SPECIAL ISSUE FOR ANTI CANCER AGENTS IN MEDICINAL CHEMISTRY

CYTOCHROME P450
FOR CANCER PREVENTION AND THERAPY

Guest Editor: Tai C. Chen

Aims & Scope:
Cytochrome P450 (CYP) represents one of the largest and oldest gene super families. The genes code for a wide array of enzymes responsible for highly diversified physiological functions in eukaryotic and prokaryotic organisms. They include the biotransformation of drugs (including those used for cancer treatment), the bioconversion of xenobiotics, the bioactivation of chemical precarcinogens, the biosynthesis and metabolism of steroid hormones (including the male and female hormones), fatty acids, eicosanoids, fat-soluble vitamins (including vitamin D) and bile acids. Therefore, CYP enzymes have three major roles in understanding the etiology, progression and treatment of cancers: (i) some CYPs can activate or inactivate dietary and environmental components to carcinogens or anti-tumor agents, (ii) certain CYPs can activate or inactivate drugs used for cancer treatment, and (iii) the sex steroid hormones are the key regulators of hormone-dependent cancers. Consequently, CYPs are the potential targets for cancer prevention and anticancer therapy. During the past decades vast information has become available regarding the crystal structure of CYPs, CYP enzyme-substrate interaction at the atomic level, the signaling pathways involved in CYP inhibitor action, and the design and synthesis of target-based CYP inhibitors and activators. In this hot topic series, we will focus on the recent advances in relation to the roles of CYP enzymes and their inhibitors in the progression, prevention and treatment of cancers, with particular emphasis on the endocrine related tumors.

Key words: cytochrome P450; cancer; steroids; estrogen; androgen; vitamin D; aromatase

Subtopics:
- Cytochrome P450 CYP1A1 in cancer progression and prevention
- Structure -based design of aromatase (cytochrome P450 19A1) inhibitors
- Non-steroidal aromatase inhibitors
- Signaling pathway in aromatase inhibitor action
- Cytochrome P450 19A1 inhibitors for breast cancer therapy
- Potent inhibitors of human cytochrome P450 3A4
- Design and synthesis of cytochrome P450 2J2 inhibitors
- Development of 17β-hydroxysteroid dehydrogenase for studying and treating estrogen-dependent diseases
- Targeting cytochrome P450 C17 for prostate cancer therapy
- CYP2R1: structure analysis, regulation and its implications in cancer prevention
- CYP24A1 as a target for cancer prevention and treatment

Schedule:
Manuscript submission deadline: May/2012
Peer Review Due: June/2012
Revision Due: August/2012
Notification of acceptance by the Guest Editor: September/2012
Final manuscripts due: October/2012