



Vitamin D Analogs “3D-QM” and “3D-QMS” for Treating Cancer and Bone Diseases

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Inventors: Hector DeLuca, Lori Plum, Rafal Sicinski, Izabela Sibilska-Kaminski

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing vitamin D analogs with longer half-lives that may be useful as anti-cancer, anti-osteoporosis agents.

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)-3-desoxy-1a,25-dihydroxy-2-methylene vitamin D₃. These compounds are known also as 3D-QMS and 3D-QM, respectively. They exhibit anticancer properties of high binding affinity and cell differentiation activity. High calcemic activity suggests treatment for bone ailments and diseases.

Applications

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

Key Benefits

- Pronounced anticancer activities
- Longer compound half-life
- High calcemic activity useful against bone diseases
- Can be administered in many forms

Tech Fields

- [Therapeutics & Vaccines : Autoimmune disorders](#)
- [Therapeutics & Vaccines : Oncology](#)
- [Therapeutics & Vaccines : Vitamin D](#)

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