

Use of viral interference against avian influenza and establishment of protection levels in field outbreaks in Mexico

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Avian influenza currently is a critical problem present in poultry farming worldwide. Its prevalence in Mexico, despite vaccination, has highlighted the need for new approaches to control avian influenza and reduce the economic losses associated with its occurrence in susceptible birds. The different interactions between avian influenza viruses and cellular receptors have been described, along with the affinity of some viruses for certain types of species-specific receptors. This receptor-ligand specificity, combined with an understanding of viral interference processes and their relevance in different viral models, permits the assessment of new strategies for controlling avian influenza virus. The present study was designed to investigate the feasibility of using viral interference as a novel approach for avian influenza virus control, taking advantage of the high receptor-ligand specificity between avian influenza virus and animal cells. The results from field outbreak tests and cell culture analysis along with measurements of specific antibodies against avian influenza virus demonstrate that the mortality associated with avian influenza infection can be reduced by using a receptor blocker against avian influenza virus. This receptor blocker approach also has the potential to be used on an industrial scale for the efficient control of avian influenza virus. Other affinity molecules that block avian influenza virus - cell interaction has been proposed, but the difficulty of manufacturing on an industrial scale and the effectiveness of these molecules under field outbreak conditions have not been established.

Biography

Inkar Castellanos has completed his veterinarian studies at the age of 23 years from Faculty of Veterinary Medicine U.N.A.M., later working in private industry, returning to study his MS at UNAM, by studying the expression of recombinant proteins in plant tissue. He is the Director of research and development of VIREN SA DE CV Company, a Mexican producer of vaccines and veterinary supplements. He has directed projects aimed to the study of influenza virus, the basis of his studies have been the expression of recombinant proteins and the development of products for the control of avian influenza. Two of these projects have been under a research grant support.

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