

## HSP70 mediated multi-epitope DNA as vaccine candidate for Newcastle disease of poultry

Satish Gaikwad, Sohini Dey, R. Saravanan, Nitin M. Kamble, Aravind S. Pillai and C. Madhan Mohan

Indian Veterinary Research Institute, India

Newcastle disease virus is an infectious disease of poultry which causes severe economic losses in domestic poultry. New generation vaccines are currently in demand to avert deficiencies of vaccines currently in market. Among these, rational design of vaccine candidate is a promising approach. Multi-epitopic DNA vaccine construct containing fusion and haemagglutinin epitopes were designed with additional elements like endoplasmic reticulum secretory signal sequence, poly histidine and gene optimization to improve immunogenicity. *Mycobacterium tuberculosis* HSP70 was used as a genetic adjuvant to increase innate and adaptive immune responses. Transient expression of the construct was confirmed with an immunofluorescent assay in Vero cells. The constructs were injected subcutaneously into 15 days-old specific pathogen free chickens. Immune responses were studied with HI, ELISA, LTT and FACS assays. Protection was assessed by challenging with a virulent virus. HSP mediated multi epitopes improved the immune responses and conferred protection against Newcastle disease. The results indicate that a rationally designed DNA vaccine construct can improve vaccine strategies involving nucleic acid immunizations.

### Biography

Satish Gaikwad has completed his Ph.D. from IVRI, Izatnagar, Bareilly, UP, India.

[satish.bty@gmail.com](mailto:satish.bty@gmail.com)