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New Scientific Data Review by Science Partners Concludes Current Exposure Levels of Chlorpyrifos Should Not Adversely Impact Human Development

New York, September 8, 2008 -- A recent review of thousands of available studies and toxicological and epidemiological data found no support for a causal connection between current levels of chlorpyrifos exposure and adverse human development. Chlorpyrifos is one of the most widely used insecticides in the world. "Review of Toxicology of Chlorpyrifos with an Emphasis on Human Exposure and Neurodevelopment" was co-authored by an international panel of 13 eminent medical scientists commissioned by Science Partners LLC and was published as a supplement to the September Issue of *Critical Reviews in Toxicology*.

The 13 authors of the review have extensive expertise in all relevant disciplines including pediatric neurology, teratology, epidemiology, toxicology, neurotoxicology and child psychiatry. They performed a comprehensive and rigorous analysis of all relevant scientific and medical studies related to chlorpyrifos and the plausibility of the insecticide causing adverse effects in humans. A total of 10,136 published citations were obtained and examined from peer-reviewed journals from numerous scientific databases spanning more than 40 years. Researchers also had access to 6,593 private, unpublished documents, studies and assessments provided by Dow AgroSciences, a manufacturer of chlorpyrifos, and sponsor of the study.

David L. Eaton, PhD., University of Washington, Environmental and Occupational Health Sciences, one of the lead authors of the review, noted, "Past estimates of chlorpyrifos exposures that relied on measurements of chlorpyrifos metabolites in urine appear to have overestimated actual exposures by a factor of 10- to 20-fold."

The review also concluded that current exposure to chlorpyrifos from dietary sources is estimated to be substantially below acceptable levels established by the U.S. Environmental Protection Agency.

Further conclusions show that studies in experimental animals, performed using doses substantially greater than the estimated trace doses that consumers might encounter, have not identified significant developmental effects in female rats and mice.

Eaton also noted, "While some studies of human populations have reported statistical associations between chlorpyrifos and some measures of health at birth, such as birth weight, compelling evidence of a cause-and-effect relationship in Western populations is lacking." Researchers pointed out that reliable studies of populations in low-income countries, where exposures to chlorpyrifos combine with other potential health stressors, have not been performed.

The experts additionally determined that on the basis of available data, it is unlikely that current exposure to chlorpyrifos alters brain development.

Commenting on the report, Jeremy Griffiths of Science Partners said, “The scientists brought together for this study are some of the most respected physicians, medical scientists, toxicologist and epidemiologists in the world. They spent more than 6 months reviewing information from scientific databases from around the world. The scope of this comprehensive review was far reaching and even included Chinese biomedicine studies that were translated for review. We believe the conclusions reached should be regarded as authoritative”

Griffiths also noted that Science Partners structure and operating procedures provides maximum objectivity and independence in its reviews. “We maintain full control over the acceptance and execution of assignments and our commissioned experts have no contact or interaction with clients in the analysis of data and formulations of their opinions and conclusions. We also ensure that Science Partners has the right to publish its findings regardless of conclusions reached.”

The scientific review team included the following members in addition to David L. Eaton:

- Robert B. Daroff, M.D., Case Western Reserve University, Neurology, USA;
- Herman Autrup, Ph.D., University of Aarhus, Environmental and Occupational Medicine, Denmark;
- James Bridges, Ph.D., D.Sc., University of Surrey, Toxicology and Metabolism, UK;
- Patricia Buffler, Ph.D., University of California-Berkeley, Epidemiology, USA;
- Lucio G. Costa, Ph.D., University of Washington, Environmental and Occupational Health Sciences, USA;
- Joseph Coyle, M.D., Harvard Medical School, Psychiatry and Neuroscience, USA;
- Guy McKhann, M.D., The Johns Hopkins University Medical School, Neurology and Neuroscience, USA;
- William C. Mobley, M.D., Ph.D., Stanford University, Neuroscience, USA;
- Lynn Nadel, Ph.D., University of Arizona, Psychiatry, USA;
- Diether Neubert, M.D., Charité Berlin Campus Franklin Benjamin, Clinical Pharmacology and Toxicology, Germany;
- Rolf Schulte-Herman, Ph.D., M.D., Medical University of Vienna, Toxicology, Austria; and,
- Peter S. Spencer, Ph.D., F.R.C. Path., Oregon Health & Science University, Center for Research on Occupational and Environmental Toxicology, USA.

The full report can be accessed at www.informaworld.com/10.1080/10408440802272158.

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About *Critical Reviews in Toxicology*

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