Vitamin D Analog "CPA-1" for Treating and Preventing Deadliest Cancers

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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, N-cycloporpyl-(20R)-2-methylene-19,26,27-trinor-25-aza-1a-hydroxyvitamin D_3, also known as CPA-1. This compound binds to vitamin D receptors with high affinity, shows some cell-type selectivity, and is almost as potent as the native hormone in causing cellular differentiation. It also is less active than calcitriol in raising tissue calcium levels. It potentially may be developed into a useful anticancer agent.
The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a vitamin D analog known as CPA-1 that is potentially useful against leukemia, colon, breast, skin and prostate cancers.

Application area

Cancer treatment and prevention, particularly for leukemia, colon, breast and prostate cancer

Advantages

Significant receptor binding, transcription and cellular differentiation activity
Less likely to cause dose-limiting hypercalcemia than calcitriol
Can be administered in many forms

Institution

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