**Technology Summary**

Shigellosis is a global human health problem. Transmission usually occurs by contaminated food and water, or through person-to-person contact. The bacterium is highly infectious by the oral route, and ingestion of as few as 10 organisms can cause an infection in volunteers. An estimated 200 million people worldwide suffer from shigellosis, with more than 650,000 associated deaths annually. The CDC recently estimated the occurrence of over 440,000 annual shigellosis cases in the United States alone, approximately eighty percent (80%) of which are caused by Shigella sonnei. Shigella sonnei is more active in developed countries. Shigella infections are typically treated with a course of antibiotics. However, due to the emergence of multidrug resistant Shigella strains, a safe and effective vaccine is highly desirable. No vaccines against Shigella infection currently exist. Immunity to Shigellae is mediated largely by immune responses directed against the serotype specific O-polysaccharide.

**FDA inventors developed compositions and methods for inducing an immunoprotective response against S. sonnei.** Specifically, an attenuated bacteria capable of expressing an S. sonnei antigen comprised of the S. sonnei form I O-polysaccharide expressed from the S. sonnei rfb/rfc gene cluster is claimed. The inventors have demonstrated the candidate vaccine compositions provide one hundred percent (100%) protection against parenteral challenge with virulent S. sonnei in mice.

**Potential Commercial Applications**

- Shigella/Typhoid vaccine for travelers, military
- Shigella/Typhoid vaccine for developing countries
- Shigella/Typhoid diagnostics

**Competitive Advantages**

- Low cost of production
- Temperature stable formulation
- Safety/efficacy of Ty21a established in humans

**Inventors:** Dennis Kopecko, De Qi Xu, John Cisar

**Publications:**


**Intellectual Property:**


**Product Area:** Shigella Vaccine, Shigella therapeutic, Shigella diagnostic

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**Licensing Contact:**

Ken Millburne, J.D.
FDA Technology Transfer Program
Email: [FDAInventionlicensing@fda.hhs.gov](mailto:FDAInventionlicensing@fda.hhs.gov)
Phone: 301-346-3964