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## **Choline deprivation: an overview of the major hepatic metabolic response pathways.**

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### **Abstract**

Choline (Ch) is an important nutrient that is involved in many physiological functions. Deprivation of Ch (CD) may lead to hepatocellular modifications and/or even hepatic tumorigenesis and it can be a frequent problem in clinical settings; it can accompany various common pathological (alcoholism and malnutrition) or physiological states (pregnancy and lactation). The aim of this review is to provide an up-to-date overview of the major metabolic pathways involved in the hepatic response toward the experimentally or clinically induced CD, and to shed more light on the implicated (and probably interrelated) mechanisms responsible for the observed hepatocellular modifications and/or carcinogenesis.

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