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Inhibition of CYP1a1 activity by COX-inhibitors in C57BL/6 mouse and Hepa I cells.

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In order to understand the mechanism of action of TCDD, we have examined the effect of COX-inhibitors on CYP1a1 activity. We observed the effect of COX-inhibitor on EROD activity in C57BL/6 mouse in vovo. And we also evaluated the effect of COX-inhibitors on both mouse cyp1a1 promoter activity in Hepa cell. There have been known two isoforms of COX enzyme. COX-1 is known as the housekeeping enzyme and COX-2 is inducible by inflammatory stimuli. NSAID such as aspirin and celecoxib, seems to inhibit reversibly COX. Aspirin is an non-selective COX inhibitor and celecoxib is an COX-2 specific inhibitor. When COX-inhibitor such as Aspirin and Celecoxib were pretreated with TCDD in vivo, the EROD activity that was stimulated by TCDD was inhibited. And Pretreatment of aspirin and celecoxib in vitro, inhibited the TCDD stimulated Luciferase activity. For the action of COX inhibitors such as aspirin and celecoxib on the Cyp1a1, it seems to be important to do pretreatment of these chemicals before TCDD. In this study, thus, we have suggested that COX-inhibitors such as aspirin and celecoxib, decrease the TCDD induced cyp1