Immunomodulatory effects of vitamin D receptor ligands in autoimmune diseases.

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Source
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Abstract
The active form of vitamin D, 1,25-Dihydroxyvitamin D3 [1,25(OH)2D3], is a secosteroid hormone that binds to the vitamin D receptor (VDR), a member of the superfamily of nuclear receptors for steroid hormones, thyroid hormone, and retinoic acid. VDR ligands regulate calcium and bone metabolism, control cell proliferation and differentiation, and exert immunoregulatory activities. The immunoregulatory properties of VDR ligands are currently exploited clinically for the topical treatment of psoriasis, a Th1 cell-mediated autoimmune disease of the skin, but recent advances in understanding their functions and novel insights into the immunomodulatory mechanisms they control suggest a wider applicability in the treatment of autoimmune diseases. In addition to direct effects on T cell activation, VDR ligands modulate with different mechanisms the phenotype and function of antigen-presenting cells (APCs), and, in particular, of dendritic cells (DCs). In vitro and in vivo experiments have shown that VDR ligands induce DCs to acquire tolerogenic properties that favor the induction of regulatory rather than effector T cells. These intriguing actions of VDR ligands have been demonstrated in several experimental models and could be exploited, in principle, to treat a variety of human autoimmune diseases.

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