1-deoxy-D-xylulose-5-phosphate synthase (DXS) as a Target for Antimalarial Drugs

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Isopentenyl pyrophosphate (IPP) and dimethylallyl pyrophosphate (DMAPP) are the precursor for isoprenoids, which is the largest family of biological active compounds comprises of ubiquiniones, sterols, chlorophyll, etc. Mevalonate pathway (MVA) was considered as the sole source of IPP and DMAPP for many years, and recently it has been discovered that MVA exist only in eukaryotes, archae, and few eubacteria. While an alternate pathway exists in many eubacteria, green algae, protozoa, and plants. This mevalonate-independent pathway or Non-mevalonate pathway (NMVA) is considered as a target for the development of novel antibacterial, herbicides and anti-malarial because of the nonexistent of this pathway in higher organisms. In this report the first rate determining enzyme 1-deoxy-D-xylulose-5-phosphate synthase (DXS) of NMVA pathway from *Plasmodium vivax* has been explored and it's implication in the development of novel antimalarial has been studied.