

**PRRSV detection using ssDNA aptamer: SPR aptasensor and Enzyme linked aptamer-antibody sandwich (ELAAS) method**

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Porcine reproductive and respiratory syndrome (PRRS) disease is caused by porcine reproductive and respiratory syndrome virus (PRRSV) in pig. That disease cause primary infections of pigs, secondary pandemic disease, and economical loss, also. Conventional detection methods for PRRSV are ELISA, IFA, and real-time PCR. However, they use monoclonal antibodies which accompany difficulties in the modifications, stability, the use of animals, and time consuming for production and high cost. Here, two different aptamers against European and North American (NA) type viruses were successfully developed by conventional Flu-Mag SELEX method and each of aptamer was found to bind each target virus type with high specificity. Aptamer-based SPR biosensors have been applied for the analysis of aptamers' specificity and affinity to their own target virus. EB13 and LB32 aptamers were characterized to be most specific and sensitive aptamers to their own virus type. As well as enzyme linked aptamer-antibody sandwich (ELAAS) method for NA type virus detection was developed successfully and limit of detection was found to be hundreds TCID<sub>50</sub>/ml. These PRRSV-specific aptamers and its aptasensors are expected to be used for the fast, precise, and in situ detection of PRRSV.