

Purification and Characterization of Plant Fatty acyl-CoA Reductases.

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Very long chain primary alcohols and aldehydes are significant components in the formation of cuticle waxes of plants. Fatty acyl-CoA reductases (FARs) catalyse the formation of fatty aldehydes and/or alcohols from acyl-CoAs. The formation of alcohol is a two step reaction with aldehyde as an intermediate product. In plants it is generally believed that a single acyl-CoA reductase (alcohol-forming FAR) of 55-68 kDa perform both steps without releasing a free fatty aldehyde intermediate. The *Arabidopsis thaliana* genome contains eight genes belonging to the same FAR family of which two have been assigned to certain functions. FAR2/MS2 yield fatty alcohols needed for proper pollen development (Aarts et. al. 1997) whereas FAR3/CER4 yields fatty alcohols for cuticular wax biosynthesis (Rowland et. al. 2006). Other members of the family have been studied in our laboratory via heterologous expression in *E. coli* (Doan et. al. 2008). The functional characterisation of purified plant FARs will be presented and implications for *in planta* fatty alcohol production and wax-ester biosynthesis discussed.