**Structure, Function and Regulation of Carboxylesterase Isozymes which Catalyzes Metabolic Activation of Prodrugs**

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Mammalian carboxylesterases (CESs) are members of an a, b-hydrolase-fold family and are found in various. The expression of CES is ubiquitous, with high levels in the liver, small intestine, kidney, and lung. CES shows such a broad range of substrate specificity that they can be involved in detoxification or biotransformation of many kinds of drugs as well as endogenous fatty acid esters. It has been suggested that CESs can be classified into four major groups according to the homology of the amino acid sequence, and the majority of CESs that have been identified belong to the CES1 or CES2 family. It has also been shown that striking species differences exist. Since pharmacokinetic and pharmacological data of ester-prodrugs obtained from preclinical experiments using various animals are generally used as references for human studies, it is important to clarify the biochemical properties of each CES isozyme such as substrate specificity, tissue distribution and transcriptional regulation. Recent developments have included more detailed biochemical characterization of mammalian CES isozymes and genes, leading to a better understanding of the biochemical significance and physiological role of CESs. In the present symposium deals primarily with the characteristics and the molecular cloning of the individual, recently identified CES isozymes.