Hepatic Metabolism of Licochalcone A, a chalcone from licorice (*Glycyrrhiza inflata*)

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Licochalcone A (Fig. 1) is a chalcone natural product that has been isolated from roots of the licorice species, *Glycyrrhiza inflata*. It shows antimalarial, anticancer, antibacterial and antiviral (specifically against influenza neuraminidase) properties in vitro. Since little information is available concerning the human bioavailability and metabolism of licochalcone A, we carried out preclinical in vitro hepatic metabolism studies. Several Phase I metabolites of licochalcone A were observed and characterized using high resolution LC-MS/MS with accurate mass measurement. While testing for the formation of possible reactive metabolites using human liver microsomes, the cofactor NADPH and the biological nucleophile glutathione (GSH), several GSH conjugates were detected and characterized using UHPLC-MS/MS. These results indicate that licochalcone A not only can form GSH conjugates due to the reactivity of its alpha,beta-unsaturated ketone structure but also through the formation of electrophilic metabolites.

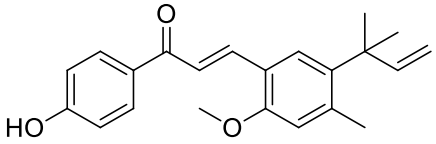

Figure 1. Licochalcone A