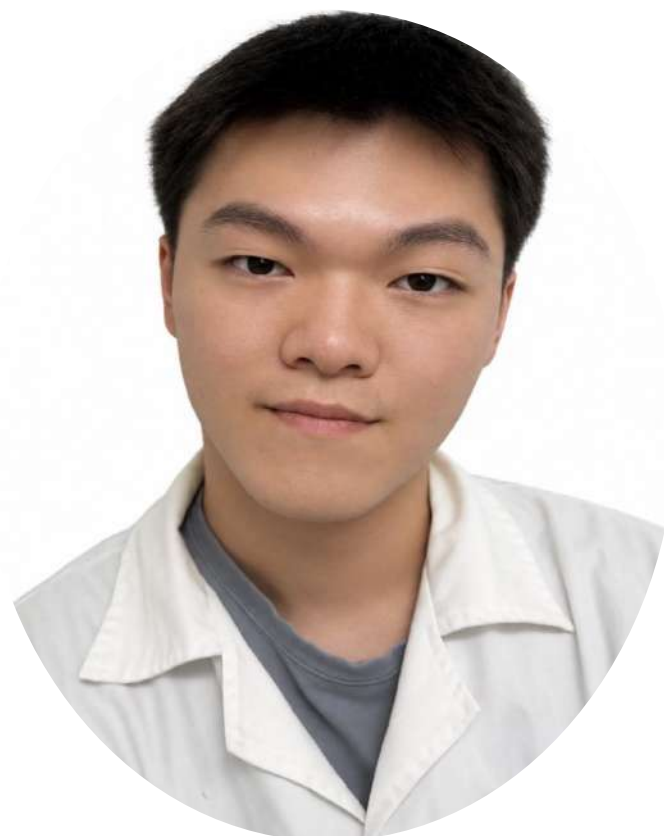


龍膽石斑(*Epinephelus lanceolatus*) 長五聚體蛋白 3基因選殖及其在逆境中之表現

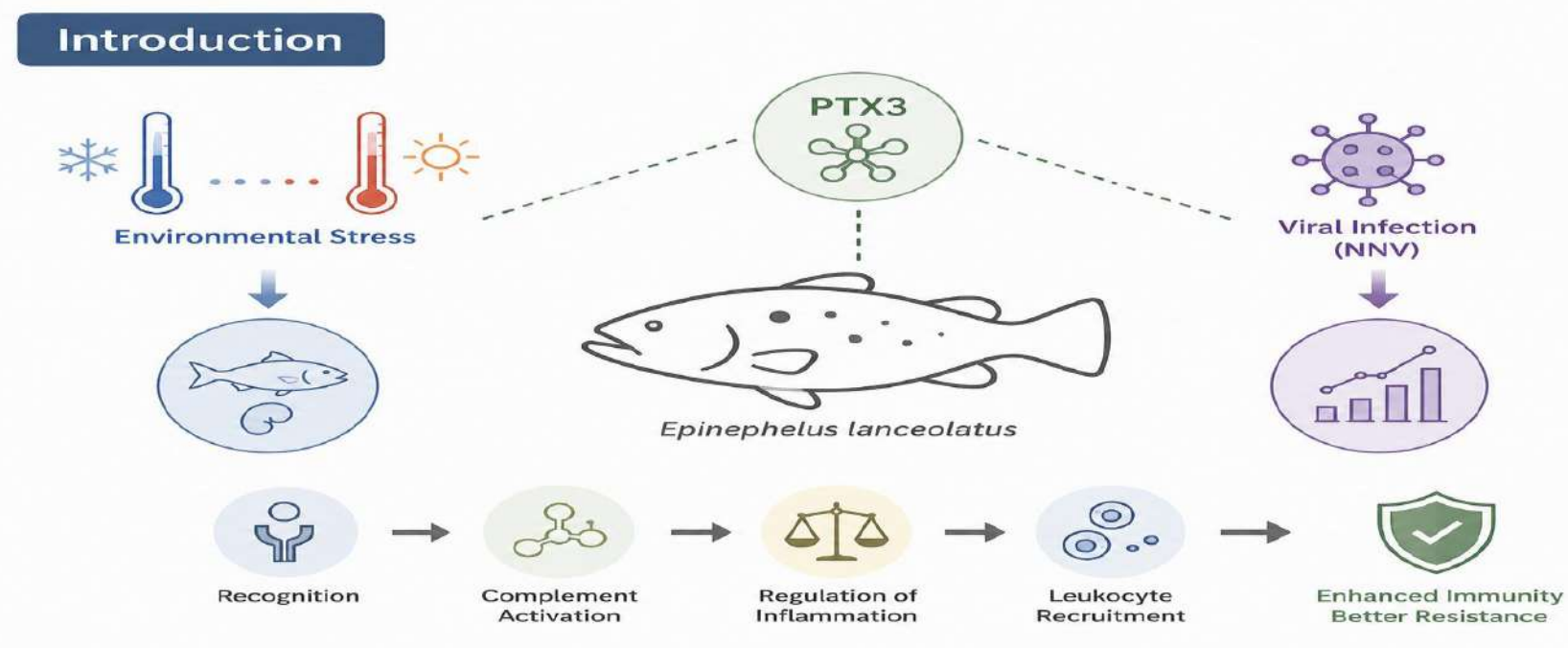


¹ Chen-Yu Tsai ^{1,2,3} Tzong-Yueh Chen
1 Department of Biotechnology and Bioindustry Sciences, National Cheng Kung University, Tainan, Taiwan
2 Translational Center for Marine Biotechnology, National Cheng Kung University, Tainan,Taiwan
3 Agriculture Biotechnology Research Center, National Cheng Kung University, Tainan,Taiwan
Presenting author: l66151021@gs.ncku.edu.tw



Introduction

This study investigated the expression and potential functions of long pentraxin 3 (PTX3) in giant grouper (*Epinephelus lanceolatus*) under environmental stress and nervous necrosis virus (NNV) infection. The major sequence of the *PTX3* gene was successfully cloned and characterized, revealing a conserved pentraxin domain. Tissue expression analysis demonstrated that *PTX3* was predominantly expressed in immune-related tissues, particularly the head kidney and spleen. Both high- and low-temperature treatments altered *PTX3* expression, with low-temperature stress inducing a more pronounced response. Following NNV infection, *PTX3* was activated during the early stage of infection, and its expression pattern was associated with viral load and the expression of immune-related genes, including *MyD88*, *NF-κB*, *IRF4*, *TNFα*, and *IL-6*. Furthermore, *PTX3* overexpression in vitro reduced NNV levels. Collectively, these findings provide the first characterization of *PTX3* in giant grouper under environmental stress and viral infection, and suggest that *PTX3* may participate in host antiviral immunity and contribute to the suppression of NNV replication.



Experimental Procedure

1. *PTX3* Gene Expression in Grouper Tissues
(1)Tissue Distribution Analysis
(2) Cellular Localization (In Situ Hybridization)

2. *PTX3* Expression Under Environmental Stress
(1) Temperature Challenge 20°C, 28°C, 36°C
(2) Post-Stress Tissue Sampling

3. *PTX3* Expression During NNV Infection
Time-Course Analysis of *PTX3* mRNA Sampling Points: 0, 3, 6, 12, 24, 48, 72, 96 hr

Results

Fig 1.

