Technology Development/Licensing Opportunity: Salmonella Biofilm

Non-Confidential Summary

Background

Pathogenic Salmonella strains are a prominent cause of human food-borne infections throughout the world. While several types of infections can occur, gastroenteritis is the most common. Despite decades of research, no Salmonella genes important for human transmission have been identified. In addition, it is still not well understood how Salmonella survives outside the host, although this is assumed to be essential for infecting new hosts. We are making advances towards technologies that reduce transmission and prevent infections.

Development Stage: Early

Using a murine model for Salmonella transmission we are determining differential transmission between single cells and multicellular biofilms. This will be repeated in poultry.

We have determined that the single cell populations from non-typhoid serovars are significantly more virulent than biofilm populations, relating to differential expression of invasion and motility factors vs persistence and survival factors. This suggests that non-typhoid serovars maintain virulence for immediate infection as well as preparing for long-term survival in the environment, creating potential reservoirs for infection. Studies are ongoing

Our experimental vaccine is based on the discovery of a novel polysaccharide produced by Salmonella. The vaccine may be cross-protective against other common disease-causing non-typhoid serovars, including S. Typhimurium, S. Enteritidis, and S. Heidelberg. Efficacy studies in mice and poultry are on-going.

Intellectual Property

A provisional patent application on the vaccine has been filed.

Publications

This data is not published.

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