

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.



NIOSH Program Evaluating Controls Used by E-Waste Recyclers

[Source: Occupational Health & Safety, January 11, 2013](#)

The NIOSH Health Hazard Evaluation Program is in the midst of an evaluation of workers' health and safety in the electronic waste recycling industry. The first phase of the project is a pilot study to survey a random sample of as many as 100 e-waste recycling facilities nationwide to learn more about e-waste processes, medical monitoring, engineering and other controls, and PPE use, according to a recent online update from NIOSH Director Dr. John Howard.

[Read more...](#)

I'm Feeling Healthy: Google Gives \$3 Million for Toxicity R&D

[Source: Environmental Building News, January 1, 2013](#)

Author: Paula Melton

The U.S. Green Building Council (USGBC) has announced a \$3 million grant from Google.org, the philanthropic arm of the Internet search giant, for researching building material hazards and identifying healthier alternatives. The grant will also build on a growing trend toward publishing product ingredients and hazard information through programs like the Health Product Declaration (HPD), according to Brendan Owens, P.E., director of LEED technical development at USGBC.

[Read more...](#)

Transgenerational Inheritance of Increased Fat Depot Size, Stem Cell Reprogramming, and Hepatic Steatosis Elicited by Prenatal Obesogen Tributyltin in Mice

[Source: Environmental Health Perspectives, January 15, 2013](#)

Authors: Raquel Chamorro-Garcia, Margaret Sahu, Rachelle J. Abbey, Jhyme Laude, Nhieu Pham, and Bruce Blumberg

Background: We previously showed that exposure to tributyltin (TBT) modulates critical steps of adipogenesis through RXR/PPAR γ and that prenatal TBT exposure predisposes multipotent mesenchymal stem cells (MSCs) to become adipocytes by epigenetic imprinting into the memory of the MSC compartment.

Objectives: We tested whether the effects of prenatal TBT exposure were heritable in F2 and F3 generations. . . .

Conclusions: Prenatal TBT exposure produced transgenerational effects on fat depots and induced a phenotype resembling nonalcoholic fatty liver disease through at least the F3 generation. These results show that early life obesogen exposure can have lasting effects.

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Potential Health Risks to DOD Firing-Range Personnel from Recurrent Lead Exposure (2012)

[Source: National Academy of Sciences/National Research Council, 2012](#)

There is overwhelming evidence that the Occupational Safety and Health Administration's (OSHA) general industry standards for lead exposure, set more than 30 years ago, are inadequate to protect worker populations. This report was conducted at the request of the Department of Defense (DOD), whose employees at military firing ranges are exposed to lead recurrently when they handle ammunition, conduct maintenance on ranges, and breathe lead dust released into the air by gunfire. According to the 1978 OSHA standards, employees should not be exposed to lead concentrations in the air of more than 50 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) in order to limit blood lead levels to 40 micrograms per deciliter of blood ($\mu\text{g}/\text{dL}$), a level judged by OSHA at that time to adequately protect workers from adverse health effects. However, a large body of research conducted since 1978, including recent evaluations performed by the U.S. National Toxicology Program and the Environmental Protection Agency, offers compelling evidence that nervous system, kidney, heart, reproductive and other health problems can be caused by blood lead levels between 10 and 40 $\mu\text{g}/\text{dL}$ or even lower levels. In addition, DOD firing ranges often fail to meet the 30-year old OSHA standard for lead concentrations in air, frequently exceeding 50 $\mu\text{g}/\text{m}^3$ on Army, Navy, and Air Force firing ranges. Given these findings, DOD should review its guidelines and practices for protecting workers from lead exposure, including consideration of lowering acceptable blood lead levels to more stringent levels.

[Read more...](#)

TURI's notes: Read information from the MA Executive Office of Labor and Workforce Development regarding the [hazards of lead exposure at indoor police firing ranges in MA](#).

Read information on the same topic from [NIOSH](#).

Electrodeposition of Nanocrystalline Cobalt-Phosphorus Coatings as a Hard Chromium Alternative for Use in DoD Acquisition Programs

[Source: Products Finishing, August 1, 2012](#)

Authors: R.A. Prado and J. Benfer

Electrolytic hard chromium plating (EHC) is a critical surface finishing technology that is used for applying functional coatings for corrosion and wear resistance to aircraft components in manufacturing operations and for re-build of worn or corroded components. However, EHC plating baths contain hexavalent chromium, which is a known carcinogen and environmental hazard. Therefore, the replacement of EHC in aircraft manufacturing activities and maintenance depots is a high priority for the U.S. Department of Defense (DoD).

