

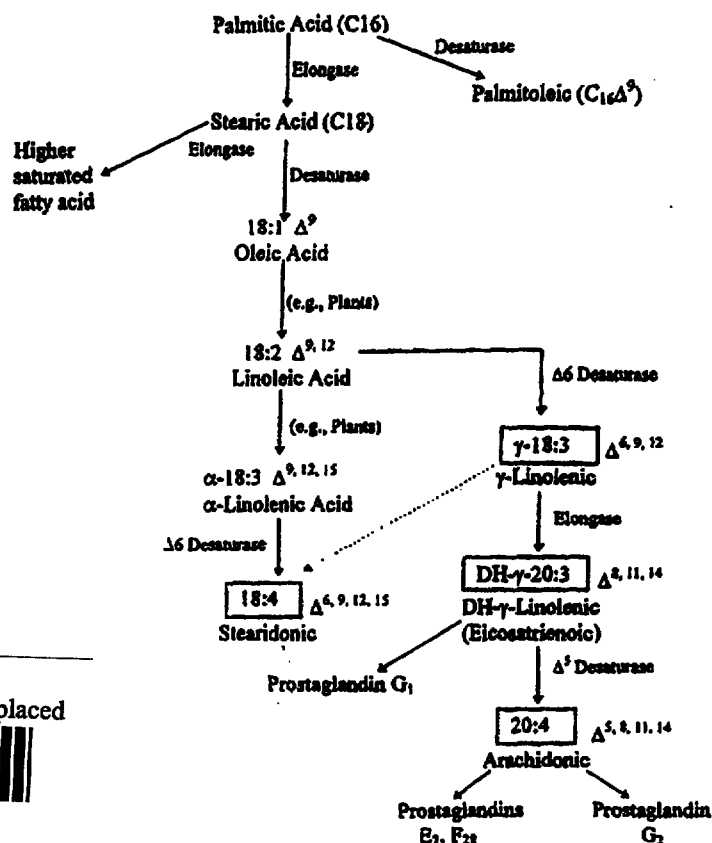


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(54) Title: METHODS AND COMPOSITIONS FOR SYNTHESIS OF LONG CHAIN POLYUNSATURATED FATTY ACIDS**(57) Abstract**

The present invention relates to a fatty acid $\Delta 5$ -desaturase able to catalyze the conversion of dihomogamma-linolenic acid to arachidonic acid. Nucleic acid sequences encoding $\Delta 5$ -desaturase, nucleic acid sequences which hybridize thereto, DNA constructs comprising a $\Delta 5$ -desaturase gene, and recombinant host microorganism or animal expressing increased levels of a $\Delta 5$ -desaturase are described. Methods for desaturating a fatty acid at the $\Delta 5$ position and for producing arachidonic acid by expressing increased levels of a $\Delta 5$ -desaturase are disclosed. Fatty acids, and oils containing them, which have been desaturated by a $\Delta 5$ -desaturase produced by recombinant host microorganisms or animals are provided. Pharmaceutical compositions, infant formulas or dietary supplements containing fatty acids which have been desaturated by a $\Delta 5$ -desaturase produced by a recombinant host microorganism or animal also are described.



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