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Genetic and Metabolism come in the Hot Spot

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Highlights from the current issue of the Journal of Drug Metabolism & Toxicology focus on different special issues involving important pathologies as nephropathies, neurodegenerative diseases and cancer.

In *Biotransformations & Toxicology*, Maso et al. [1] face the problem of sex-related differences in nephrotoxic substances. The authors find that sex hormones influence the renal oxidative metabolism, suggesting that a complex mechanism is involved for toxicity of xenobiotic substances.

In *Genetic Toxicology and Toxicogenomics*, it is tackled the problem of inactivation of estrogens and their metabolites by the UGTs enzymes. Starlard-Davenport et al. [2] demonstrated that UGT1A1 mRNA down-regulation was strongly correlated with postmenopausal status in breast cancer versus controls, suggesting that further analyses are necessary to better define the clinical implications.

In *Heavy Metal Drug Toxicology*, the review from Arroyo et al. [3] presents the current state of knowledge related to the cellular mechanisms of Cd toxicity in the liver from the molecular mechanisms to the effect on the physiology of the cells. In the second review from Neal and Guilarte, it is summarized the toxicokinetics of Pb2+and Mn, the neurotoxic mechanisms, and gives a general overview of heavy metals problems for public health. The research article form Lowry et al. [4] studied the effect of lead on Cytochromes P450 in a small number of children. The authors conclude that low blood lead levels have no effect on the CYP drug metabolizing enzymes. Further studies are needed to assess the effect from higher blood lead levels. Finally, Khargharia et al., [5] reported a study on disposition kinetics of amoxicillin in healthy as well as nephropathy black-Bengal goats. Authors suggested that the usage of amoxicillin should not be recommended in nephropathic condition as well as for consecutive long-term administration.

In *Mechanisms in Free Radical Metabolomics*, two reviews from Amin and Reed and Sellers [6,7] discuss the possibility to use free-radicals modulating agents and beyond with standard anti-cancer therapies in Alzheimer's disease and cancer.

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