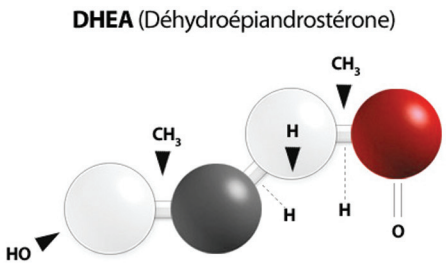

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Professor
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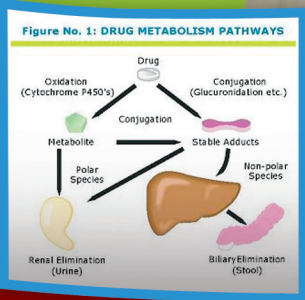

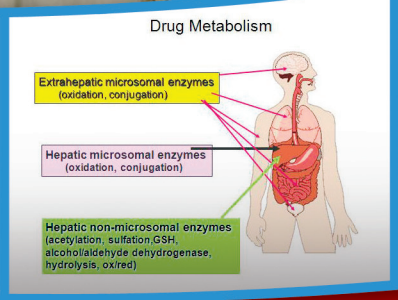

My research program focuses on how genes that encode foreign compound metabolizing enzymes are regulated at the molecular level. The studies focus on metabolism of aldehydic products of volatile organic compounds, sterols, and polychlorinated hydrocarbons. Specifically, we are addressing the regulation of these genes through action of nuclear receptors such as AhR, CAR, PXR, LXR, and FXR, as well as other transcription factors such as Nrf2 and AP-1. Many aldehyde metabolizing enzymes are regulated through action of the reactive processes of the aldehydes themselves on nuclear receptors, serving as electrophilic metabolites. The studies continue with our ongoing collaboration with Aruni Bhatnagar, Daniel Conklin, and Sanjay Srivastava in Cardiology, Department of Medicine. Currently, I am working with Matthew Cave in the Division of Gastroenterology looking at how PCBs alter intermediary metabolism through the nuclear receptors that utilize bile acids as ligands (PXR, LXR, FXR). The work over the past 30 years allows my program to assess effects of obesity on the expression and regulation of genes encoding foreign compound metabolizing enzymes. A third study is focused upon a new human gene of the 11β-hydroxysteroid dehydrogenases that Boaz Robinzon, Hebrew University, Jerusalem, and I discovered in human liver nuclei and microsomes that catalyzes the oxidation of glucocortoids by NADP+. This gene is not expressed in rodents. We are expressing the gene product in E. coli and characterizing its biochemical properties related to organell localization in the human hepatocyte and its substrate specificity. We are also studying its expression during the obese state, in collaboration with Stephen Winters, M.D., Division of Endocrinology, Department of Medicine.

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P.I. on "Summer Environmental Health Sciences Training Program", National Institutes of Environmental Health Sciences. 1 T35 ES 014559-01, 04/01/11-03/30/16, TDC $163,640

Mentor on "Summer Endocrinology Research Training Program" National Institutes of Diabetes and Digestive Diseases and Kidney, 1 T35 DK072923-01, C.M. Klinge (P.I.), 05/01/11-04/30/16; TDC $143,635

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Makia, N.L., Bojang, P.., Falkner, K.C., Conklin, D.J. and Prough, R.A. (2011) Murine hepatic aldehyde dehydrogenase 1a1 is a major contributor to oxidation of aldehydes formed by lipid peroxidation. Chemico-biological Interactions, 191, 278-287. [PMID: 21256123; PMCID: Pending]

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