

Isoprenoid biosynthesis

Sections/problems listed with an asterisk (*) do not discuss the exact reaction indicated, but do discuss a closely related reaction.

Synthesis of isopentenyl diphosphate building blocks

Mevalonate pathway

- Acetoacetyl CoA acetyltransferase (EC 2.3.1.9) [Section 13.4A](#)
- 3-hydroxy-3-methylglutaryl-CoA synthase (EC 2.3.3.10) [P13.1](#)
- HMG-CoA reductase (EC 1.1.1.34) [Section 16.4D](#)
- Mevalonate kinase (EC 2.7.1.36) [Section 10.2C](#)
- Phosphomevalonate kinase (EC 2.7.4.2) [Section 10.2C](#)
- Mevalonate diphosphate decarboxylase (EC 4.1.1.33) [Section 14.3B](#)

Deoxyxylulose phosphate pathway (bacteria, plant plastids)

- Deoxyxylulose phosphate synthase (EC 2.2.1.7) [Section 14.5*](#); [P14.5b](#)
- Deoxyxylulose phosphate reductoisomerase (EC 1.1.1.267) [P15.16](#)
- MEP cytidyltransferase (EC 2.7.7.60) [Section 10.2E](#)
- CDP-ME kinase (EC 2.7.1.148) [Section 10.2E](#)
- Methylerythritol 2,4-cyclodiphosphate synthase (EC 4.6.1.12) [Section 10.2E](#)

Chain elongation and prenyl transfer

- Isopentenyl diphosphate isomerase (EC 5.3.3.2) [Section 15.3A](#)
- Geranyl diphosphate synthase (EC 2.5.1.1) [Section 15.3B](#)
- Farnesyl diphosphate synthase (EC 2.5.1.10) [Section 15.3B](#)
- Squalene synthase ([EC 2.5.1.21](#)) [Section 15.9](#), [Section 16.6A](#)
- Oxidosqualene cyclase ([EC 5.4.99.7](#)) [Section 15.7B](#)
- DMAPP-tryptophan synthase ([EC 2.5.1.34](#)) [Section 15.5B](#)
- protein prenyltransferase ([EC 2.5.1.58](#)) [Section 9.3](#)

Organic Chemistry With a Biological Emphasis by [Tim Soderberg](#) (University of Minnesota, Morris)

This page titled [Isoprenoid biosynthesis](#) is shared under a [CC BY-NC-SA 4.0](#) license and was authored, remixed, and/or curated by [source content](#) that was edited to the style and standards of the LibreTexts platform.

This page titled [Isoprenoid biosynthesis](#) is shared under a [CC BY-NC-SA 4.0](#) license and was authored, remixed, and/or curated by [Tim Soderberg](#) via [source content](#) that was edited to the style and standards of the LibreTexts platform.