Drug Metabolism in Regulatory Guidances, Clinical Trials, and Product Labeling

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1 INTRODUCTION

The role of the drug metabolism scientist has changed markedly over the past 20 years with our enhanced understanding of the enzymology of drug metabolism, the importance of drug metabolism in the efficacy and safety of drugs, and the increasingly interdisciplinary nature of the drug development process. Nowadays, the drug metabolism scientist will need to interact with many different disciplines within a pharmaceutical company. These disciplines include toxicology, pharmacology, formulations, chemistry, clinical, clinical pharmacology, regulatory affairs, marketing, medical affairs, competitive intelligence, and business development. Additionally, they may be responsible for representing the multiple subdisciplines (e.g. bioanalytical, *in vitro* metabolism, *in vivo* metabolism, transporters, and pharmacokinetics) that contribute to the understanding of the absorption, distribution, metabolism, and elimination (ADME) properties of a drug. Therefore, the drug metabolism scientist need not only be an expert in drug metabolism and its related disciplines, but also be a generalist who understands the need of his or her customers, whether they be medicinal chemists, toxicologists, regulatory agencies, or clinicians. They will need to possess a basic understanding of how knowledge of the ADME properties of a drug can be used to efficiently and effectively develop a drug and the regulatory environment that pharmaceutical companies operate within.

The objective of this chapter is to give the reader a high-level overview of how drug metabolism contributes to the risk–benefit analysis of a novel pharmaceutical; the role of drug metabolism in *clinical trials* and the contribution of drug metabolism to the *product label*. Readers should not rely on this chapter as a definitive source of information. They should read the relevant source information for themselves and come to their own conclusions regarding the interpretation of a given regulatory guidance. A

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