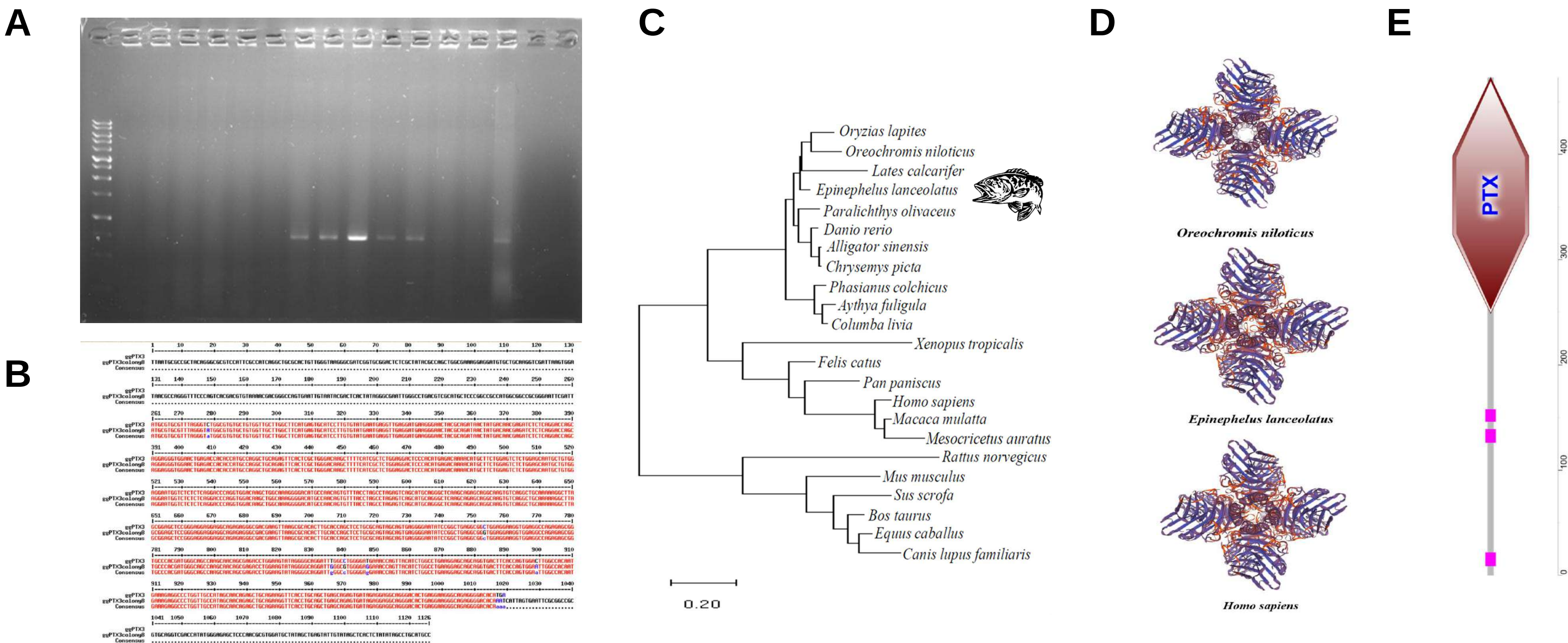


Fig 2.

