

Research program IZS VE 11/16

Development of an antigen ELISA test to detect the Bovine Respiratory Syncytial Virus

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Bovine respiratory syncytial virus (BRSV) is an aerosol transmissible virus that causes lower respiratory tract disease that can lead to animal death. Early viral detection could help veterinarians and farmers to enforce control measures to reduce disease spread among livestock. Commercially available RT-PCR and antibody ELISA kit can be routinely used to respectively detect the etiological agent and animal seroconversion in an equipped laboratory. Nonetheless, BRSV detection with cheap methods, short processing time and low expertise staff is a challenge due to low viral titers in ex vivo samples.

In this project we will exploit glycosylated BRSV F-protein, recently produced in our laboratory, to generate new mouse monoclonal antibodies against BRSV. These molecules will be combined in an antigen ELISA test.

The addition of an Avidin-Nucleic-Acid-Nanoassemblies (ANANAS)-immunoprobe, known to strongly amplify the detection signal, will increase the sensitivity of the assay and allow its application on samples with low viral load such as nasal swabs. Test performances will be evaluated in comparison to BRSVRTPCR validated protocol.