

# Nutritionally triggered alterations in the regiospecificity of arachidonic acid oxygenation by rat liver microsomal cytochrome P450

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Cytochrome P450-dependent oxidation of arachidonic acid was studied in liver microsomes from normal fed, protein-energy malnourished, and refed rats. The overall rate of arachidonic acid oxidation was very similar in microsomes from the three groups, but microsomes from malnourished rats showed a higher turnover rate than microsomes from normal fed and refed rats. The regiospecificity of cytochrome P450 oxidation of arachidonic acid was drastically altered by the animal nutritional status. Thus, protein-energy malnutrition results in a clear stimulation of total  $\omega$  and  $\omega$ -1 hydroxylation, concomitant with a marked decrease in olefin epoxidation and allylic oxidations. These changes, as well as the documented biological activity of some of the cytochrome P450 arachidonate metabolites, suggest that protein-energy deficiency might help to select P450 isozymes which are probably involved in key monooxygenation reactions of physiological substrates. © 1989.