Vitamin D Analog "Me-Cvit" Potentially Useful to Inhibit Hypercalcemia, Treat Cancer

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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 non-calcemic compounds that provide desirable therapeutic effects without causing dose-limiting hypercalcemia. UW–Madison researchers have developed a novel vitamin D analog, 1α,25-dihydroxy-6-methylvitamin D_3, also known as Me-Cvit. This compound binds the vitamin D receptor with the same affinity as the native hormone but shows much less potency for other biological activities, including promotion of calcium transport. It could act as a dominant negative and be useful as an antidote for vitamin D intoxication to help treat hypercalcemia caused by a vitamin D analog. In addition, because Me-Cvit shows some cellular differentiation activity and ability to promote transcription of 24-hydroxylase but does not promote intestinal calcium transport, it may be useful as an anticancer agent, particularly for leukemia, colon cancer, breast cancer, skin cancer or prostate cancer.
The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a vitamin D analog that potentially may be used to inhibit the development of hypercalcemia or as a chemotherapeutic agent.

Application area

An antidote for vitamin D intoxication to treat hypercalcemia caused by administration of a vitamin D compound
Cancer treatment

Advantages

May actin vivoas an antagonist for vitamin D
Less likely to cause dose-limiting hypercalcemia than calcitriol

May be administered in a variety of forms

Institution

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