

## Genetic engineering of Gamma Linolenic Acid (GLA): A pharmaceutically important fatty acid

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Recent advances in plant molecular biology have facilitated the introduction of novel traits into a range of plant species. It is now possible to modify the fatty acid composition of oilseeds, which opens up the possibility of improving the nutritional qualities of plant oils. Over 300 different types of fatty acids have been reported in plants, a number of which are of interest as targets for exploitation (Loo et al., 1993). One such fatty acid is the Gamma Linolenic Acid (GLA; 18:3 (-6,9,12), which is used as a general health supplement and is also a registered pharmaceutical used for the treatment of conditions such as eczema and mastalgia (Horrobin, 1990). GLA is synthesized by a Delta-6-fatty

acid desaturase gene using linoleic acid (C18: 2 D9, 12) as a substrate. The fatty acid composition of an oilseed determines its end use and therefore its commercial value. Value can be added to certain crop species by manipulations which would allow production of rare and valuable oils. Gamma-Linolenic acid (GLA; C18: 3 D6, 9, 12) is a component of the seed oils of evening primrose (*Oenothera spp.*), black current (*Ribes nigrum*), borage (*Borago officinalis* L.), and some other plants. Genetic engineering also provides novel opportunities for the production of pharmaceutical fatty acids such as gamma linolenic acid which is important for human health and nutrition.