

Vitamin D Analogs "1D-QM" and "1D-QMS" for Cancer, Bone Disease Therapy



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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing vitamin D analogs with extended release activity that may be useful in the treatment and prevention of cancers and bone diseases.

OVERVIEW

The hormonally active form of vitamin D, known as calcitriol or 1,25 dihydroxyvitamin D₃, has shown promise for treating diseases ranging from osteoporosis to cancer to psoriasis. However, the hormone mobilizes calcium from bones and increases intestinal absorption of dietary calcium. Effective therapeutic concentrations can lead to hypercalcemia; a condition characterized by elevated blood calcium levels, alterations in mental status, muscle weakness and calcification of soft tissues and organs such as the heart and kidneys. Therefore, a need exists for new compounds that provide desirable therapeutic effects without causing dose-limiting hypercalcemia.

THE INVENTION

UW-Madison researchers have developed vitamin D analogs (20S) and (20R)-25-hydroxy-2-methylene-vitamin D₃. *In vivo*, these compounds could act as prodrugs since 1-hydroxylation can occur in a regulated manner and extended vitamin release activity is predicted. The compounds exhibit high binding affinity and cell differentiation activity, suggesting anticancer properties. Also, high calcemic activity may be harnessed for bone disease treatments in which less frequent doses are preferred, like senile osteoporosis.

APPLICATIONS

- Prodrug use
- Therapy for bone diseases, osteoporosis and low bone turnover
- Prevention and treatment of leukemia, skin cancer, breast cancer, colon cancer, osteosarcoma and prostate cancer

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.

KEY BENEFITS

- Pronounced anticancer, antibone disease activities
- Longer compound half-life
- 2EG-S is at least 10 times more potent than the native hormone in releasing bone calcium stores.
- Easily synthesized
- Can be administered in many forms

ADDITIONAL INFORMATION

Tech Fields

Pharmaceuticals & Vitamin D - Vitamin D

Pharmaceuticals & Vitamin D - Oncology & hematology

Pharmaceuticals & Vitamin D - Immunity & auto-immune

CONTACT INFORMATION

For current licensing status, please contact John Nagel at jnagel@warf.org or 608-960-9848.