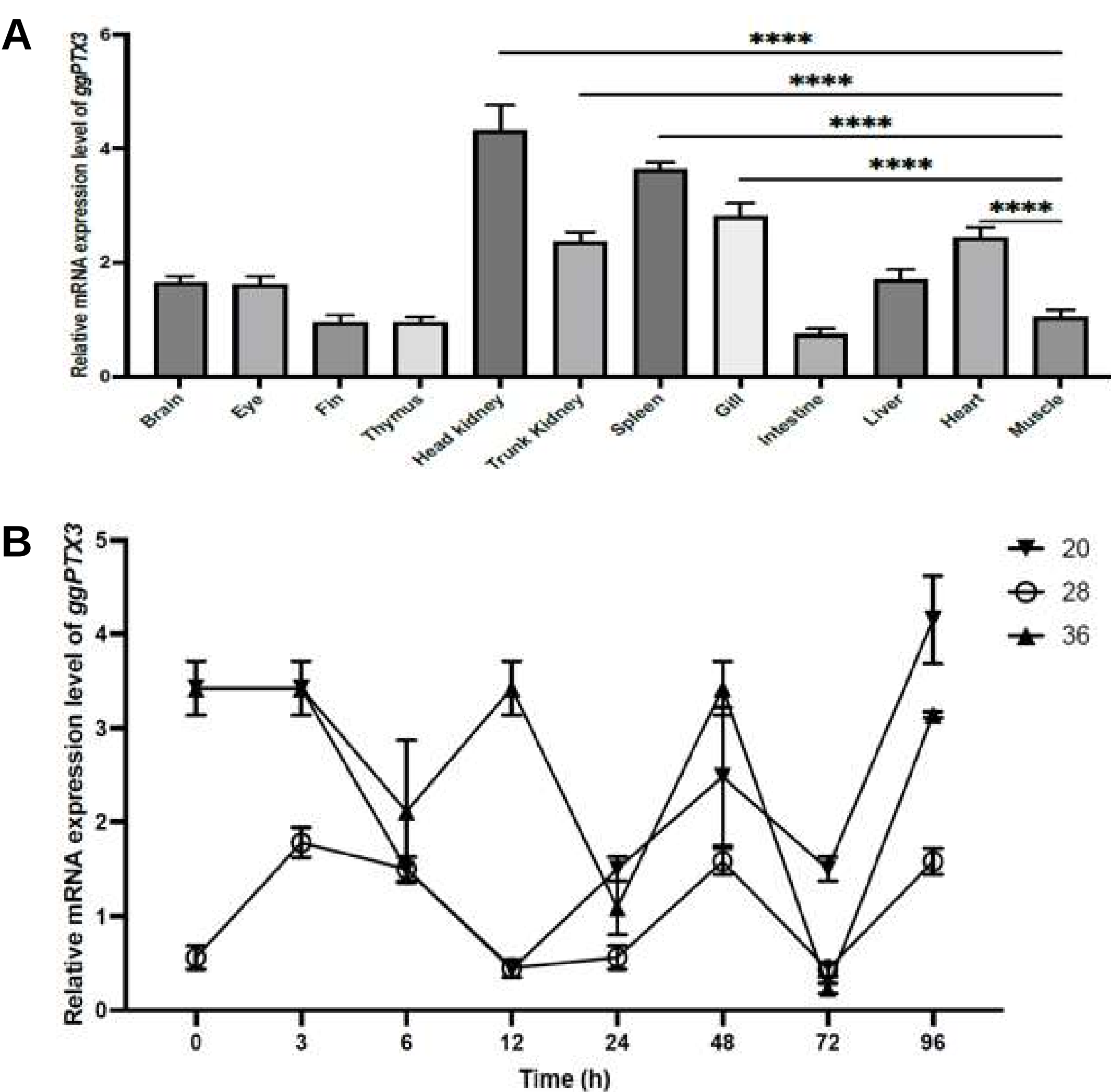


Fig 3.

