



Non-Toxic *Clostridium Botulinum* Strains for Assessing Botulinal Food Safety

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing strains of *Clostridium botulinum* with an inactivated botulinal neurotoxin gene for microbial challenge testing.

Overview

Clostridium botulinum produces the most poisonous toxin known and is a perennial concern to the food industry. Several outbreaks of botulism have occurred due to changes in food processing procedures and formulations.

Microbial challenge testing is a useful tool for determining the ability of a food to support the growth of pathogens like *C. botulinum*. Rigorous microbial challenge testing is performed routinely using a mouse bioassay or *in vitro* assays to ensure the botulinal safety of foods and to validate processes designed to kill or attenuate *C. botulinum*.

However, few facilities have been approved for testing with toxigenic strains of *C. botulinum*. Surrogate microorganisms can be used in place of *C. botulinum*, but they may respond differently to testing.

The Invention

UW-Madison researchers have developed stable, mutant strains of *C. botulinum* in which the botulinal neurotoxin gene has been inactivated. These strains could be used for challenge studies to validate different food processing conditions and testing new food formulations.

Applications

- Microbial challenge testing of foods and food processing methods

Key Benefits

- By providing a better method of assessing the botulinal safety of foods, these strains could lead to enhanced public health.
- Testing could be performed in many laboratories, rather than the select few currently approved for testing with toxigenic strains of *C. botulinum*.
- Mutant strains retain all characteristics of *C. botulinum* except its toxicity.
- Through their use in *in vitro* assays, these strains could minimize the use of animals in challenge testing.

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Tech Fields



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