# Vaxxon® SRP® Salmonella

## Siderophore Receptors and Porins

# *Salmonella* control **starts with prevention.**

**Vaxxon® SRP® Salmonella is a subunit vaccine that uses proteins found in cell walls of gram-negative bacteria to stimulate an immune response. Antibodies generated by the vaccine block the inflow of iron into the bacterial cell which is a critical nutrient for growth and replication. Without iron, gram-negative bacteria die.**

SRP® technology helps control infection and fecal shedding of *Salmonella* Newport, resulting in reduced disease incidence[1] and improved herd performance.[2] Vaccination along with proper sanitation and bio-security are a three-prong approach to effective management of *Salmonellosis* in dairy herds.

## Key Features & Benefits

- Reduces symptoms of *Salmonellosis* caused by *Salmonella Newport* [1]
- Decreases the number of animals shedding *Salmonella* in their feces [1]
- Reduces the amount of *Salmonella Newport* shed in feces [1]
- Increases milk production by 2.5 pounds/cow/day even in herds with no clinical signs [2]

**99%**

**FEWER *SALMONELLA* ORGANISMS IN FECES[1]**

**97%**

**DECREASE IN MODERATE TO SEVERE DIARRHEA[1]**


**2.5 LB INCREASE IN MILK PRODUCTION[2]**

Vaxxon SRP Salmonella Detailer (08-2021)
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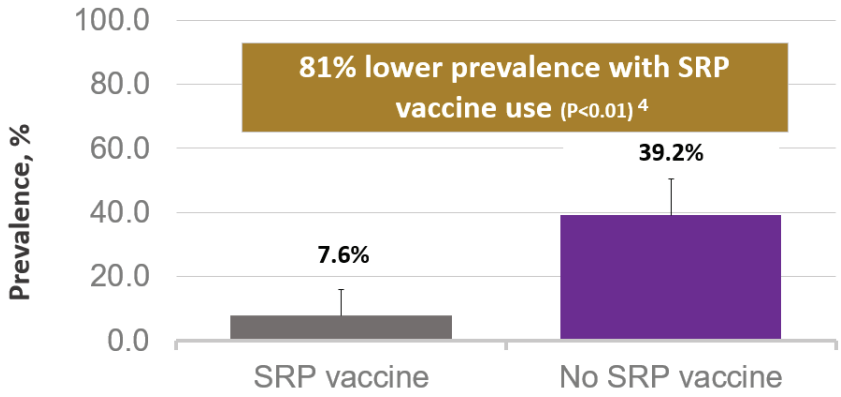
## Why is *Salmonella* prevention important?

*Salmonella* is a bacteria that causes disease in nearly all mammals. The most common symptoms of *Salmonellosis* in dairy cattle are diarrhea, fever, abortion, and death. *Salmonella* infections may also be subclinical where they decrease milk production and feed efficiency and increase cull rates. *Salmonella* can be transmitted to humans. An estimated 1.35 million illnesses and 420 deaths occur each year in the United States due to *Salmonella* infections.[3]

## The SRP Difference

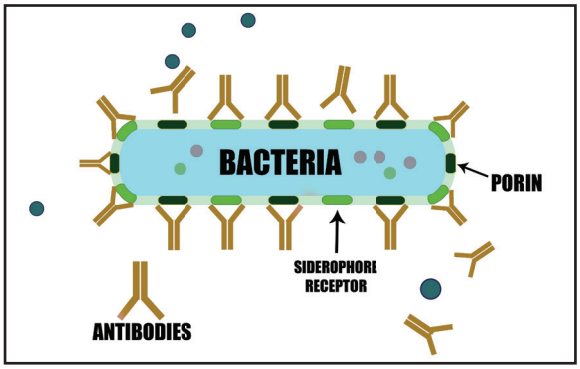
A study performed in large Texas dairies demonstrated that the prevalence of *Salmonella* in cull cows was significantly lower in herds vaccinated with Vaxxon SRP Salmonella.[4] Whole-herd vaccination helps control *Salmonella* Newport infections by decreasing the number of animals that shed *Salmonella* in their feces.[1] Of those that do still shed, the number of *Salmonella* organisms is reduced by 99%.[1]

### Prevalence of *Salmonella* in cull cows by vaccine use




## SRP® Vaccine Technology

Bacteria require iron to survive. Since most iron in a host is tied up, bacteria produce and release small proteins called siderophores, which scavenge iron from the local environment. These siderophores bring iron back into the bacteria through protein pores specialized for iron acquisition. These pores are referred to as siderophore receptors. Siderophore receptors belong to a family of proteins called porins. Vaccines made from siderophore receptor and porin (SRP) proteins generate antibodies that block the uptake of iron into the bacterial cell. Without iron, the bacteria dies.




| FEATURES | BENEFITS |
|---|---|
| SRP proteins are "conserved" [5] | Cross-reactive antibodies for many gram-negative bacteria[5] |
| Antibodies attack a critical bacterial function | Controls infection and colonization, not just endotoxemia |
| SQ administration | BQA compliant |

[1]Vaxxinova Study 0606 [2]Hermesch, D. R. , D. U. Thompson, G. H. Loneragan, D. R. Renter, and B. J. White. 2008. Effects of a commercially available vaccine against Salmonella enterica serotype Newport on milk production, somatic cell count, and shedding of Salmonella organisms in female dairy cattle with no clinical signs of salmonellosis. AJVR. 69:1229-1234. [3]Centers for Disease Control and Prevention. https://www.cdc.gov/salmonella/index.html Accessed August 3, 2021. [4]Loneragan, G. H., L. R. Matthews, A. Daniels, T. S. Edrington, D. Nisbet, T. M. Platt, R. M. McCarthy, M. Nemechek, C. Narvaez, T. Jackson, and M. M. Brashears. 2008. Salmonella in cull dairy cattle of the Texas high plains. 89th Annual Meeting of the Conference of Research Workers in Animal Diseases. Chicago, IL. [5]Lin, J., J. S. Hogan, and K. L. Smith. 1999. Antigenic homology of the inducible ferric citrate receptor (FecA) of coliform bacteria isolated from herds with naturally occurring bovine intramammary infections. Clin Diagn Lab Immunol. 6:966-969.