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(54) Title: SYNTHESIS OF ENANTIOPURE CIS- α -IRONE FROM A RENEWABLE CARBON SOURCE

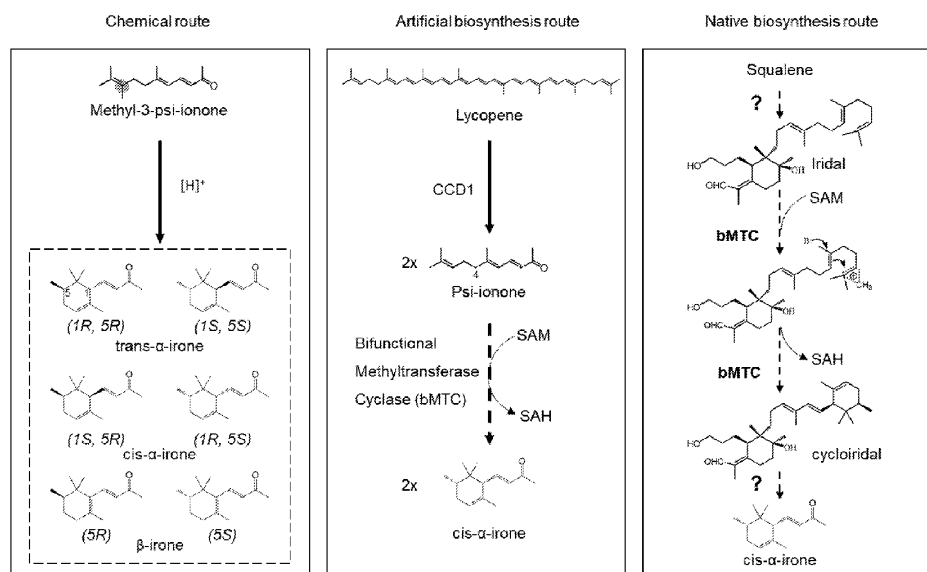


Figure 1

(57) Abstract: Synthesis of enantiopure cis- α -irone from a renewable carbon source Disclosed herein are natural and synthetic enzymes capable of performing a method of producing cis- α -irone. The method comprises providing an enzyme capable of converting psi-ionone to cis- α -irone; and contacting the enzyme and psi-ionone under suitable conditions to produce cis- α -irone. The enzyme may be a methyltransferase from Streptomyces albireticuli (SaMT), a promiscuous bifunctional methyltransferase / cyclase (pMT1) enzyme from Streptomyces, or a modified pMT1 enzyme with at least one substitution. The enzymes allow the in-vivo and in-vitro production of cis- α -irone including the use of glucose as feedstock for the biotransformation into cis- α -irone.

[Continued on next page]

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