

Evaluation of Two DNA Vaccine Constructs in *Labeo rohita* against *Edwardsiella tarda*

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Abstract : A comparative study on DNA immunization with recombinant glyceraldehyde-3-phosphate dehydrogenase (GAPDH) construct of *Edwardsiella tarda* (pGPD group) and a bicistronic construct expressing GAPDH plus IFN- γ of *Labeo rohita* as adjuvant (pGPD+IFN group) was undertaken in *Labeo rohita* along with the control animals. Successful co-expression of two genes that is GAPDH and IFN- γ was confirmed in SSN-1 cells line by RT-qPCR and western blot. The protective immune response of host to DNA vaccine construct was determined by RPS and specific antibody production. Fishes immunized with plasmids via intramuscular injection (I/M) exhibited a considerable relative percentage survivability of 66.66% in pGPD+IFN immunized group and 53.34% in pGPD immunized group after challenge with *E. tarda*. Antibody response was also significantly high in pGPD+IFN group at all time points under study. This was analysed by competitive ELISA, using anti GAPDH monoclonal antibodies. The experiment revealed that the GAPDH gene of *E. tarda* is one of the ideal candidates for generating protective immune response in *L. rohita*. Further addition of Interferon gamma to DNA vaccine construct can enhance the immune response in host.

Keywords : DNA vaccine, *Edwardsiella tarda*, *Labeo rohita*, zoonosis, immune response

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