A new approach - the glycan-based vaccine against Campylobacter 2

Summary / Zusammenfassung
Campylobacteriosis is an important food-borne human disease in developed countries. The infection source is – among others such as water and milk – poultry meat. Successful control in poultry production is still missing, mainly due to the unknown infection routes on Campylobacter in livestock production and the lack of effective post-slaughter measures. Several strategies to control Campylobacter prevalence are imposed on several stages of production, namely on the farm, in the slaughterhouse and in the kitchen of the consumer. Utmost emphasis has gained the control of Campylobacter in livestock during recent years. These strategies include competitive exclusion (e.g. using probiotics), genetic resistance of the host and vaccination.

Vaccination of chickens against Campylobacter is based on the observation that chicken colonized with C. jejuni develop a systemic and mucosal humoral response of the IgY (IgG), IgA and IgM type. Increasing levels of antibodies result in a decreasing level of colonization, suggesting that the acquired response results in a protection against colonization. However, effective vaccination against Campylobacter has still to be developed.

Glycans of Campylobacter are highly efficient antigens for vaccination if they are presented in a high density as LPS or LOS in Gram-negative bacteria. In our previous studies vector vaccines induced excellent systemic and mucosal immunity after oral application, but no reduction in Campylobacter counts in the caeca after a high dose-challenge. Experiments are now planned with inactivated vector vaccines expressing Campylobacter glycan. The proof-of-concept studies with broiler chicks will be performed in isolators.

Publications / Publikationen

Keywords / Suchbegriffe
Campylobacter, vaccine, glykan

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