Research project IZS VE 12/13

Fibrogenesis and inflammation in bovine paratuberculosis: host-pathogen interactions

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Mycobacterium avium subsp. *paratuberculosis* (MAP) is the cause of paratuberculosis, a chronic granulomatous enteritis of ruminants. The transmission of MAP is mainly by ingestion of faecal contaminated feed. The bacteria are transported from the lumen into the intestinal wall and phagocytosed by macrophages, which are the target cells for the microorganism. Nonetheless, other cell types may be involved in the progression of the disease.

Latent infection, characterised by focal lesions, evolves to clinical disease in which multifocal or diffuse histopathological patterns and myofibroblast-mediated intestinal fibrosis become evident. However, it is unclear whether myofibroblast activation occurs as a result of local inflammation or if it is caused by direct interaction with MAP.

To answer this question, we will analyse the expression profile and inflammatory determinants of bovine myofibroblasts, directly infected with MAP or exposed in vitro to MAP-infected macrophages. In addition, as strain specific variation in MAP virulence has been described, we will use different MAP strains to assess the influence of the pathogen genetic background on the fibrogenic response.