Development & application of animal models

Gaining insight into the risks and control of animal and zoonotic diseases

Top level veterinary and biomedical research for animal and public health

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Whether you want to test preparations to control diseases or you want to know about pathogenesis and excretion, animal models and laboratory analysis are needed. Wageningen Bioveterinary Research has the expertise and facilities to develop and apply animal models to gain insight into the risk and control of animal and zoonotic diseases. An example of this is our work on Q fever.

Q fever

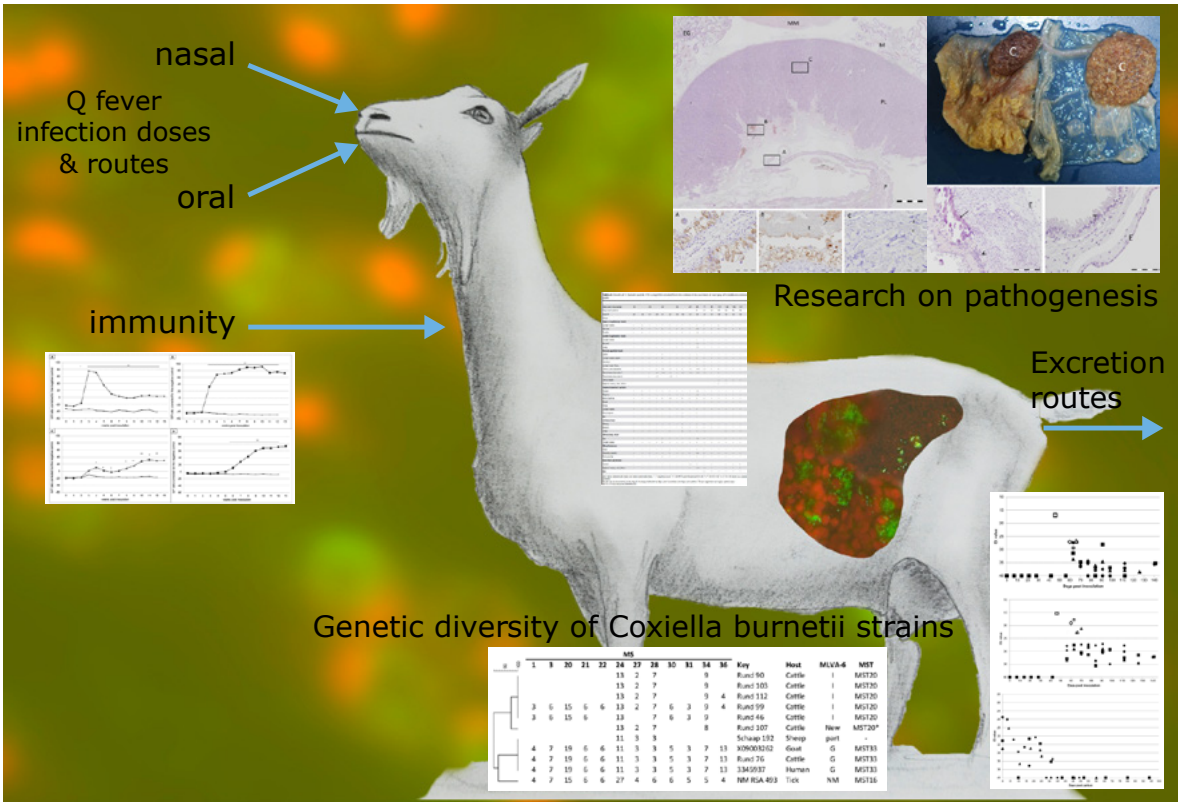
Between 2007 and 2010 the Netherlands was confronted with the largest Q fever outbreak ever reported, which resulted in more than 4000 human cases. Together with partners from the human health field we genotyped the Q fever bacterium that persisted in the human and animal populations. This justified stringent control measures in dairy goats, which led to a successful control of the outbreak.

Research

To gain insight into the risk Q fever infected goats pose for humans, research was initiated to study the pathogenesis of the bacterium in pregnant and non-pregnant goats. This Q fever goat model provided new insights into the excretion of the bacterium as well as potential additional risks for humans. This focused the control measure.
Comparison of the innate immunity in goats and humans as well as Q fever bacterium genomics are being studied to gain a better understanding of the bacterium and its interactions with human and animal hosts. Our goals are to develop better control measures and to improve treatment of acute and chronic Q fever human patients.

BSL3 laboratory and animal facilities

The Q fever bacterium *Coxiella burnetii* is a BSL3 bacterium requiring BSL3 laboratory and animal facilities for research. Especially the connection between these two facilities is vital for carrying out research on a pathogen like this. These combined facilities will accelerate the research.



Roest *et al,* PloS One, 2012; Roest *et al,* Vet Res, 2013; Roest *et al*, EID, 2013

Development of a goat model for the BSL3 agent *Coxiella burnetii* (Q fever)

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