

Vitamin D and Vitamin D Analogs or Derivatives as New Anti-hypertensive Agents

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Technology description

Description

The renin-angiotensin system is involved in blood pressure, electrolyte and volume homeostasis. Inappropriate activation of the renin-angiotensin system may lead to infarction, congestive heart failure, progressive atherosclerosis and renal failure. Renin is a rate-limiting component of the renin-angiotensin system. Renin cleaves angiotensin I from angiotensinogen, which is then converted to angiotensin II by angiotensin-converting enzyme. Angiotensin II, through binding to its receptors, exerts diverse actions that affect the electrolyte, volume, and blood pressure. Inappropriate stimulation of the renin-angiotensin system has been associated with hypertension, heart attack and stroke. Vitamin D is a negative regulator of renin expression in vivo. Increases in serum vitamin D levels lead to suppression of renin expression. Vitamin D is an endocrine suppressor for renin biosynthesis. Vitamin D analogues with less calcemic effect and higher potency than Vitamin D can be used for suppressing renin biosynthesis and regulating blood pressure.

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