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PaperTitle # Implications,Mechanisma and Risk Analyses of the Fumonisins:A Naturally Fungal Contaminant in Maize

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ABSTRACT

The fumonisin B (FB) mycotoxins are natural contaminants of maize, causing a variety of diseases in animals, such as leukoencephalomalacia in horses, pulmonary edema in pigs, and kidney cancer in rats, liver cancer in mice and rats and neural tube defects in mice. Oxidative damage and the disruption of lipid biosynthesis, with the subsequent alteration of arachidonic acid and ceramide levels, are key determinants in the alteration of growth regulatory responses associated with cancer initiation and promotion in the liver. Studies in normal and liver cancer cell cultures showed that differences exist in the disruption of lipid metabolism, which could be important in the selective outgrowth of cancer cells effected by the fumonisins. These data provide important information on developing chemopreventive strategies for the dietary modulation of the FB1-induced altered growth responses. An integrated approach, whereby various aspects regarding the diverse toxicological effects, level of exposure in humans and the relevant mechanisms involved, need to be considered in establishing realistic risk assessment parameters for the fumonisins in humans.

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