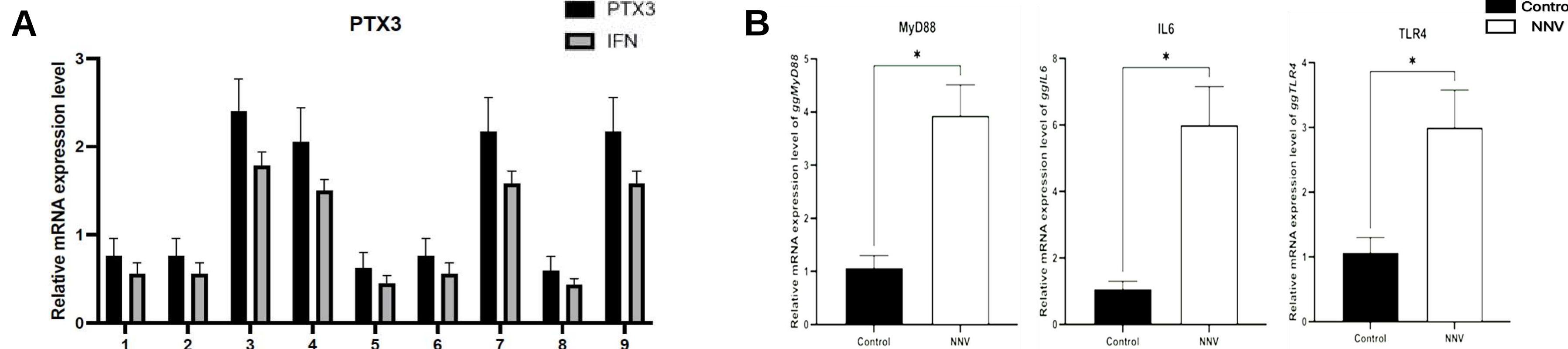
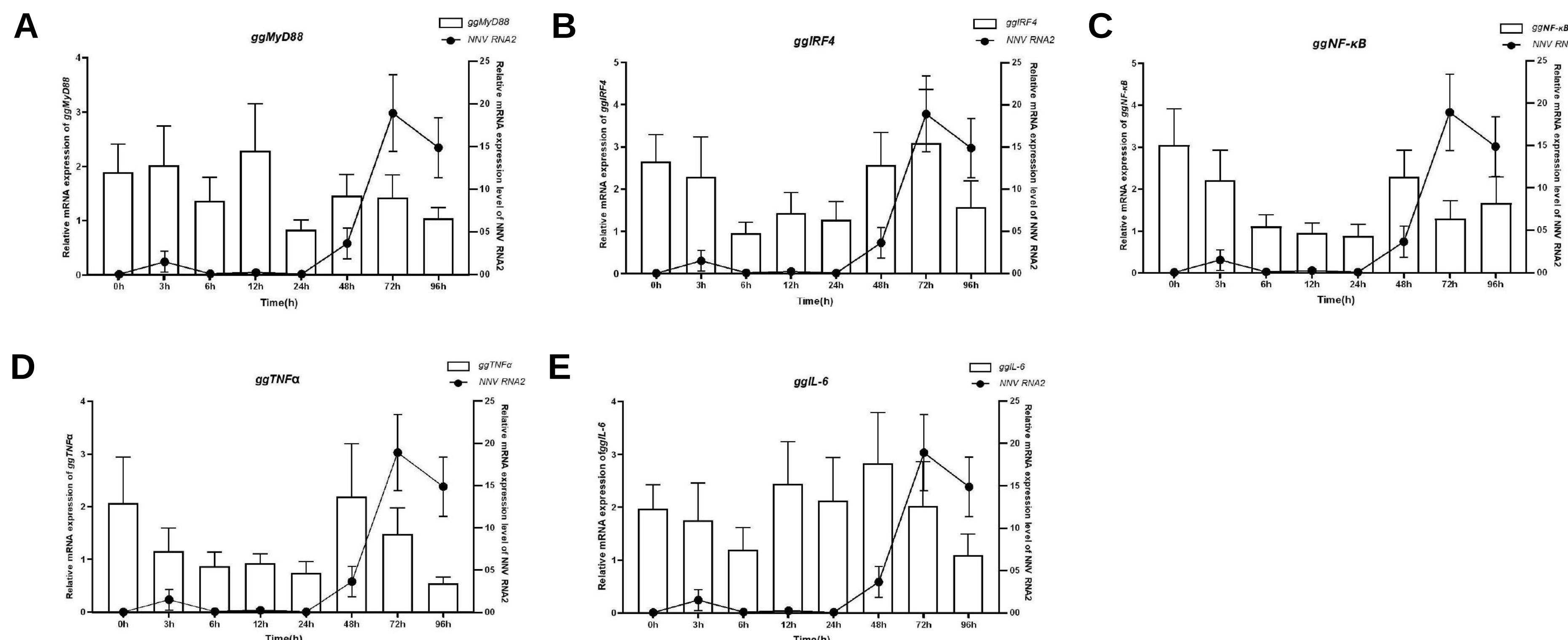
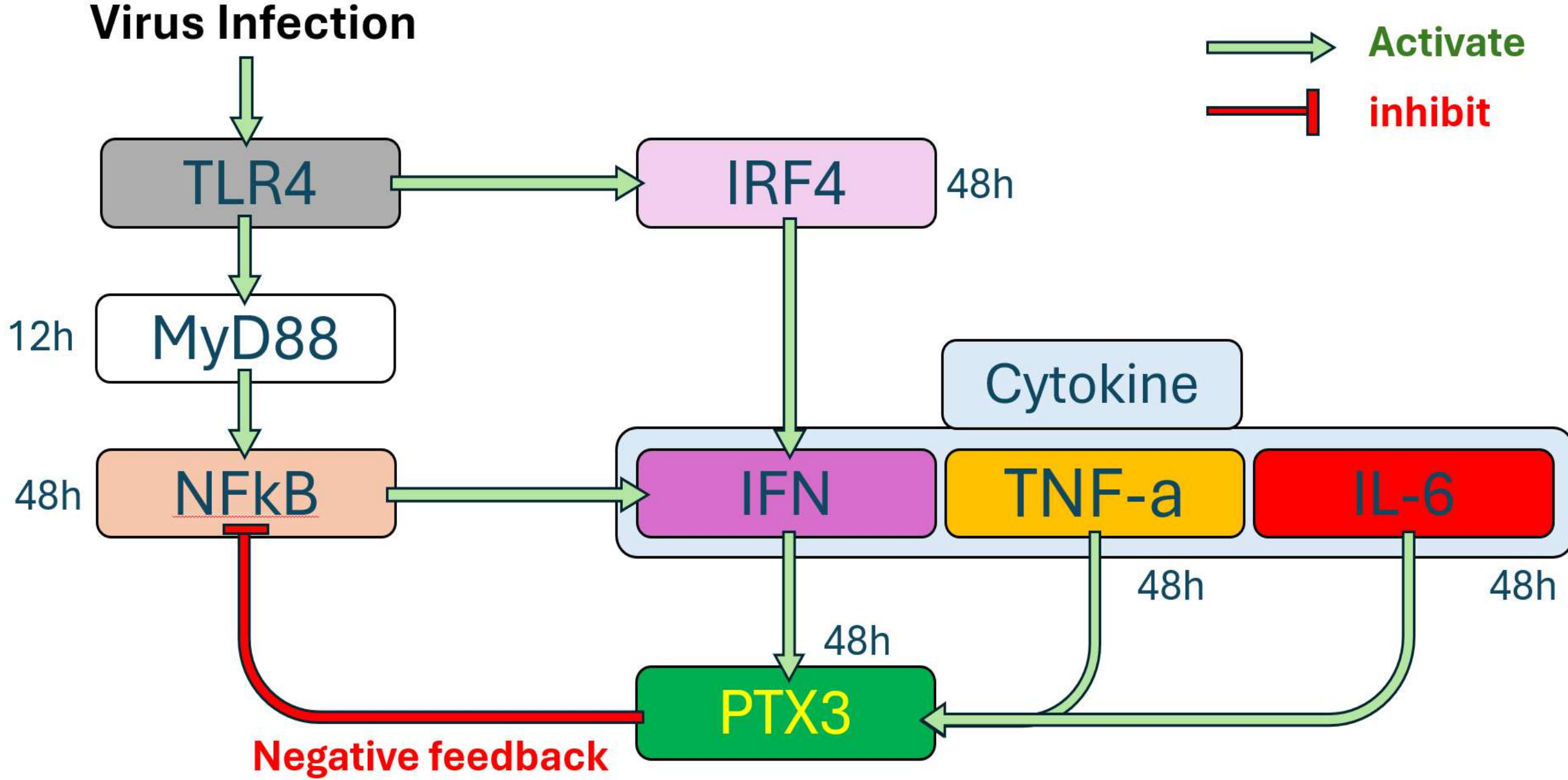


Fig 4.



Conclusions



Acknowledgement

This research was supported by National Science and Technology Council (NSTC 114-2813-C-006-044-B, NSTC 112-2313-B-006-006-MY3 and NSTC 114-2321-B-006-009).

