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Sommario/riassunto

Genetic variations may change the structure and function of individual proteins as well as affect their interactions with other proteins and thereby impact metabolic processes dependent on protein-protein interactions. For example, cytochrome P450 proteins, which metabolize a vast array of drugs, steroids and other xenobiotics, are dependent on interactions with redox and allosteric partner proteins for their localization, stability, (catalytic) function and metabolic diversity (reactions). Genetic variations may impact such interactions by changing the splicing and/or amino acid sequence which in turn may impact protein topology, localization, post translational modifications and three dimensional structure. More generally, research on single gene defects and their role in disease, as well as recent large scale sequencing studies suggest that a large number of genetic variations may contribute to disease not only by affecting gene function or expression but also by modulating complex protein interaction networks. The aim of this research topic is to bring together researchers working in the area of drug, steroid and xenobiotic metabolism who are studying protein-protein interactions, to describe their recent advances in the field. We are aiming for a comprehensive analysis of the subject from different approaches including genetics, proteomics, transcriptomics, structural biology, biochemistry and pharmacology. Of particular interest are papers dealing with translational research describing the role of novel genetic variations

altering protein-protein interaction. Authors may submit original articles, reviews and opinion or hypothesis papers dealing with the role of protein-protein interactions in health and disease. Potential topics include, but are not limited to: • Role of protein-protein interactions in xenobiotic metabolism by cytochrome P450s and other drug metabolism enzymes. • Role of classical and novel interaction partners for cytochrome P450-dependent metabolism which may include interactions with redox partners, interactions with other P450 enzymes to form P450 dimers/multimers, P450-UGT interactions and proteins involved in posttranslational modification of P450s. • Effect of genetic variations (mutations and polymorphisms) on metabolism affected by protein-protein interactions. • Structural implications of mutations and polymorphisms on protein-protein interactions. • Functional characterization of protein-protein interactions. • Analysis of protein-protein interaction networks in health and disease. • Regulatory mechanisms governing metabolic processes based on protein-protein interactions. • Experimental approaches for identification of new protein-protein interactions including changes caused by mutations and polymorphisms.