



Combined Enteropathogen Recombinant Construct

Unmet Need: Enterotoxigenic *Escherichia coli* (ETEC), *Shigella*, spp. and *Campylobacter jejuni* (CJ) are major causes of bacterial diarrhea worldwide. These pathogens are a serious health threat to western travelers and young children in resource-limited countries. No FDA-licensed vaccines are available for these pathogen. ETEC causes an estimated 210 million cases of diarrhea and 380,000 deaths annually among infants and young children. *Campylobacter jejuni* is the main bacterial cause of food borne gastroenteritis in the world, with typically mild symptoms but potentially fatal to young children, the elderly and the immunosuppressed. An astonishing 1 in 10 people fall ill with food borne gastroenteritis every year, with total economic burden of 33 million years of healthy life-years lost. *Shigella* infections have symptoms that included fever, prolonged bloody diarrhea, dehydration, and a prolonged disruption in bowel normalcy. Globally, 80-165 million cases of the disease and 600,000 deaths are caused by Shigella infections.

Solution: Naval researchers have produced an immunogenic construct that has a polypeptide from enterotoxigenic *Escherichia coli* (ETEC) fimbrial subunits combined with *Campylobacter jejuni* capsule polysaccharide or *Shigella* lipopolysaccharide (LPS). Test animals immunized with vaccines utilizing these innovative compounds were significantly less likely to develop diarrhea, with reduced duration and severity in those that were symptomatic, showing a vaccine efficacy between 67-100%.

Stage of Development: The technology is in the early stages of development.

IP or IP status: hese technologies are embodied in including US Patent, ([10105448 \(uspto.gov\)](https://www.uspto.gov/patents/applications/ip/10105448)) and US Patent 11,077,200 ([11077200 \(uspto.gov\)](https://www.uspto.gov/patents/applications/ip/11077200)). 10,105,448

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