



## Potential for Vaccine Against Johne's Disease

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**WARF: P130200US02**

Inventors: Adel Talaat

**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing methods for protecting farm animals against paratuberculosis using mutated *mycobacteria* strains.**

### Overview

Johne's disease, or paratuberculosis, is a chronic and usually fatal wasting disease that is found worldwide and impacts more than half of the dairy herds in the U.S. alone. It costs the ruminant industries more than \$200 million every year in reduced milk production and premature culling.

The microorganism responsible for the disease is a *Mycobacterial avium* subspecies called *M. paratuberculosis* (MAP). The bacterium survives within animal macrophage cells using mechanisms not fully understood. The current vaccine does not protect against severe infection or prevent the disease from being spread through feces.

### The Invention

UW-Madison researchers have developed MAP strains with mutated global gene regulators (GGRs) that may be utilized in a vaccine against Johne's disease.

GGRs are proteins needed for initiating RNA synthesis, for example, sigma factors and transcriptional regulators. By deleting, inactivating or reducing some key GGR sequences in MAP bacteria, non-virulent strains could be produced and administered to animals to confer immunity.

### Applications

- Prevention and treatment of Johne's disease

### Key Benefits

- May lead to new vaccine
- Could produce strong immunity and prevent fecal transmission
- Could lead to methods for preventing and treating Crohn's disease in humans, which may be linked to Johne's disease

### Additional Information

#### For More Information About the Inventors

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#### Related Technologies

- [For more information about vaccine candidates against Johne's disease, see WARF reference number P05446US.](#)



**WARF**  
Wisconsin Alumni Research Foundation

| [info@warf.org](mailto:info@warf.org) | 608.960.9850

#### Related Intellectual Property

- [View Continuation Patent in PDF format.](#)

#### Publications

- Hsu C.Y., Wu C.W. and Talaat A.M. 2011. Genome-Wide Sequence Variations Among Mycobacterium Avium Subspecies Paratuberculosis: A Better Understanding of John's Disease Transmission Dynamics. Front. Microbiol. 2, 236.

#### Tech Fields

- [Animals, Agriculture & Food : Animal health](#)
- [Therapeutics & Vaccines : Vaccines](#)

For current licensing status, please contact Emily Bauer at [emily@warf.org](mailto:emily@warf.org) or 608-960-9842

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| [info@warf.org](mailto:info@warf.org) | 608.960.9850