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PERTURBATIONS OF REPRODUCTIVE AND DEVELOPMENTAL PROCESSES BY
CHLORINATED AND NON-CHLORINATED ORGANICS.

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This program is exploring the underlying mechanics of xenobiotic/endocrine interactions and their effects to better understand the implications of perturbations of reproductive and developmental processes by hazardous substances in the environment. There are nine BU SBRP projects, organized into two blocks: I. Epidemiological studies and methods (2 Projects)- Exposure in drinking water to perchloroethylene (a peroxisome proliferator) on reproduction and development (2 projects); II. Mechanisms (7 Projects) -The role of intracellular receptors (AhR and PPAR) for important xenobiotics (PHAHs and peroxisome proliferators) in development (2 projects); -Toxicity and resistance of fish populations to PHAHs and xenoestrogens involving receptors (AhRs and ERs) and cytochrome P450s (3 projects); -Reproductive and developmental effects observed in wildlife (including those mediated by receptors such as AhR and ER) exposed to a complex mixture from a Superfund site (1 project); -Oxidative dechlorination by an abiotic non-Heme iron catalyst for remediation of chlorinated ethylenes (studied in four projects). The use of chlorinated ethylenes as a probe to study the oxidative mechanism of this biomimetic catalyst will also shed light on metabolism of these compounds by P450s (1 project). The mechanistic work is centered on transcription factors, their binding, signal transduction and cross-talk. Compounds representing important classes of xenobiotics are the models and probes for this mechanistic work. The epidemiological work explores reproductive and developmental effects of some of the same compounds, while the work on wildlife ecology looks at effects on the reproductive system of animals exposed to contaminated plumes from a superfund site.