

Subject: [CNS-weekly-clips] CNS Weekly Clips--April 28-May 4, 2009
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WEEKLY CLIPS

April 28 – May 4, 2009

NIOSH updates guidance on workplace safety, nanotechnology

The National Institute for Occupational Safety and Health updated and expanded its guidance on workplace safety and nanotechnology.

The document, *Approaches to Safe Nanotechnology*, reiterates the agency's recommendation that employers take measures to control occupational exposure in the manufacture and industrial use of engineered nanomaterials.

The revised document:

Includes an expanded section on risk management, with a detailed discussion of factors that may affect occupational exposure to engineered nanomaterials, and expanded interim recommendations for controlling work-related exposures.

Expands the discussion of exposure assessment and characterization for engineered nanomaterials, including a new summary table of instruments and measurement methods used in the evaluation of nanomaterial exposures.

Officials said the guide reflects ongoing research that has been published in the peer-reviewed scientific literature since the last version was issued in 2006. These include findings from NIOSH's own strategic research program, as well as research by scientific partners from the United States and abroad.

Nanotechnology, which experts believe will be incorporated into more than \$2.5 billion in global manufactured goods by 2014, involves the study and manipulation of engineered materials down to the size of a nanometer -- about one one-thousandth the thickness of a human hair. Because of their extremely small size, these nanomaterials can take on unusual physical and chemical properties that allow novel uses but at the same time can create health risks.

May 4, 2009

<http://www.riskandinsurance.com/story.jsp?storyId=206802097>

COULD NANOTECH PARTICLES HELP TREAT STDs?

By [Larry Greenemeier](#) in [60-Second Science Blog](#)

Researchers have already demonstrated in the lab that the materials the body uses to make proteins can also successfully suppress several different types of viruses, including HIV and [influenza A](#), by [disrupting the formation of viral proteins](#). Less clear, however, was how to get these virus-busting molecules where they needed to be in the body in order to keep viruses from spreading. Now a team of Yale University researchers believe they have found an effective way of delivering these special, short-interfering RNA ([siRNA](#)) molecules to specific locations within the body's biological battlefield.

The key is hitching siRNA molecules (a class of double-stranded RNA molecules that cells can use to control protein production) to microscopic particles of a biodegradable polymer known as polylactic-co-glycolic acid (PLGA) that can ferry these virus fighters to the site of the infection, according to a report published online today in [Nature Materials](#). While this approach is at a very early stage, researchers report being able to use the PLGA particles deliver siRNAs to tissue lining the female mouse reproductive tract, which resembles that of the female reproductive system. Once there, the siRNAs penetrate to reach cells below the surface of the mucosa, and distribute the molecules throughout the vaginal, cervical, and uterine regions. Beyond reaching their intended target, the siRNAs reportedly remained in the tissues (effectively disrupting virus activity) for up to 14 days. It's important to note that the experiment has been successful in cell cultures, as opposed to live mice.

The researchers, lead by [Kim Woodrow](#), a Yale postdoctoral fellow in the [School of Engineering & Applied Science](#), were looking for a way to deliver siRNAs with a material approved by the U.S. Food and Drug Administration (FDA). The FDA has already approved [PLGA](#) for use in grafts, sutures, prosthetics and other therapeutic devices due to its biodegradability and biocompatibility. The PLGA approach to delivering siRNA could, Woodrow said in a statement, allow people to protect themselves using antimicrobial treatments (most likely via prescription) that they administer themselves, rather than relying on an injection administered by a physician. Her research was funded by grants from the National Institutes of Health and fellowship support from the L'Oreal-Unesco's For Women in Science ([FWIS](#)) program.

SiRNA has shown potential to also disrupt the spread of the influenza A virus, according to a [2003 study conducted by Massachusetts Institute of Technology \(M.I.T.\) researchers](#) at the Center for Cancer Research and the school's Department of Biology. Meanwhile, new uses for nanomaterials continue to emerge. [ScientificAmerican.com reported last year](#) on the study of nanoparticles as drug carriers.

<http://www.scientificamerican.com/blog/60-second-science/post.cfm?id=could-nanotech-particles-help-treat-20>



5/4/2009 1:35:53 AM

SAFENANO to host Nanotechnology Risk Management Workshop at NanoMaterials 09

SAFENANO, the UK's premier resource on Nanotechnology Health & Safety, is pleased to announce it is to host a Pre-Conference workshop on Nanotechnology Risk Management at the forthcoming NanoMaterials '09 conference in Bonn, Germany.

