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JAK KINASE, STAT TRANSCRIPTION FACTORS, AND GROWTH HORMONE (GH) REGULATION OF SEX-DEPENDENT LIVER P450 GENE EXPRESSION. DJ Waxman, SILPark, PA Farm (Boston Univ., Boston MA and GH Univ., RP Towers, BG Snell, RJ Wilkins, HW Davis (AgResearch, Hamilton, New Zealand).

The cytochrome P-450 enzyme system exhibits oscillating behavior in the encoding these factors. These nuclear factors show regulation of sex-dependent liver P450 gene expression. The turnover numbers for a series of substrates lie in the same range as those observed in nature. The charge of the vesicle membrane has a specific pattern of liver P450 gene expression which decreases in going from negatively charged to zwitterionic vesicles. The structure of cytochrome P-450cam has suggested the presence of specific hydrogen bonds at the thiolate site. The structure of cytochrome P-450cam has been suggested the presence of weak double N...S hydrogen bonds between S of Cys 357 and two amide NHs. A remarkable effect on the electrochemical properties of NH...S hydrogen bond has already been revealed by us for various metal thiolate complexes. We synthesized novel P-450 iron(III) porphyrin model complexes having intramolecular NH...S hydrogen bonds. Doubly ortho-acylamino-substituted arenethioporphyrins, e.g. [Fe(II)(OEP)(S-2,6-(CONH)2C6H3)] (R = CF3, (I), OEP =octaethylporphyrin), were prepared from [Fe(II)(OEP)SPh] and the disulfide (S-2,6-(CONH)2C6H3)2. The molecular structure of I by X-ray analysis indicated intramolecular double NH...S hydrogen bonds. In the 1H NMR spectra in benzene-d6, the paramagnetically shifted aromatic proton signals appear in the range from -100 to 70 ppm. The deutrium-exchanged amide NH signal in 1H NMR of 1 was observed at -24.8 ppm due to the NH...S hydrogen bond formation.