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P450 is a group of diverse enzymes adapting to the oxidative metabolisms of various organic compounds. The new term "diversozyme" that well represents the characteristics of P450 has been proposed. P450 composes a large gene superfamily and more than 1,000 P450 genes have been identified in the genomes of a wide variety of organisms. The molecular and functional diversity of P450 enzymes is considered to support the biodiversity produced by interactions between living matter and a wide variety of relatively small organic molecules, as suggested by the following. P450s contribute to the production of compounds giving color and flavor to flowers and various other phytochemicals called plant secondary metabolites. A number of functional molecules, such as steroid hormones and related compounds, are produced and activated by means of P450-mediated oxidative reactions. In certain microorganisms, P450s are known to mediate key reactions necessary for assimilating highly stable organic molecules, such as lignin and aliphatic hydrocarbons, as carbon sources. The conversion of various toxic xenobiotics into non- or low-toxic derivatives, so-called drug metabolism, is the most well-known and thoroughly studied function of P450. This symposium is organized to discuss recent topics in the functional diversity of P450 and to understand the biological meaning of "diversozyme P450" as an essential support for the diversity of life established through the interaction between organisms and variety of relatively small organic molecules.