Vitamin D Analogs “DO-REVA” and “DO-REVB” for Cancer Prevention and Treatment

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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.

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing vitamin D analogs that are potentially useful as chemotherapeutic agents, particularly against leukemia, colon cancer, breast cancer, skin cancer and prostate cancer.

OVERVIEW

The hormonally active form of vitamin D, known as calcitriol or 1,25 dihydroxyvitamin D$_3$, 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 non-calcemic compounds that provide desirable therapeutic effects without causing dose-limiting hypercalcemia.

THE INVENTION

UW–Madison researchers have developed two novel vitamin D analogs, 1,2-cyclopentene-25-hydroxy-19-nor-vitamin D$_3$, known as DO-REVA, and 3,2-cyclopentene-1α-25-dihydroxy-19-nor-vitamin D$_3$, known as DO-REVB. Both analogs bind the vitamin D receptor with lower affinity than the native hormone. One of the analogs, DO-REVA, has measurable transcription activity at higher concentrations, suggesting that it may serve as a slow-release anticancer drug or be used as a local-acting drug when coupled with an appropriate delivery method. The other analog, DO-REVB, promotes cancer cell differentiation, making it potentially useful for the treatment of cancer. Like DO-REVA, DO-REVB also may serve as a slow-release or local-acting drug.

APPLICATIONS

• Cancer treatment, particularly for leukemia, colon cancer, breast cancer, skin cancer or prostate cancer
KEY BENEFITS

- Less likely to cause dose-limiting hypercalcemia than calcitriol
- May be administered in many forms

ADDITIONAL INFORMATION

Tech Fields
Pharmaceuticals & Vitamin D - Vitamin D
Pharmaceuticals & Vitamin D - Oncology & hematology

CONTACT INFORMATION

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