

Greenlist Bulletin

From the Toxics Use Reduction Institute
at the University of Massachusetts Lowell

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This is the weekly bulletin of the TURI Library at the University of Massachusetts Lowell. Greenlist Bulletin provides previews of recent publications and websites relevant to reducing the use of toxic chemicals by industries, businesses, communities, individuals and government. You are welcome to send a message to mary@turi.org if you would like more information on any of the articles listed here, or if this email is not displaying properly.



Low-dose food contaminants trigger sex-specific, hepatic metabolic changes in the progeny of obese mice

[Source: *The Journal of the Federation of American Societies for Experimental Biology*, June 11, 2013](#)

Authors: Danielle Naville, Claudie Pinteur, Nathalie Vega, Yoan Menade, Michèle Vigier, Alexandre Le Bourdais, Emmanuel Labaronne, Cyrille Debard, Céline Luquain-Costaz, Martine Bégeot, Hubert Vidal, and Brigitte Le Magueresse-Battistoni

Environmental contaminants are suspected to be involved in the epidemic incidence of metabolic disorders, food ingestion being a primary route of exposure. We hypothesized that life-long consumption of a high-fat diet that contains low doses of pollutants will aggravate metabolic disorders induced by obesity itself. Mice were challenged from preconception throughout life with a high-fat diet containing pollutants commonly present in food (2,3,7,8-tetrachlorodibenzo-p-dioxin, polychlorinated biphenyl 153, diethylhexyl phthalate, and bisphenol A), added at low doses in the tolerable daily intake range. We measured several blood parameters, glucose and insulin tolerance, hepatic lipid accumulation, and gene expression in adult mice. Pollutant-exposed mice exhibited significant sex-dependent metabolic disorders in the absence of toxicity and weight gain. In males, pollutants increased the expression of hepatic genes (from 36 to 88%) encoding proteins related to cholesterol biosynthesis and decreased (40%) hepatic total cholesterol levels. In females, there was a marked deterioration of glucose tolerance, which may be related to the 2-fold induction of estrogen sulfotransferase and reduced expression of estrogen receptor α (25%) and estrogen target genes (>34%). Because of the very low doses of pollutants used in the mixture, these findings may have strong implications in terms of understanding the potential role of environmental contaminants in food in the development of metabolic diseases.

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Read article on the study in *ScienceDaily*, ["'Safe' Levels of Environmental Pollution May Have Long-Term Health Consequences."](#)

Source: [Environmental Science & Technology, August 16, 2013](#)

Authors: Siwen Wang, Jun Huang, Yang Yang, Yamei Hui, Yuxi Ge, Thorjorn Larssen, Gang Yu, Shubo Deng, Bin Wang, and Christopher Harman

This is the first report on the environmental occurrence of a chlorinated polyfluorinated ether sulfonate (locally called F-53B, C₈ClF₁₆O₄SK). It has been widely applied as a mist suppressant by the chrome plating industry in China for decades but has evaded the attention of environmental research and regulation. In this study, F-53B was found in high concentrations (43-78 and 65-112 µg/L for the effluent and influent, respectively) in wastewater from the chrome plating industry in the city of Wenzhou, China. F-53B was not successfully removed by the wastewater treatments in place. Consequently, it was detected in surface water that receives the treated wastewater at similar levels to PFOS (ca. 10-50 ng/L) and the concentration decreased with the increasing distance from the wastewater discharge point along the river. Initial data presented here suggest that F-53B is moderately toxic (Zebrafish LC₅₀-96 h 15.5 mg/L) and is as resistant to degradation as PFOS. While current usage is limited to the chrome plating industry, the increasing demand for PFOS alternatives in other sectors may result in expanded usage. Collectively, the results of this work call for future assessments on the effects of this overlooked contaminant and its presence and fate in the environment.

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EPA Launches Online Green Sports Resource Directory

Source: [U.S. Environmental Protection Agency, August 26, 2013](#)

WASHINGTON – The U. S. Environmental Protection agency (EPA) is unveiling a new online Green Sports Resource Directory that can help teams, venues, and leagues save money and reduce carbon pollution through increased energy efficiency, a key part of President Obama's Climate Action Plan.

Additionally, the new directory contains information that can help teams reduce waste and gain recognition for their programs that reduce the environmental impact of their events. EPA Deputy Administrator Bob Perciasepe made the announcement today during the third annual Green Sports Alliance summit in New York City.

[Read more...](#)

Visit EPA's [Green Sports page](#).

TURI's Note: Check out TURI's Library Guide on [artificial turf](#).

Study: Toxic nanoparticles might be entering human food supply

Source: [R&D, August 23, 2013](#)

Author: Diamond Dixon

Over the last few years, the use of nanomaterials for water treatment, food packaging, pesticides, cosmetics and other industries has increased. For example, farmers have used silver nanoparticles as a pesticide because of their capability to suppress the growth of harmful organisms. However, a growing concern is that these particles could pose a potential health risk to humans and the environment. In a new study, researchers at the University of Missouri have developed a reliable method for detecting silver nanoparticles in fresh produce and other food products.

"More than 1,000 products on the market are nanotechnology-based products," said Mengshi Lin, associate professor of food science in the MU College of Agriculture, Food and Natural Resources. "This is a concern because we do not know the toxicity of the nanoparticles. Our goal is to detect, identify and quantify these nanoparticles in food and food products and study their toxicity as soon as possible."

Lin and his colleagues, including MU scientists Azlin Mustapha and Bongkosh Vardhanabhuti, studied the residue and penetration of silver nanoparticles on pear skin. First, the scientists immersed the pears in a silver nanoparticle solution similar to pesticide application. The pears were then washed and rinsed repeatedly. Results showed that four days after the treatment and rinsing, silver nanoparticles were still attached to the skin, and the smaller particles were able to penetrate

the skin and reach the pear pulp.

[Read more...](#)

Read [press release](#) from University of Missouri.

Read original article in *ACS Journal of Agriculture and Food Chemistry*, "[Detection of Engineered Silver Nanoparticle Contamination in Pears.](#)"

U.S. Proposes New Silica Limits

[Source: PaintSquare, August 26, 2013](#)

Federal regulators have finally released a long-awaited -- and certain to be controversial -- proposal to limit worker exposure to respirable crystalline silica, widely used in construction, painting and abrasive blasting activities.

The proposal -- which has languished in the White House Office of Management and Budget for more than two years -- includes a new exposure limit for crystalline silica and details methods for controlling worker exposure, conducting medical surveillance, training workers about silica-related hazards, and recordkeeping measures.

[Read more...](#)

TURI's Note: Respirable crystalline silica (< 10 microns) in abrasive blasting or molding is listed under TURA. However, many uses are below TURA reporting thresholds (25,000 lbs manufactured or processed and 10,000 lbs otherwise used) or are in non-covered industry sectors (e.g., construction).

Please send a message to mary@turi.org if you would like more information on any of these resources. Also, please tell us what topics you are particularly interested in monitoring, and who else should see Greenlist. An online search of the TURI Library catalog can be done at <http://library.turi.org> for greater topic coverage.

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