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PCMV glycoprotein B epitope mapping for a peptide-based detection of PCMV directed antibodies in pig

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Xenotransplantation of pig organ, tissue or cells depends on the microbial safety. Here the early detection of porcine cytomegalovirus (PCMV) a HHV6 related roseolovirus is immanent as it is easily transmitted and does possibly contribute to early graft failure. PCMV detection faces two hurdles. One is latency of the virus, the other high transmissibility and infectivity within the pig population. Even if PCMV free piglets are feasible, the avoidance of re-entry into a designated pathogen free (DPF) facility remains a challenge.
PCMV infection shows mild symptoms, furthermore the presence of maternal antibodies in newborn may cover a newly infection and virus latency impedes its detection. As such the screening is essential. It was recently shown that a combination of a PCR based testing combined with serology framed in a defined timely schedule is the gold standard.
By extending this approach, we analysed glycoprotein B (gB) for antibody binding epitopes on basis of a new peptide array representing 212 different 15 aa long overlapping peptides that cover the entire gB. The arrays where incubated with sera from non-infected and infected pigs identifying a variation of corresponding motives used for the synthesis of 25 aa biotinylated peptides tested in a diagnostic ELISA for suitability, monitoring pig anti-PCMV gB directed IgG and IgM antibody levels. It showed to be a suitable approach to complement the existing methods for PCMV monitoring of live-stock animals.

Keywords

porcine cytomegalovirus, PCMV, roseolovirus, xenotransplantation, peptide array

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Professional Status of the Speaker

Senior Scientist

Junior Scientist Status

No, I am not a Junior Scientist.

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