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PROGRAM BOOK

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**Potential of IgG from spray dried porcine plasma (SDPP) to bind bacterial pathogens associated with canine enteropathies.**

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Spray dried porcine plasma (SDPP) contains immunomodulating proteins, most importantly immunoglobulins. These have been shown to increase the diversity of the gut microbiome of e.g. fish, pigs and mice. Additionally, models of chronic enteropathies (CE) show addition of SDPP supports gut integrity, e.g. by its bactericidal effect on pathogenic bacteria, potential to increase microbial diversity in the gut, and the perceived increased production of anti-inflammatory cytokines in the intestines upon its addition to the diet.

To discover whether SDPP's effects derive from its interaction with host pathogens, we studied whether IgG from SDPP is able to bind and affect propagation of canine-specific bacterial and viral pathogens, all involved in the development of canine CE.

To discover SDPP's potential to target canine pathogens, the levels of IgG, IgM and IgA in two samples of SDPP were tested using a direct capture ELISA and found to be substantial, despite being heat sensitive: approx. 25%, 9% and 3% of total protein content. With a further focus on IgG, binding to 4 bacterial species, 2 strains of each species, associated with canine CE (*C. perfringens*, *E. coli*, *E. faecalis* & *S. canis*) was tested. Further focus was put on viral pathogens associated with CE, specifically canine parvovirus (CPV), associated with both acute and chronic gut damage. ELISAs showed immunoglobulins from SDPP bound CPV. In addition to binding, a neutralization assay was set up. Here, SDPP was pre-incubated with CPV, then added to cells susceptible to CPV infection. The control received CPV only. This assay showed significant neutralization of canine parvovirus by SDPP, for 10, 100 and 400 µg/mL SDPP (unpaired t-test comparing concentration to control;  $P \geq 0.05$ ).

To conclude, immunoglobulins in SDPP were shown to bind both bacterial and viral pathogens associated with canine enteropathies, thus forming a potentially beneficial addition to the diet of dogs suffering from CE.