

# Calcitonin and Calcitonin-Like Compounds for Multiple Sclerosis



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**WARF:** P07220US

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**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a new method of preventing or treating multiple sclerosis.**

## OVERVIEW

Multiple sclerosis (MS) is a complex and unpredictable disease of the central nervous system. MS is thought to be an autoimmune disease in which the immune system attacks and destroys the myelin that insulates the nerves in the brain and spinal cord. When myelin is damaged, the transmission of messages between the brain, spinal cord and body is slowed or blocked, leading to diminished or lost function.

No cure for MS has been developed. Several therapies, including anti-inflammatory steroids, naturally occurring antiviral proteins known as interferons and immunosuppressive agents, have shown some promise for the treatment of MS symptoms. However, these treatments are associated with adverse side effects and are not effective for all patients.

The hormonally active form of vitamin D, 1,25 dihydroxyvitamin D<sub>3</sub>, known as calcitriol, has shown some ability to prevent experimental autoimmune encephalomyelitis (EAE) in mice, a chronic relapsing brain and spinal cord disease that resembles MS. While promising, the concentrations of calcitriol required to achieve this therapeutic effect are likely to cause dose-limiting hypercalcemia and are not suitable for long-term use. Promising research is underway with several analogs of calcitriol that show efficacy in the EAE mouse model and the ability to minimize dose-limiting hypercalcemia, but more work needs to be conducted to determine the potential utility of these analogs in humans.

Another promising alternative is calcitonin and related calcitonin-like compounds. Calcitonin has been shown to have anti-inflammatory properties in several animal models and may be useful in the treatment of the autoimmune disease rheumatoid arthritis. In addition, calcitonin can be used to treat hypercalcemia and, as such, may play a role as an adjuvant treatment with vitamin D analogs or other MS treatments.

## THE INVENTION

## THE WARF ADVANTAGE

### **WARF: A Leader in Technology Transfer Since 1925**

Since its founding as a private, nonprofit affiliate of the University of Wisconsin-Madison, WARF has provided patent and licensing services to UW-Madison and worked with commercial partners to transform university research into products that benefit society. WARF intellectual property managers and licensing staff members are leaders in the field of university-based technology transfer. They are familiar with the intricacies of patenting, have worked with researchers in relevant disciplines, understand industries and markets, and have negotiated innovative licensing strategies to meet the individual needs of business clients.

### **The University of Wisconsin and WARF – A Single Location to Accelerate Translational Development of New Drugs**

UW-Madison has the integrative capabilities to complete many key components of the drug development cycle, from discovery through clinical trials. As one of the top research universities in the world, and one of the two best-funded universities for research in the country, UW-Madison offers state-of-the-art facilities unmatched by most public universities.

These include the Small Molecule Screening Facility at the UW Comprehensive Cancer Center; the Zeeh Pharmaceutical Experiment Station, which provides consulting and laboratory services for developing formulations and studying solubility, stability and more; the Waisman Clinical Biomanufacturing Facility; the Wisconsin Institute for Medical Research, which provides UW-Madison with a complete translational research facility; and the innovative, interdisciplinary Wisconsin Institutes for Discovery, home to the private, nonprofit Morgridge Institute for Research and its public twin, WID, part of the university's graduate school. The highly qualified experts at these facilities are ready to work with you to create a library of candidates for drug development.

UW-Madison researchers have developed methods of preventing and treating MS by administering synthetic calcitonin, calcitonin-like peptides or calcitonin mimetics to a patient to diminish MS symptoms. Vitamin D analogs can be administered in combination with the calcitonin to further reduce symptoms.

## BUSINESS OPPORTUNITY

- Cure for MS is a large and unmet medical need.
- More than 350,000 individuals in the U.S. are affected.
- 200 new cases are diagnosed each week.
- Annual cost of MS in the U.S. is in the billions of dollars.

## APPLICATIONS

- Prevention and treatment of MS

## KEY BENEFITS

- The combination of calcitonin and vitamin D provides improved effectiveness without the danger of hypercalcemia.
- The use of synthetic calcitonin, calcitonin-like peptides or calcitonin mimetics reduces the likelihood that a patient will develop resistance to treatment during long-term use.
- Calcitonin and vitamin D should be synergistic because they function by different mechanisms and at different sites.

## STAGE OF DEVELOPMENT

Early stage – *in vivo* animal data available in EAE murine model.

## ADDITIONAL INFORMATION

### Tech Fields

Pharmaceuticals & Vitamin D - Immunity & auto-immune

Pharmaceuticals & Vitamin D - Vitamin D

## CONTACT INFORMATION

For current licensing status, please contact Rafael Diaz at [rdiaz@warf.org](mailto:rdiaz@warf.org) or 608-960-9847.