

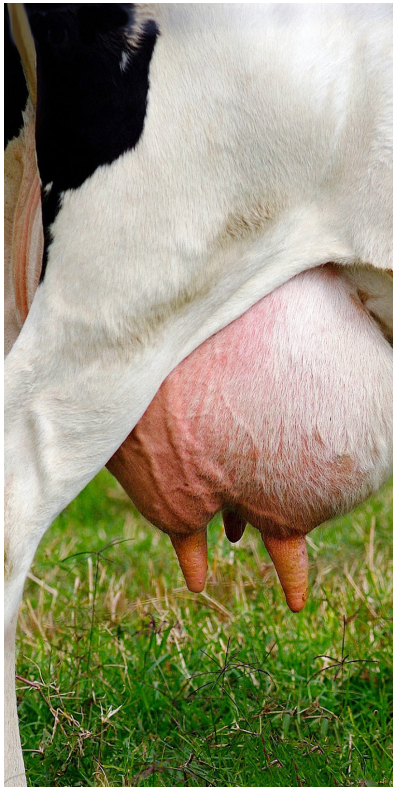
Got Mastitis?

A customized autogenous vaccine could be the answer.



ARMOR
ANIMAL HEALTH

DETECT. DEFEND. DELIVER.



Mastitis remains the most common clinical disease affecting nearly 25 percent of dairy cows, and accounting for 13 percent of cow deaths¹. With all costs considered, mastitis is responsible for an average loss of \$444 per case—of which 71 percent is associated with long-term, indirect costs such as future milk production and replacement losses². At the operational level, producers spend an estimated \$40 per case in therapeutic treatment and veterinary expense.

Cows are most vulnerable to mastitis at dry off, as the mammary glands and teats are no longer flushed multiple times per day and the teats are no longer routinely inspected and dipped. Moreover, the cow's stressful change in routine, coupled with the changes within the mammary cells, also contribute to increased susceptibility³.

Mastitis is traditionally the most common reason cows receive antibiotic treatment⁴. And with no approved products for the treatment of mastitis caused by *Klebsiella*, antibiotics delivered through intramammary tubes remain the most common therapy for treating mild and moderate cases. This method of treatment is usually delivered without knowing which type of bacteria is causing the disease, resulting in hit-or-miss effectiveness and wasted resources⁵. Limiting treatment options even more is that no new intramammary antibiotics have been approved for lactating cows since 2006; several of those have been withdrawn from the market as well.

SOURCES:

1. USDA, Dairy 2014. Health and Management Practices on U.S. Dairy Operations, 2014. USDA-APHIS-VS-CEAH-NAHMS, Editor. 2016: Fort Collins, CO.
2. Rollin E, Dhuyvetter KC, Overton MW. The cost of clinical mastitis in the first 30 days of lactation: An economic modeling tool. *Prev Vet Med*. 2015 Dec 1;122(3):257-64. doi: 10.1016/j.prevetmed.2015.11.006. Epub 2015 Nov 7. PMID: 26596651.
3. Couture, et. al. Managing Mastitis in Heifers and Dry Cows. University of Tennessee Extension. 2013 March. doi: <https://extension.tennessee.edu/publications/Documents/W813.pdf>.
4. Pol M, Ruegg PL. Treatment practices and quantification of antimicrobial drug usage in conventional and organic dairy farms in Wisconsin. *J Dairy Sci*. 2007 Jan;90(1):249-61. doi: 10.3168/jds.S0022-0302(07)72626-7. PMID: 17183093.
5. Ruegg P. Responsible use of antibiotics for treatment of clinical mastitis. *DAIRExNET*. 2019.

Clinical Signs

- Subacute (Grade 1): Mild change in either the milk or the udder
- Acute (Grade 2): Changes in the milk and udder. The udder will be grossly enlarged and/or hot and painful, and the milk will have large clots or purulent drainage. Temperature increase of more than 2° F above average
- Peracute (Grade 3): Similar to Grade 2, but with additional systemic reaction; Potential of toxemia, bacteremia or death
- Chronic mastitis: Infection that persists for more than 100 days and has three or more quarter infections per lactation

Impact of Mastitis

- Reduced or lost milk production
- Milk downgraded or discarded
- Treatment cost and veterinary expenses
- Resources and disruption due to redundant treatment(s)
- Reduced breeding performance
- Decreased genetic gain
- Reductions in reproductive efficiency
- Premature culling

The Autogenous Alternative—just what the doctor ordered!

There are two main categories of microorganisms that frequently cause mastitis: contagious pathogens which spread primarily during milking; and environmental pathogens found in certain dairy cow habitats. Armor Animal Health innovates with *Cambridge Technologies*® to deliver a custom-formulated, autogenous mastitis vaccine that is able to treat the infectious pathogens not represented in commercial vaccines—making it an ideal treatment option for progressive dairy producers and discerning veterinarians. The autogenous vaccine is custom formulated and built using locally sourced strains of causative pathogens to better target the microorganism(s) affecting your herd. These include:

- *E. coli* (two strains)
- *Klebsiella*
- *Salmonella dublin*
- *Salmonella newport*

The vaccine is recommended to be administered twice during dry-off, with an optional dose given at 90–100 DIM for superior control. The combination of four different pathogens within one vaccine eliminates the need to administer multiple products—reducing the stress on the cow, in addition to saving time and money.

Vaccine manufactured by Cambridge Technologies®

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Armor Autogenous Mastitis Vaccine



Precision Vaccinology®

Cambridge Technologies®, a life science company, helps veterinarians find solutions to herd health problems by identifying the novel antigen threat(s) affecting your herd. Using industry-leading molecular diagnostics that include complete genome sequencing, Armor Autogenous Vaccines are customized to combat the strain(s), concentration of pathogen(s), dosage and adjuvant choice while reducing dependence on antibiotics.

www.armoranimalhealth.com/autogenous

We put the “S” in Autogenous

Specific	Autogenous vaccines are the most targeted, science-driven solution available. The vaccine is built around the disease strain(s) identified as potential threat(s).
Speed	The nature of autogenous products brings flexibility to your treatment plan, in addition to a speedy turnaround time. This means emerging threats can be dealt with <i>fast!</i> Should a new strain or agent emerge, future manufacture runs of the autogenous product can be altered to include the new threat.
Stewardship	Many cases of clinical disease are treated with antibiotics. However, the implementation of FDA guidance 209 and 213, (as well as the expansion of the Veterinary Feed Directive) has created the need for an alternative in animal health care. Autogenous vaccines give you and your veterinarians a flexible and easy-to-implement management tool to help counter emerging or evolving diseases.
Service & Solutions	Animal Health isn't just our job, it's our way of life. Our experienced veterinarians, product specialists and dairymen are here to support you from initial diagnosis through product testing, and to shipment—monitoring your herd's progress and making recommendations that are best suited to meet your production and herd management goals.

**Contact your
Armor Veterinarian today!**