The workshop, to be held on June 16th 2009, offers an opportunity to gain valuable insight into the latest knowledge and good practice guidance for the rapidly evolving area of nanotechnology risk issues - an area of utmost priority to any organisation across the nano supply chain wishing to develop their products in a responsible manner.

The workshop, which has been jointly organised by SAFENANO and AssuredNano, is to feature input

from a range of high-calibre speakers working at the forefront of their fields. These include Dr Rob Aitken, Director of SAFENANO and Strategic Consulting at the Institute of Occupational Medicine (IOM); Dr Gary Hutchison, Lecturer in Biomedicine & Reproductive Toxicology at Edinburgh Napier University; Dr Keith Robson, CEO of AssuredNano; & Dr Steve Hankin, SAFENANO's Director of Operations.

Topics to be covered include:

- Current Awareness and Scientific Services for Nanotechnology Risk
- Actual and Potential Nanotechnology Regulation, including voluntary and mandatory reporting schemes for accessing markets
- How physico-chemical characteristics of nanoparticles influence their toxicity, and whether safety can be designed
- Key measurement technologies and control approaches to characterise exposure, inform risk assessment and support safe practice
- Integrative hazard and exposure into risk assessment
- Principles and best practices in assessing and safely managing nanoparticle risk
- The EHS needs of the nanomaterials supply chain

In addition, SAFENANO will be exhibiting for the duration of NanoMaterials '09, and AssuredNano will be represented at the NanoCentral exhibition stand. Both will be available throughout to discuss your nanotechnology EHS questions and needs; we look forward to meeting with you there.

For a full workshop programme and registration details, visit:

<http://www.nanomaterials09.com/workshop.php>

For further information on NanoMaterials '09, visit <http://www.nanomaterials09.com/>

<http://nanotechwire.com/news.asp?nid=7827>

NSW pushes for nano risk labels

Deborah Smith Science Editor

May 5, 2009



Illustration: *Cathy Wilcox*

THE NSW Government will push for national mandatory labelling of nano-sized particles used in workplaces and improved testing facilities to assess the safety of new nanomaterials.

The moves are in response to a parliamentary inquiry into nanotechnology. The emerging science could pose risks to human health, with some tiny particles possibly having similar effects to asbestos.

The Minister for Science and Medical Research, Jodi McKay, said nanotechnology could benefit NSW in many areas including medicine, energy efficiency, environmental monitoring, textiles, and the creation of jobs, but workers and consumers had to be protected.

"We need to make sure that regulation keeps pace with technology," Ms McKay said.

Some environmental and consumer groups were disappointed, however, that the Government did not back immediate labelling of nanoparticles in food, sunscreens and cosmetics.

A Friends of the Earth spokeswoman, Georgia Miller, also criticised the Government for rejecting the inquiry recommendation that nanoparticles be treated by regulators as new chemicals, so their safety would have to be assessed before they could be used in any products.

"The NSW Government is refusing to close a major regulatory gap," Ms Miller said.

<http://www.brisbanetimes.com.au/national/nsw-pushes-for-nano-risk-labels-20090504-asmk.html>



Research and Markets: An Essential Report on the Nanotechnology Market with Forecast to 2013

DUBLIN, Ireland | Posted on May 2nd, 2009

Nanotechnology is going to pave the way for a revolution in materials, information and communication technology, medicine, genetics and so on as it starts moving from the laboratories to new markets. It helps to improve products and production processes with better characteristics or new functionalities. In coming years, products based on nanotechnology are expected to impact nearly all industrial sectors and will enter the consumer markets in large quantities. Considering the future prospects of nanotechnology, countries across the world are investing heavily in this sector.

The global market for nanotechnologies is projected to grow at a CAGR of around 20% till 2013, according to "Nanotechnology Market Forecast to 2013." The report also projects that the market for nanotechnology incorporated in manufactured goods will be worth US\$ 1.6 Trillion, representing a CAGR of more than 49% in the forecast period (2009-2013). This growth will largely be driven by massive investment in nanotechnology R&D by both governments and corporations across the world.

According to our report findings, at the regional level, the Asia-Pacific region will experience the fastest growth in the market for nanotechnology-enabled goods, with CAGR pegged at around 52% in the forecast period, followed by Europe. The recent moves by the emerging markets such as India, China and Russia in the field of nanotechnology research and development will continue to be the most prominent factors behind the growth in these countries.

