Non-Confidential Description

Prophylactic, Therapeutic, and Diagnostic Remedy for Treatment of Colibacillosis Infection

Technology Case: RFT-21

Invention Summary

Scientists at North Dakota State University have cloned and sequenced the *iss* (increased serum survival) gene from virulent avian *Escherichia coli* strains and expressed its encoded ISS polypeptide sequence. This has enabled them to conduct studies in understanding the gene's potential and devise strategies to detect and control the colibacillosis infection that the gene is believed to cause. This invention pertains to the application of this study in formulating DNA vaccines and immunogenic compositions for providing adequate prophylactic, therapeutic and diagnostic remedies against the colibacillosis infection in humans and avian organisms.

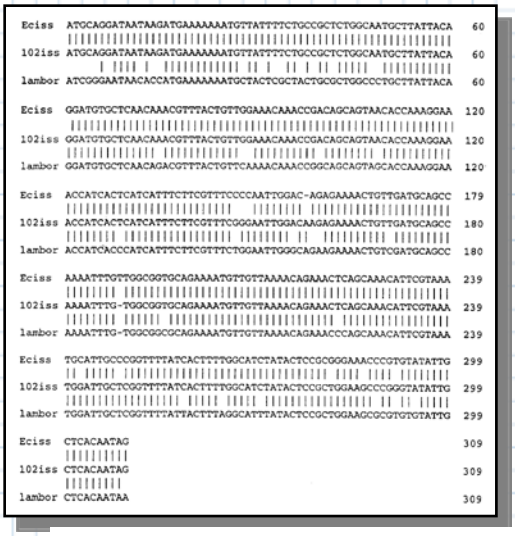

Fig. Shows partial alignment of the DNA sequence of the iss gene obtained from a virulent, complement-resistant avian, human and lambda bor gene E-coli isolate.

Applications

- Veterinary: Avian DNA vaccine for colibacillosis (in chickens, turkeys, waterfowl) and potential diagnostics.
- Human: Potential human vaccine against urinary tract infections caused by *E. coli.*

Achieved R&D Parameters

- Laboratory research completed: gene cloned, sequenced, and expressed.
- Pilot studies in chickens completed (using select disease models to evaluate immunogenicity and potential efficacy of an initial preparation of rDNA-derived, polypeptide vaccine).

Patents

This technology is patented with fully preserved US patent rights (issued US patents 6,087,128 and 6,187,321), and is available for licensing/partnering opportunities.

The Lead Inventor

Lisa K. Nolan, DVM Ph.D.

Her research focuses on bacterial diseases of production animals. The long-term goal of one such project is to establish the molecular basis of virulence of avian *Escherichia coli*, the causative agent of colibacillosis, an economically devastating problem for this country's poultry industry. Other projects use molecular approaches to study the virulence of various *E. coli* causing disease in cattle and mink and antimicrobial resistance in *salmonellae* of pigs.

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