

**RELEVANT PUBLICATIONS BY CYP450-GP INVESTIGATORS**

- Lasker JM, Wester MR, Aramsombatdee E, Raucy JL. Characterization of CYP2C19 and CYP2C9 from human liver: respective roles in microsomal tolbutamide, S-mephenytoin, and omeprazole hydroxylations. *Arch Biochem Biophys* 353:16-28, 1998.
- Wester MR, Lasker JM, Johnson EF, Raucy JL: CYP2C19 participates in tolbutamide hydroxylation by human liver microsomes. *Drug Metab Dispos* 28:354-359, 2000.
- Hirani V, Raucy JL, Lasker JM: Conversion of the HIV protease inhibitor nelfinavir to a bioactive metabolite by human liver CYP2C19. *Drug Metab Dispos* 32:1462-1467, 2004.
- Hirani V, Yarovoy A, Kozeska A, Magnusson RP, Lasker JM: Expression of CYP4F2 in human liver and kidney: assessment using specific peptide antibodies. *Arch Biochem Biophys* 478: 59-68, 2008.
- Savas U, Machemer DE, Hsu MH, Gaynor P, Lasker JM, Tukey RH, Johnson EF: Opposing roles of peroxisome proliferator-activated receptor alpha and growth hormone in the regulation of CYP4A11 expression in a transgenic mouse model. *J Biol Chem* 284: 16541-16552, 2009.
- Hsu MH, Savas U, Lasker JM, Johnson EF: Genistein, resveratrol, and 5-aminoimidazole-4-carboxamide-1-beta-D-ribofuranoside induce cytochrome P450 4F2 expression through an AMP-activated protein kinase-dependent pathway. *J Pharmacol Exp Ther* 337:125-136, 2011.
- Fahmi OA, Raucy JL, Ponce E, Hassanali S, Lasker JM: The utility of DPX2 cells for predicting CYP3A induction-mediated drug-drug interactions and associated structure-activity relationships. *Drug Metab Dispos* 40:2204-2211, 2012.
- Raucy JL, Lasker JM: Cell-based systems to assess nuclear receptor activation and their use in drug development. *Drug Metab Rev* 45:101-109, 2013.
- Loretz C, Ho D, Lasker JM, Li AP: Effective inhibition of CYP3A4-dependent drug oxidation by anti-CYP3A4 antibodies in MetMax™ cryopreserved human hepatocytes. Presented at the 22nd North American ISSX Meeting, Montreal, Quebec, Canada; July, 2018
- Lasker JM: Use of specific inhibitory antibodies for CYP450 reaction phenotyping of investigational drugs. *FASEB J*, 34, S1:09611, 2020.
- Hirani V, Kozeska A, Yarovoy A, Nam E, Dhar M, Savas U, Magnusson RP, Lasker JM: The human CYP4A and CYP4F gene subfamilies: metabolic properties and tissue-specific expression of five predominant members. *Arch Biochem Biophys*, submitted, 2020.

**PUBLICATIONS FEATURING CYP450-GP REAGENTS**

- Goldstein JA, Faletto MB, Romkes-Sparks M, Sullivan T, Kitareewan S, Raucy JL, Lasker JM, Ghanayem BI. Evidence that CYP2C19 is the major (S)-mephenytoin 4'-hydroxylase in humans. *Biochemistry* 33:1743-52, 1994.
- Stearns RA, Charkravarty PK, Chen R, Chiu S-H: Biotransformation of losartan to its active carboxylic acid metabolite in human liver microsomes: role of cytochrome 2C and 3A subfamily members. *Drug Metab Dispos* 23:207-215, 1995.
- Machinist JM, Mayer MD, Shet MS, Ferrero JL, Rodrigues AD: Identification of the human liver cytochrome P450 enzymes involved in the metabolism of zileuton (ABT-077) and its N-dehydroxylated metabolite, Abbott-66193. *Drug Metab Dispos* 23:1163-1174, 1995.
- Rodrigues AD, Kukulka MJ, Roberts EL, Ouellet D, Rodgers TR: [*O*-methyl 14C]naproxen *O*-demethylase activity in human liver microsomes. Evidence for the involvement of cytochrome P4501A2 and P4502C9/10. *Drug Metab Dispos* 24:126-136, 1996.
- Karam W, Goldstein J, Lasker JM, Ghanayem B: Human CYP2C19 is a major omeprazole 5-hydroxylase, as demonstrated with recombinant cytochrome P450 enzymes. *Drug Metab Dispos* 24:1081-1087, 1996.
- Wang R, Liu L, Cheng H. Identification of human liver cytochrome P450 isoforms involved in the in vitro metabolism of cyclobenzaprine. *Drug Metab Dispos* 24:786-791, 1996.

