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A new development in fluorescent microsphere immunoassay for detection of antibodies to animal viruses using non species specific agents as an alternative to secondary antibody

Mohammad M Hossain and **Raymond R R Rowland**
Kansas State University, USA

Despite enormous progress in vaccine development, new emerging and reemerging microbial threats are a global challenge. For effective disease surveillance, rapid and sensitive assays are needed to detect antibodies developed in response to human and animal virus infections. In recent years, multiplex platforms, which allow detection of antibodies to multiple pathogens in the same sample, have had significant improvements in the diagnosis of numerous infectious diseases in humans and animals. In this assay, fluorescent labeled protein A, G and A/G are utilized in the place of species-specific secondary antibodies. Protein A, G and A/G conjugates recognize a broad range of mammalian immunoglobulins allowing the detection of antibodies to several animal viruses that infect livestock species. In this study, we developed a multiplexed fluorescent microsphere immunoassay (FMIA) for detection of viral recombinant antigen specific antibodies in serum samples. Rift Valley fever virus (RVFV) nucleocapsid protein (N), bovine viral diarrhea virus (BVDV) and classical swine fever virus (CSFV) glycoprotein E2 and Erns, porcine reproductive and respiratory syndrome virus (PRRSV) (N), *Porcine circovirus* type 2 (PCV2) capsid proteins (CP) were used as recombinant antigens in a multiplex FMIA. The results were reported as mean fluorescence intensity (MFI) and MFI converted to positive per sample (S/P) ratio. With the use of the S/P ratio cutoff value of 0.4 in negative sera were evaluated. The use of conjugates A, G and A/G in FMIA would be a powerful strategy for detection of viral infection in veterinary diagnostic laboratory.

Biography

Mohammad M Hossain has completed his PhD from Osaka University, Japan. He has published more than 20 papers in reputed journals and has been working with Dr. Raymond R. R. Rowland. Recently, he has been involved in a collaborative research program between Kansas State University and ABADRU, USDA, Manhattan, Kansas, USA.

mofazzal@vet.k-state.edu

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