

## **Modulation of Mevalonate-Independent Isoprenoid Biosynthetic Pathway**

### **Inventors:**

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### **Applications:**

Infection, Drug Discovery, Natural Products, Agriculture, Plant Biology  
Templates for the design of novel antibacterial and antiparasitic drugs

The invention provides the three dimensional structure of the enzyme 4-diphosphocytidyl-2-C-methylerythritol (CDP-ME) synthase, a member of the cytidyltransferase family of enzymes. CDP-ME is a critical intermediate in the mevalonate-independent pathway for isoprenoid biosynthesis in a number of prokaryotic organisms, in algae, in the plastids of plants and in the malaria parasite. Since vertebrates synthesize isoprenoid precursors using a mevalonate pathway, CDP-ME synthase and other enzymes of the mevalonate-independent pathway for isoprenoid production represent attractive targets for the structure-based design of selective antibacterial, herbicidal and antimalarial drugs. The invention provides methods for screening for compounds that inhibit enzymes of the mevalonate-independent pathway and pharmaceutical compositions and antibacterial formulations thereof. Further provided are methods of inhibiting the enzymes of the pathway and bacterial terpenoid synthesis and methods for treating a subject suffering from a bacterial infection.

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### **References:**

Nat Struct Biol 2001 Jul; 8(7):641-8  
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U.S. Application pending

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