- Feierman DE, Lasker JM. Metabolism of fentanyl, a synthetic opioid analgesic, by human liver microsomes. Role of CYP3A4. *Drug Metab Dispos* 24:932-939, 1996.
- Kumar G, Dubberke E, Rodrigues A, Roberts E, Dennisen J. Identification of cytochromes P450 involved in the human liver microsomal metabolism of the thromboxane A2 inhibitor seratrodast (ABT-001). *Drug Metab Dispos* 25:110-115, 1997.
- Wang RW, Lu AYH. Inhibitory anti-peptide antibody against human CYP3A4. *Drug Metab Dispos* 25:762-767, 1997.
- Wang RW, Newton DJ, Liu NY, Shou M, Rushmore T, Lu AYH. Inhibitory anti-CYP3A4 peptide antibody: mapping of inhibitory epitope and specificity toward other CYP3A isoforms. *Drug Metab Dispos* 27:167-172, 1999.
- Baker JR, Edwards RJ, Lasker JM, Moore MR, Satarug S: Renal and hepatic accumulation of cadmium and lead in the expression of CYP4F2 and CYP2E1. *Toxicol Lett* 159:182-91, 2005.
- Dhar M, Sepkovich D, Hirani V, Magnusson RP, Lasker JM: Omega oxidation of 3-hydroxy fatty acids by the human CYP4F subfamily enzyme CYP4F11. *J Lipid Res* 49:612-624, 2008.
- Savas U, Machemer DE, Hsu MH, Gaynor P, Lasker JM, Tukey RH, Johnson EF: Opposing roles of peroxisome proliferator-activated receptor alpha and growth hormone in the regulation of CYP4A11 expression in a transgenic mouse model. *J Biol Chem* 284: 16541-16552, 2009.
- Hsu MH, Savas U, Lasker JM, Johnson EF: Genistein, resveratrol, and 5-aminoimidazole-4-carboxamide-1-beta-D-ribofuranoside induce cytochrome P450 4F2 expression through an AMP-activated protein kinase-dependent pathway. *J Pharmacol Exp Ther* 337:125-136, 2011.
- Wang MZ, Saulter JY, Usuki E, Cheung Y-L, Hall M, Bridges AS, Loewen G, Parkinson OT, Stephens CE, Allen JL, Zeldin DC, Boykin DW, Tidwell RR, Parkinson A, Paine MF, Hall JE: CYP4F enzymes are the major enzymes in human liver microsomes that catalyze the O-demethylation of the antiparasitic prodrug DB289 [2,5-bis(4-amidinophenyl)furan-bis-O-methylamidoxime]. *Drug Metab Dispos* 34: 1985-1994, 2006.
- Wang MZ, Wu JQ, Bridges AS, Zeldin DC, Kornbluth S, Tidwell RD, Hall JE, Paine MF: Human enteric microsomal CYP4F enzymes O-demethylate the antiparasitic prodrug pafuramidine. *Drug Metab Dispos* 35:2067-2075; 2007.
- Jin Y, Zollinger M, Borell H, Zimmerlin A, Patten CJ: CYP4F enzymes are responsible for the elimination of fingolimod (FTY720), a novel treatment of relapsing multiple sclerosis. *Drug Metab Dispos* 39:191-8, 2011.
- Michaels S, Wang MZ: The revised human liver cytochrome P450 "Pie": absolute protein quantification of CYP4F and CYP3A enzymes using targeted quantitative proteomics. *Drug Metab Dispos* 42:1241-1251, 2014.
- Loretz C, Ho D, Lasker JM, Li AP: Effective inhibition of CYP3A4-dependent drug oxidation by anti-CYP3A4 antibodies in MetMax™ cryopreserved human hepatocytes. Presented at the 22nd North American ISSX Meeting, Montreal, Quebec, Canada; July, 2018
- Li J, Liu H, Mauer AS, Lucien F, Raiter A, Bandla H, Mounajjed T, Yin Z, Glaser KJ, Yin M, Malhi H: Characterization of cellular sources and circulating levels of extracellular vesicles in a dietary murine model of nonalcoholic steatohepatitis. *Hepatology Comm* 3:1235-1249, 2019
- Lasker JM: Use of specific inhibitory antibodies for CYP450 reaction phenotyping of investigational drugs. *FASEB J*, 34, S1:09611, 2020.
- Lasker JM, Loretz C, Ho D, Li AP: Use of specific inhibitory antibodies for P450 reaction phenotyping of investigational drugs in MetMax cryopreserved human hepatocytes. *Drug Metab Dispos*, submitted, 2021.

**NOTE:** The proprietary nature of certain drug development studies obviates a complete listing of pharmaceutical industry clients who have utilized CYP450-GP immunochemical reagents.

**INDUSTRY/AGENCY POSITION PAPERS**

Huang SM, Strong JM, Zhang L, Reynolds *et al* : New era in drug interaction evaluation: US Food and Drug Administration update on CYP enzymes, transporters, and the guidance process. *J Clin Pharmacol* 48:662-670, 2008.

Chu V *et al* : *In vitro* and *in vivo* induction of cytochrome P450: a survey of the current practices and recommendations: a Pharmaceutical Research and Manufacturers of America (PhRMA) Perspective. *Drug Metab Dispos* 1339-1354, 2009.

*In vitro* drug interaction studies — cytochrome P450 enzyme- and transporter-mediated drug interactions guidance for industry. US Department of Health and Human Services, Food and Drug Administration, Center for Drug Evaluation and Research (CDER), January 2020.