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Consequences of Ascaris-Salmonella co-infection on immune functions in the pig

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Background
Infections with the parasitic roundworm *Ascaris suum* and the bacterial pathogen *Salmonella enterica* ssp. *enterica* ser. Typhimurium are widespread in pigs and both pathogens are highly prevalent zoonotic agents. Interestingly, there is a statistical association between high *Ascaris* exposure and *Salmonella* prevalence within a pig herd. The immune response against *A. suum* is characterized by a Th2 response whereas the control of *Salmonella* requires the development of an opposing Th1 immune response. An important interface between the two pathogens is represented by macrophages; helminth infections lead to alternative activation of macrophages with anti-inflammatory properties while *Salmonella* achieves persistence by surviving within macrophages with features of alternative activation.
Methods
To study phenotypic changes in macrophages during *Ascaris* infection and assess whether these changes promote *Salmonella* persistence within the porcine host, various organs from infected pigs were analyzed using flow cytometry. *Salmonella* burden was assessed by bacterial colony counting.
Results & Conclusion
Preliminary findings indicate that *Ascaris* infection is associated with a Th2-type response resulting in higher *Salmonella* burdens compared to pigs infected with *Salmonella* alone.

Keywords

Ascaris, helminth, salmonella, coinfection, macrophage, immunity

Registration-ID code

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Professional Status of the Speaker

PhD Student

Junior Scientist Status

Yes, I am a Junior Scientist.

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