Nanocrystalline cobalt-phosphorus plating (nCoP) is commercially available as an environmentally compliant alternative to EHC coatings. As an electrodeposition process, nCoP is fully compatible with the existing EHC infrastructure, but exhibits higher cathodic efficiencies and deposition rates than EHC, thus yielding higher throughput, reduced facility footprint and reduced energy

consumption. Further, nCoP offers significant performance enhancements over EHC including superior sliding wear, enhanced lubricity and corrosion resistance, and much improved fatigue properties.

[Read more...](#)

Read full article: ["Electrodeposition of Nanocrystalline cobalt alloy coatings as a hard chrome alternative."](#)

Read another article in *Products Finishing*: ["nCoP Takes the Hex Out of Chrome Plating."](#)

EU to crowd source environmental data

[Source: FutureGov Asia-Pacific. January 10, 2013](#)

Author: Clarice Africa

The University of Edinburgh, together with a consortium of thirteen partners from the UK, Germany, Greece, the Netherlands and Ireland are embarking on a €8.5 million (US\$11 million) project, called Citizen Observatory Web (COBWEB), which aims to make it easier for citizens to collect environmental data for research, decision making and policy formation by leveraging on crowdsourcing technology.

COBWEB is a four year project which will be funded by the European Union's FP 7 Programme that is designed to respond to Europe's employment needs, competitiveness and quality of life.

It will leverage crowdsourcing techniques around the concept of "people as sensors," particularly the use of mobile devices for data collection and geographic-referenced information.

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From Soap to Cities, Designing From Nature Could Solve Our Biggest Challenges

[Source: Yes! Magazine. November 19, 2012](#)

Author: Sven Eberlein

Can a boat be designed to clean the water? How does a spider manufacture resilient fiber? We need products that don't harm us or the environment, and nature's already done the research.

Imagine this assignment, says Bill McDonough in a recent TED talk: Design something that makes oxygen, sequesters carbon, converts nitrogen into ammonia, distills water, stores solar energy as fuel, builds complex sugars, creates microclimates, changes color with the seasons, and self-replicates. Sound impossible? Well, nature's already completed this one. It's called a plant. And the fact that it does these things safely and efficiently is inspiring engineers and designers to reconceive the ways we manufacture such basics as soap bottles, raincoats, and wall-to-wall carpeting.

[Read more...](#)

TURI's Notes: We have Dr. Benyus' book *Biomimicry* available in the TURI library.

Other recent interesting articles on Biomimicry:

["The year in biomimicry: Robots inspired by cheetahs and moon jellies"](#) and ["Fireflies are inspiring brighter LEDs."](#)

Mercury - Time to Act

[Source: United Nations Environment Programme. 2013](#)

This report speaks directly to governments involved in the development of the global treaty on mercury. It presents updates from the UNEP Global Mercury Assessment 2013 in short and punchy facts and figures backed by compelling graphics, that provide governments and civil society with the rationale and the imperative to act on this notorious pollutant.

The report underlines the fact that mercury remains a major global, regional and national challenge

in terms of threats to human health and the environment, especially but not uniquely to the health of pregnant woman and babies world-wide through the eating of contaminated fish for example or to marine mammals in places like the Arctic.

[Read more...](#)

Formaldehyde and Epigenetic Alterations: MicroRNA Changes in the Nasal Epithelium of Nonhuman Primates

Source: [Environmental Health Perspectives, January 15, 2013](#)

Authors: Julie E. Rager, Benjamin C. Moeller, Melanie Doyle-Eisele, Dean Kracko, James A. Swenberg, and Rebecca C. Fry

Background: Formaldehyde is an air pollutant present in both indoor and outdoor atmospheres. Because of its ubiquitous nature, it is imperative to understand the mechanisms underlying formaldehyde-induced toxicity and carcinogenicity. MicroRNAs (miRNAs) can influence disease caused by environmental exposures, yet miRNAs are understudied in relation to formaldehyde. Our previous investigation demonstrated that formaldehyde exposure in human lung cells caused disruptions in miRNA expression profiles.

Objectives: Here, we expand our preliminary *in vitro* findings to an *in vivo* model. We set out to test the hypothesis that formaldehyde inhalation exposure significantly alters miRNA expression profiles within the nasal epithelium of nonhuman primates. . . .

Conclusions: Our study reveals that formaldehyde exposure significantly disrupts miRNA expression profiles within the nasal epithelium, and these alterations likely influence apoptosis signaling.

[Read more...](#)



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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