Polychlorinated Biphenyls Induce Enzyme Production

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NEW YORK — Topically applied polychlorinated biphenyls induce production of the enzyme aryl hydrocarbon hydroxylase in both skin and liver, Dr. D. R. Bickers reported at the annual meeting of the Society for Investigative Dermatology.

Polychlorinated biphenyls (PCB) are carcinogens which are widely distributed as environmental pollutants.

They are found in human tissues and are potent inducers of the hepatic mixed function oxidase system that metabolizes drugs and polycyclic hydrocarbons, said Dr. Bickers, of New York University School of Medicine and The Rockefeller University, New York.

There was a twelve-fold increase in aryl hydrocarbon hydroxylase (AHH) in the treated nuchal skin of rats and a ten-fold increase in their liver AHH levels. Untreated dorsal skin of the same animals



Dr. Bickers

showed a much lower level of AHH induction (about three-fold), he reported.

The polychlorinated biphenyl AROCLOR 1254 was applied to shaved nuchal skin of rats on three successive days. After the animals were killed, skin from both the treated and untreated area and liver tissue were analyzed.

Cytochrome P-450 was found in the treated skin of these animals.

The P-450 is the terminal oxidase of the hepatic mixed function oxidase system that metabolizes drugs and polycyclic hydrocarbons. It has an absorption peak at 450 nm on the carbon monoxide difference spectrum.

Dr. Bickers' associates in this study were Drs. L. C. Harber and A. Kappas and A. P. Alvares, Ph.D.

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