**INDICATIONS:** This product has been shown to be effective for vaccination of healthy cattle 22 months or older against mastitis caused by *Klebsiella pneumoniae*. For more information regarding efficacy and safety data, see productdata.aphis.usda.gov.

**DIRECTIONS:** Shake well before use. Administer 2 mL [1 dose] subcutaneously. Re-vaccinate in 2-4 weeks. Heifers should be vaccinated twice before calving. Whole-herd vaccination may be done at any stage of lactation. The need for annual booster vaccination has not been established for this product; consultation with a veterinarian is recommended.

**CAUTIONS:** Do not vaccinate within 60 days of slaughter. Heifers less than 22 months of age should not receive this product until 30 days after calving.
Keep cows in the herd.

'60-80% of cows diagnosed with Klebsiella mastitis leave the herd within that lactation period.

Klebsiella mastitis is one of the most devastating emerging diseases in the dairy industry. Klebsiella is a Gram-negative bacteria associated with environmental mastitis in cattle, which means it can be found almost anywhere and can cause infection through contact. Fecal shedding into the environment coupled with various types of bedding create an ideal growing condition for the survival and transmission of Klebsiella bacteria. Dairy cattle that are not culled from the herd due to Klebsiella mastitis typically have recurring infections that are costly to the dairy.

How common is Klebsiella Mastitis?

More herds and more cows within those herds are experiencing cases of Klebsiella mastitis. The prevalence of Klebsiella pneumoniae- positive fecal samples from surveys done over a 12 year period in Northeast herds, have shown a 23% increase in infection detection. The number of reported cases has been steadily growing over the past 15 years, which can be attributed to the usage of recycled manure bedding, although Klebsiella can be found in sand bedding as well.

Klebsiella infections can occur at any time during the lactation period and may also occur during the dry period. Cows in early lactation are at an increased risk for new infections due to the increased stress and immune suppression associated with the postpartum period. Additionally, cows are at an increased risk for mastitis immediately after the dry off period.

For more information on KLEBVax SRP and Klebsiella mastitis, please visit our website at www.agrilabs.com

SRP Vaccine Technology

Bacteria require iron to survive. Since most iron in a host is tied up, bacteria produce and release siderophore proteins, which scavenge iron from the local environment. These “siderophores” then bring the iron back into the bacteria through protein pores (porins) specialized for iron acquisition. These pores are referred to as siderophore receptors, or SRP proteins. A vaccine made from SRP protein will generate antibodies that block the uptake of iron into the bacterial cell.

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<th>FEATURES</th>
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<td>SRP proteins “conserved”</td>
<td>Cross reactive antibody for many Gram-negative bacteria</td>
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<td>Antibodies attack critical bacterial function</td>
<td>Controls infection, not just endotoxemia</td>
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<td>SQ administration</td>
<td>BQA compliant</td>
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Mode of action of SRP vaccines is different from that of the whole-cell autogenous or core antigen. SRP vaccine induced antibodies bind and block transfer of iron and nutrients through bacterial cell wall pores, starving bacteria of needed nutrients. Provides greater overall immunity. Made from siderophore receptors and porins, specialized proteins on the outer membrane of the bacteria.

References

1Cornell University and Iowa State University research, Patrick Gorden, DVM, Ph.D. Ruth Zadoks and Marcos Munoz, National Mastitis Council Annual Meeting, 2007
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