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Cytochrome P450 Enzymes in Drug Metabolism

Guest Editors:

Prof. Dr. Anderson R. M. De Oliveira
Departamento de Química, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto 14040-901, SP, Brazil

Dr. Natalia V. De Moraes
Center for Pharmacometrics and Systems Pharmacology, Department of Pharmaceutics, College of Pharmacy, University of Florida, Orlando, FL, USA

Deadline for manuscript submissions:
closed (31 March 2023)

Message from the Guest Editors

Dear Colleagues,

Pharmacokinetics comprises the dynamic processes of absorption, distribution, metabolism, and excretion. The metabolism of xenobiotics can occur in successive steps with the participation of several enzymes classically divided into phase I and phase II metabolism. Phase I metabolism comprises oxidation, reduction, and hydrolysis reactions mediated primarily by cytochrome P450 (CYP450) enzymes. These enzymes are predominantly found in the smooth endoplasmic reticulum of hepatocytes, although they may also be present in other tissues, such as the lung, kidney, gastrointestinal tract, nasal mucosa, skin and brain. Variability in drug metabolism can be explained by genetic variation, diseases, age-related functions and extrinsic factors resulting in drug-induced toxicity or even the failure in pharmacological treatment.

This special issue aims to bring together several aspects related to the metabolism of xenobiotics by CYP450 enzymes from in vitro, in vivo and modeling and simulation studies. Determination of enzymatic parameters, inhibition and phenotyping studies, pharmacokinetics and pharmacometrics approaches, such as PBPK modeling, are welcome.

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Prof. Dr. Amélia Pilar Rauter
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Pharmaceuticals Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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