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Non-Confidential Description - PSU No. 1214
"Live Vaccine that Protects Against Avian *Escherichia coli* Infections"

Field/Keywords:

escherichia coli infections, Avian influenza, poultry vaccine, immunization against pathogen E. coli

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Links:

U.S. Patent No. 6,096,322
U.S. Patent No. 5,641,491
Inventor Website

Background

Avian *E. coli* infections are responsible for a variety of clinical conditions such as airsacculitis, pericarditis, and perihepatitis, and are a major cause of economic loss to the poultry industry (Gross, 1991). In addition, over 40 million chickens are condemned due to airsacculitis or septicemia each year, accounting for over 70% of all poultry condemned at processing plants (Anon, 1990).

Invention Description

This disclosed invention offers the intriguing possibility of utilizing a novel avirulent strain of *Escherichia coli* to develop commercially applicable vaccines and vaccination regimens to reduce economic loss due to mortality and morbidity associated with *E. coli* infections in poultry.

Researchers have isolated a nonpathogenic strain of *E. coli* that shares identity in genotype with isolates that are commonly recovered from birds condemned at poultry processing plants, as well as strains recovered from clinical cases of colibacillosis. This novel strain, when administered as an unmodified culture, provides absolute protection against challenge with a commonly isolated pathogenic strain of *E. coli*. When used as a heat inactivated bacterin, 4 of 15 birds in the test group died when challenged with the pathogenic strain. In contrast, 14 of 15 birds died in the control group, as did 15 of 16 birds in a group inoculated with a genetically heterologus strain. The results of these investigations clearly demonstrate the utility of this strain as an immunogen that affords significant protection against pathogenic *E. coli* strains commonly causing disease in poultry. The inventors believe that this strain could be used as a live vaccine to protect against *E. coli* infections in poultry.

Advantages/Applications

- Decreases profit loss due to *E. coli*-related avian mortality rates.
- Method of immunizing poultry against E. coli infections.

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