chromes with various xenobiotics, the effects of phencyclidine (PCP) were examined. The formation of a reactive iminium ion from PCP, as well as the covalent binding of PCP metabolites to proteins and the inhibition of N-demethylase activity in the microsomal system by PCP have previously been reported by others (Hoag, M. K. P., A. J. Trevor, Y. Asscher, J. Weissman and N. Castagnoli. *Drug Metab Disp* **12:** 371–375, 1984. Ward, D. P., A. J. Trevor, A. Kalir, J. D. Adams, T. A. Baillie and N. Castagnoli. *ibid.* **10:** 690–695, 1982). We have found that PCP selectively inactivates P-450 form 2, the major phenobarbital-inducible isozyme from rabbit liver microsomes, in a reconstituted system containing NADPH-cytochrome P-450 reductase, phosphatidylcholine, and an NADPH-generating system. Aliquots were taken over time from this mixture, diluted 20-fold, and assayed for 7-ethoxycoumarin deethylase activity, Time-, NADPH-, and PCP concentration-dependent inhibition of deethylase activity were observed. The kinetics are indicative of a biphasic first order process with rate constants of 0.43 and 0.07 min^{-1} for the fast and slow phases, respectively. The iminium intermediate (kindly provided by Drs. Hoag, Trevor, and Castagnoli) also inactivated isozyme 2 at a similar rate, but was less selective, for it also inhibited constitutive cytochrome P-450, form 3b. PCP and the iminium ion had little or no effect on ethanol-inducible P-450 form 3a, 3-methylcholanthrene-inducible form 4, or tetrachlorodibenzo-*p*-dioxin-inducible form 6. PCP caused little or no change in P-450-mediated activities in intact microsomes, due mainly to the presence of P-450s other than form 2; furthermore, titration with anti-form 2 antibody of the residual microsomal activity after PCP treatment indicated that no other forms were affected. The loss of the Soret absorption band and of the ability to form the ferrous carbonyl complex and the pyridine hemochrome complex indicates modification of the heme moiety. Experiments are in progress with tritiated PCP to elucidate further the nature of its interaction with P-450 heme and apoprotein. (Supported by NIH grant DK-10339.)

MOLECULAR CRITERIA FOR AN IMMUNOLOGICAL MODEL OF THE PCP RECEPTOR. Owens, S. M., M. Zorbas, M. Gunnell, M. Polk and D. L. Lattin. Department of Pharmacology and Interdisciplinary Toxicology and Department of Biopharmaceutical Sciences, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

A series of antibodies against PCP derivatives were generated in rabbits to determine the molecular requirements for an immunological model of the PCP receptor. Three different antibodies were produced against the PCP molecule by immunization with haptens covalently bound to bovine serum albumin (BSA) off of the para position of each of the three ring structures of PCP (i.e., aromatic, cyclohexane and piperidine rings). A fourth antibody was produced by immunization with BSA coupled to the PCP metabolites, PCHAP (5-[N-(1'-phenylcyclohexyl)amino]pentanoic acid). The antigen for this fourth antibody was designed to produce antibodies that would be highly cross-reactive with the potent PCP analogue, PCE (N-ethyl-1-phenylcyclohexylamine). The cross-reactivity patterns of all four antibodies were then determined in a radioimmunoassay (RIA) format using ^{3}H-PCP and numerous PCP analogues. The relative potencies of these antibodies, determined from IC_{50} values, were then correlated with relative potency data from receptor binding studies (Quirion *et al.*, 1983) and from discriminative stimulus studies in the rat (Shannon, 1981). There was a significant correlation between the PCHAP RIA data and the receptor binding data ($r=0.89$; $p<0.005$), and between the PCHAP RIA data and the discriminative stimulus data ($r=0.89$; $p<0.005$). Since none of the other antibodies showed any correlation with the relative potency data from receptor binding or behavioral studies, the PCHAP antibody appears to be the best immunological model for the PCP receptor. In related studies, the antigens used for the production of the antibodies were used as ligands in a ^{3}H-PCP neuroreceptor binding assay. The PCHAP antigen was found to be the most potent antigen for inhibition of ^{3}H-PCP binding. These studies represent preliminary evidence that an immunological model can be developed for the PCP neuroligand binding site. (Supported by NIDA grant DA 04136 and NIDA Research Scientist Development Award (S.M.O.) KO2 DA00110.)

EFFECTS OF PHENCYCLIDINE HYDROCHLORIDE ON NEUROENDOCRINE FUNCTION IN THE RAT. Pechnick,* R. N., R. George* and R. E. Poland.† *Department of Pharmacology, U.C.L.A. School of Medicine, Los Angeles, CA 90024; and †Division of Biological Psychiatry, Harbor-U.C.L.A. Medical Center, Torrance, CA 90502.

Phencyclidine (PCP) is a widely used drug of abuse; however, little is known of the effects of PCP on neuroendocrine function. We have previously reported that the acute administration of PCP produced increased serum levels of corticosterone in the rat (*Life Sci* **38:** 291–296, 1986), but it is not known whether this effect is due to a direct effect on the adrenal or is mediated via increased release of adrenocorticotrophin (ACTH) from the pituitary. The purpose of the present study was to determine the effects of the acute administration of PCP on the release of ACTH, and in addition, luteinizing hormone (LH) in the rat. Male rats were injected SC with saline or varying doses of PCP, and trunk blood was obtained at 15, 30, 60, 120, and 180 min after injection. Plasma levels of ACTH and LH were measured by radioimmunoassay. PCP increased plasma levels of ACTH 15 min after administration, and ACTH levels remained significantly elevated 180 min after injection with the higher doses. In contrast, PCP decreased serum levels of LH; however, this effect was not observed until 180 min after injection. These findings indicate that PCP is a potent releaser of ACTH but inhibits the release of LH in the rat. (Supported by NIDA grant DA-04113.)

EVIDENCE FROM 2-DG AUTORADIOGRAPHY THAT PHENCYCLIDINE'S FUNCTIONAL EFFECTS ARE MEDIATED BY SPECIFIC PCP RATHER THAN SIGMA RECEPTORS. Piercey, M. F., C. Ray and G. D. Vogelsang. CNS Research, The Upjohn Company, Kalamazoo, MI 49001.

Sokoloff's 2-deoxyglucose (2-DG) autoradiographic technique (*J Neurochem* **28:** 897, 1977) was used to identify neural structures underlying the behavioral effects of phencyclidine (PCP) and to compare the distribution of PCP's