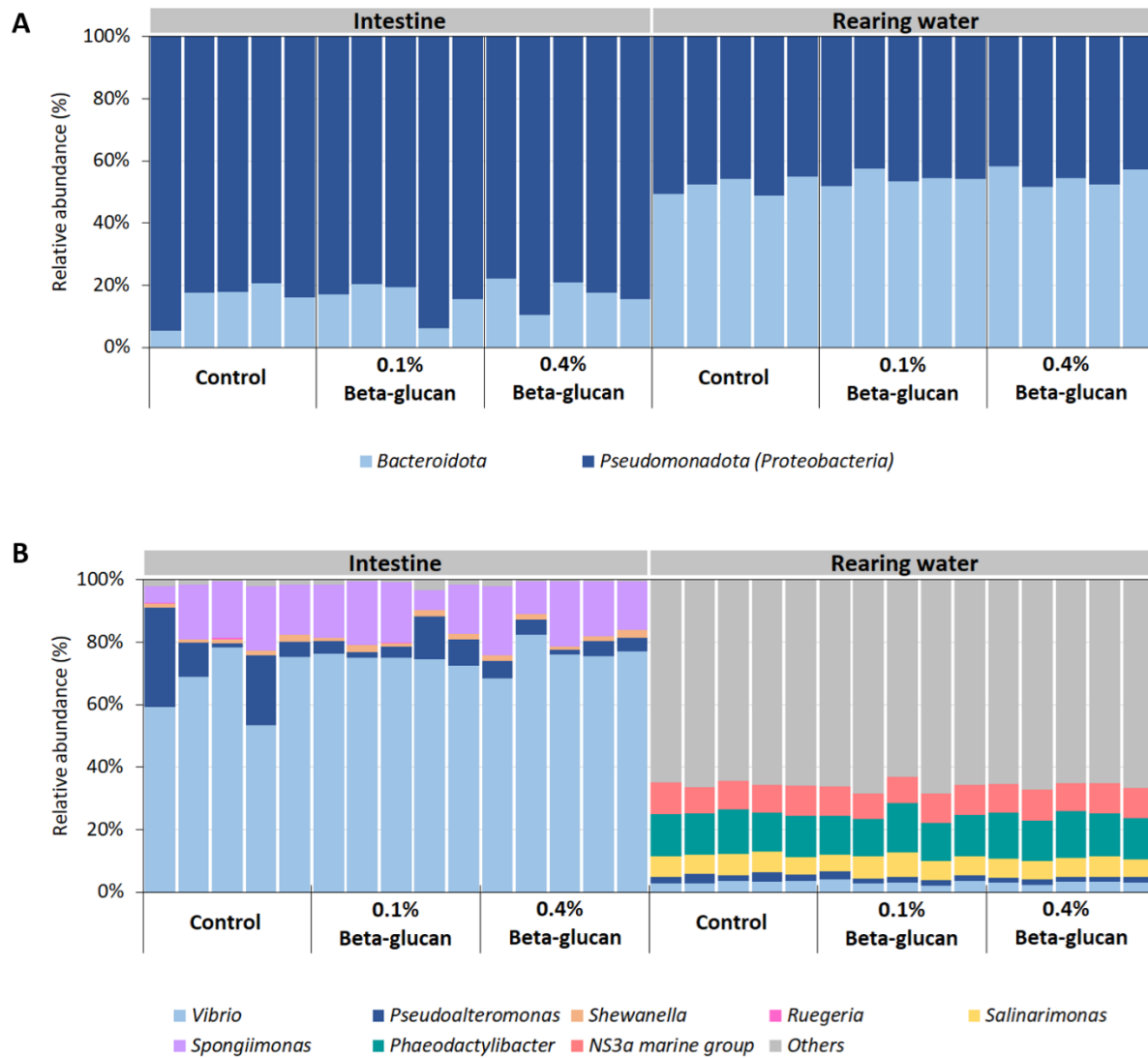
Supplementary Figure S1. Survival rates of shrimp fed diets supplemented with varying concentrations of β -glucan oligosaccharides (0% [control], 0.1%, and 0.4%) after a 7-day *Vibrio harveyi* challenge. Significant differences ($p < 0.05$) among treatments were determined by one-way ANOVA with Duncan's post hoc test. Asterisks indicate significant differences compared to the control.



Supplementary Figure S2. Distribution of the Gene Ontology (GO) assigned to the transcriptome. Genes were annotated in three main GO categories: biological process, molecular function and cellular component.



Supplementary Figure S4. Validation of RNA-seq data by quantitative real-time PCR. **(A)** Comparison of the expressions profile of eight DEGs including *anti-lipopolysaccharide factor* (*Alf*), *chitinase-3-like protein 1* (*Chi3l1*), *c-type lectin* (*Ctl*), *mucin-5AC* (*Muc5ac*), *phenoloxidase-activating factor 1* (*Paf1*), *phenoloxidase-activating factor 2* (*Paf2*), *tachylectin-5A* (*Tl5a*), and *indole-3-acetaldehyde oxidase* (*Iad*). Data shown are the mean of 8 samples $\pm$ standard deviation. **(B)** Correlation of data between RNA-seq and quantitative real-time PCR (qPCR).



Supplementary Figure S5. Taxonomic composition of microbial communities in intestines and rearing water from control, 0.1% beta-glucan and 0.4% beta-glucan groups at (A) phylum level and (B) genus level.