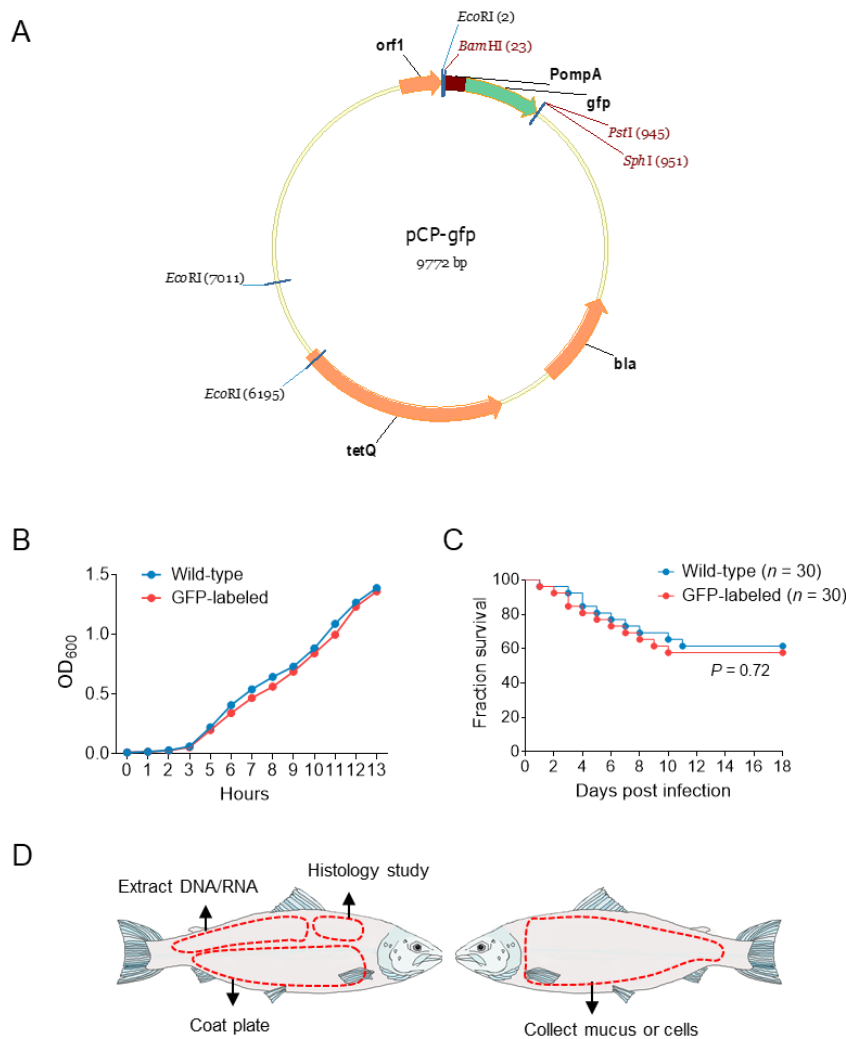# Supplemental information

Supplemental Fig. 1. Construction of GFP-*F. columnare* G$_4$ strain and sampling locations of trout skin. (A) Map of the plasmid pCP23-gfp. (B) Gro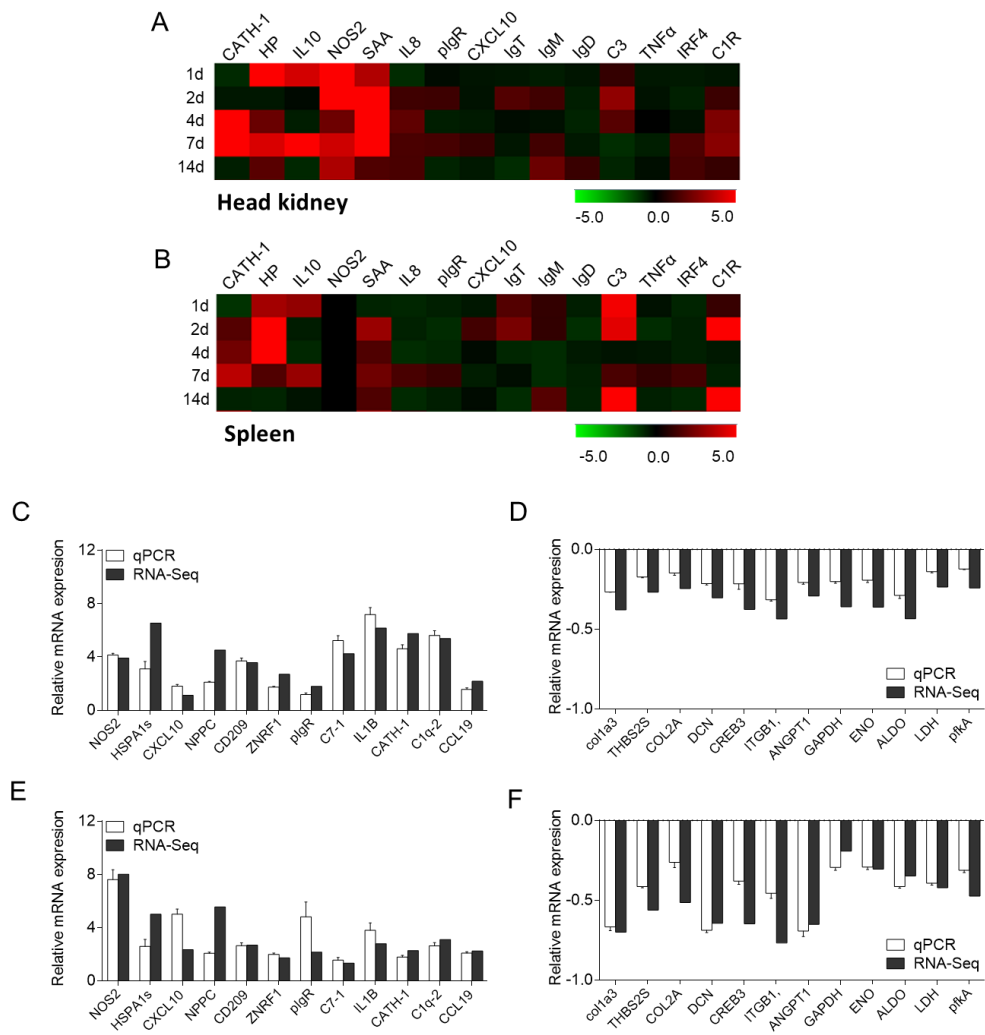wth curves for wild-type *F. columnare* and the GFP-*F. columnare*. (C) Survival curves of fish infected with wild-type G$_4$ and the GFP-*F. columnare* ($n = 30$). (D) The anterior dorsal skin was sampled for histology study, the posterior dorsal skin was sampled for extracting 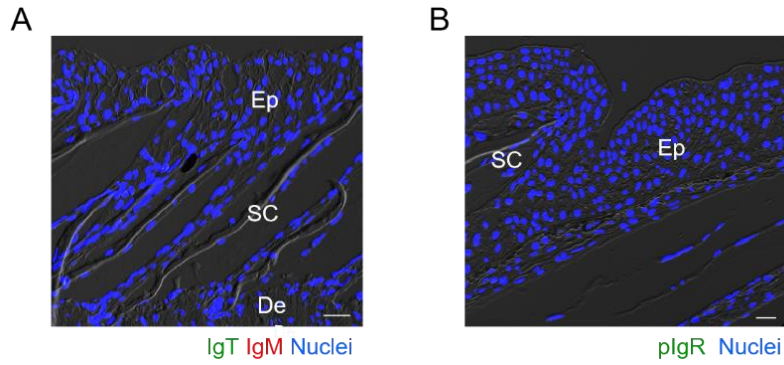DNA or RNA, the ventral skin was sampled for coating plates, and the whole unilateral skin was sampled for collecting mucus or cells. Data are representative of at least three independent experiments (mean ± SEM).

1

10

Supplemental Fig. 2. Immune responses in trout spleen and head kidney following *F.*

***columnare* infection, and validation of transcriptomic data by PCR**. (A and B) Heat map

illustrates results from qRT-PCR of mRNAs for selected immune markers in *F. columnare*-infected

fish versus control fish measured at 1, 2, 4, 7, and 14 dpi in trout head kidney (A) and spleen (B) (*n* =

6). Data are representative of three different independent experiments (mean ±SEM). (C–F)

Transcriptomic differential expressed genes in experimental groups at 2 (C and D) and 14 days (E

and F) post infection were randomly chosen and detected using qPCR to validate RNA-seq. Positive

numbers in the Y axis mean up-regulated, while negative values mean down-regulated (*n* = 6). Data

are representative of three different independent experiments (mean ±SEM).

2

IgT IgM Nuclei

pIgR Nuclei

Supplemental Fig. 3. Isotype control staining for anti-IgT, anti-IgM and anti-pIgR antibodies in trout skin paraffin sections. (A and B) Differential interference contrast images of skin paraffin sections from control fish, with merged staining of isotype control antibodies for anti-trout IgT pAb (green) and anti-trout IgM mAbs (red) (A); or for anti-trout pIgR pAb (green) (B). Nuclei were stained with DAPI (blue). Ep: epidermis, Sc: scale, De: dermis. Scale bars, 20 μm. Data are representative of at least three different independent experiments.