Vitamin D Analogs "2EG" and "T-2EG-S" for Treating Cancer and Bone Disease

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Technology description

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 new compounds that provide desirable therapeutic effects without causing dose-limiting hypercalcemia. UW–Madison researchers have developed vitamin D analogs (20S) and (20R)- 1a,25-dihydroxy-2-methylene-vitamin D_3 and (5E)-(20S)-1a,25-dihysroxy-2-methylene-vitamin D_3 .These compounds exhibit high binding affinity and cell differentiation activity, suggesting anticancer properties. Also, high calcemic activity may be harnessed for the treatment of bone diseases where less frequent doses are desired.
The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing vitamin D analogs that are 10 times more potent than the native hormone and may be useful against cancer and bone diseases.

Application area

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

Advantages

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

Institution

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