Animal Vaccine for *C. difficile*

*C. difficile* is known to infect horses, pigs, cattle and dogs and anti-microbial drugs are not considered a sustainable long term solution to eliminating disease, similar to the situation in humans. Certain strains of *C. difficile* have been considered indistinguishable between humans and other mammals suggesting that animals may be a reservoir for this pathogen.

We have developed a vaccine for *C. difficile* for use in animals and we are currently investigating its use in animals.

**Description:**
Cell surface polysaccharides (PSI and PSII) from highly virulent *C. difficile* ribotype 027, have been conjugated to CRM\(_{197}\) and tested in mice\(^2,3\). Both of the de novo PSI and PSII are highly immunogenic, and PS-II appears to be common to all strains of *C. difficile*, which suggests that PS-II may be an excellent broad based vaccine target for this pathogen.

**Advantages:**
- Patented composition of matter (PSI and PSII)
- PSI and PSII can be produced by chemical synthesis\(^4,5\)
- PSII generates high antibody IgG titers in mice\(^2\)
- Has been conjugated to a proven carrier protein (CRM\(_{197}\))
- Vaccine targets pathogen immunity not just toxin neutralization

**Potential Markets:**
- Equine medicine to prevent colitis and enteritis
- Porcine and bovine medicine to prevent economic losses in food animal production.
- Canine medicine to reduce the risk of animal to human transmission

**Status:**
- Researchers are combining PSII with proteins from other pathogens to form multi-pathogen and multivalent second generation vaccines
- Researchers around the world are attempting to validate the efficacy of using *C. difficile* PS-II in a vaccine
- We need a partner to advance our animal vaccine program

---