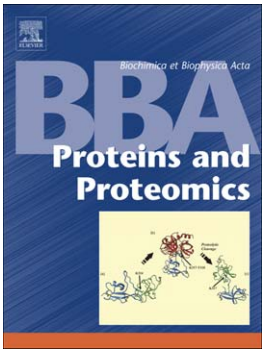

Use of bioconjugation with cytochrome P450 enzymes

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Use of Bioconjugation with Cytochrome P450 Enzymes

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Abstract: Bioconjugation, defined as chemical modification of biomolecules, is widely employed in biological and biophysical studies. It can expand functional diversity and enable applications ranging from biocatalysis, biosensing and even therapy. This review summarizes how chemical modifications of cytochrome P450 enzymes (P450s or CYPs) have contributed to improving our understanding of these enzymes. Genetic modifications of P450s have also proven very useful but are not covered in this review. Bioconjugation has served to gain structural information and investigate the mechanism of P450s via photoaffinity labeling, mechanism-based inhibition (MBI) and fluorescence studies. P450 surface acetylation and protein cross-linking have contributed to the investigation of protein complexes formation involving P450 and its redox partner or other P450 enzymes. Finally, covalent immobilization on polymer surfaces or electrodes has benefited the areas of biocatalysis and biosensor design.