Our updated and detailed research report evaluates the past, current and future scenario of the global nanotechnology market coupled with an overview of emerging trends. The report has segmented the nanotechnology market by application and R&D investment. It discusses the nanotechnology market by key countries showing their prominence in the sector together with the emerging nations in the domain. Besides, it

report covers various growth potential areas in the nanotechnology market at the global level.

http://www.nanotech-now.com/news.cgi?story_id=33126



PEN 18 - Oversight of Next Generation Nanotechnology

Summary posted by Meridian on 4/29/2009

Source: The Project on Emerging Nanotechnologies

Author: J. Clarence Davies

As reported in the April 8, 2009, edition of this news service, The Project on Emerging Nanotechnologies (PEN)'s latest report, "Oversight of Next Generation Nanotechnology," was released on April 28, 2009. The report is designed to provide regulators with tools to face the challenges of advancing nanotechnologies. The report is now available for download at the link below.

The original article may still be available at www.nanotechproject.org/publications/archive/pen18/

<http://www.merid.org/NDN/more.php?id=1874>

WorldTribune.com

Of academic pedigrees and nanotechnology

Lev Navrozov emigrated from the Soviet Union in 1972. He chaired the "Alternative to the New York Times Committee" in 1980, and became a columnist for the New York City Tribune. His columns are today read in both [English](#) and Russian.

On April 14, 2009, I received an e-mail from Thaddeus Paul Kochanski, Ph. D. (Ted), Chief Scientist and Executive Director, IEEE-GEMS Repositor. . . . And so on: his scientific and technological [degrees](#) and posts occupy almost a full page at the end of his e-mail, which he begins: "I don't know about your technical background and so I can't know at what level to discuss this issue."

Today, in 2009, that is 23 years later, Kochanski explains that "nano is not magic, the fundamental laws of physics apply to nano, and they don't permit most of what Drexler is pushing as science"! Drexler, you see, is not worth Kochanski's criticism as a scientist — he is only pushing for science something that is not science!

Kochanski's next paragraph goes back to Drexler:

As for Drexler — I think it is sufficient to note that [the] Ted Williams head was deep frozen in a vat of liquid nitrogen in New Mexico by the same crowd that is talking about nano-super weapons.

Well, go see Yahoo!: “Ted” Williams, an American left fielder in baseball, died at the age of 83 in 2002. As a famous man, he wanted his body preserved after his death. So, according to his will, his son John-Henry had, after his father’s death, his father’s body flown to Scottsdale, Arizona, where his head and his body were duly separated and placed separately into cryonic suspension (neuropreservation).

So, contrary to Yahoo! as of today, Kochanski claims that Ted’s son John-Henry belonged to “the same crowd that is talking about nano-super weapons,” though, to begin with, in 2002 John-Henry had probably never heard of nano weapons. Nor is it clear what the neuropreservation of his dead father, according to his father’s will, had to do with “nano-super weapons.”

http://www.worldtribune.com/worldtribune/WTARC/2009/lev0345_04_24.asp



Over 1000 UK nanotechnology organizations listed in new online guidebook

(Nanowerk News) The Directory is your online guidebook to the UK’s world-class Micro and Nanotechnology (MNT) sector, featuring over 600 academics and over 400 organisations active in nanotechnology in the UK.

The Directory enables you to increase your awareness of UK R&D facilities and services available, as well as the potential for you to identify possible collaborative partners by searching for specific expertise/technology.

Each listing has full contact details and a system has been built in so you can contact the organisation or individual directly.

Access The Directory

To access The Directory, [click here](#). Please note that access is restricted to NanoKTN members, so please ensure you have logged in before clicking the link. Not a member? Then register for free online today by [clicking here](#).

<http://www.nanowerk.com/news/newsid=10371.php>



Government Funding Of Nanotech Witnesses Shift In Priorities And Leaders

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[Press release](#)

With over \$40 billion in government funds having been poured into nanotechnology research worldwide over the last five years, countries are now emphasizing the importance of application-driven research in this emerging field with shakeup is occurring among the leading nations in nanotech spending, according to a new white paper from London-based Cientifica.

Cientifica Ltd, a consulting firm in emerging technologies, in its yearly analysis of government funding figures is reporting in a free white paper "Nanotechnology Takes a Deep breath, and Prepares to Save the World!" that governments will be spending nearly \$10 billion on nanotechnology research in 2009, but despite this huge figure government spending has begun to slow down. Spending will only grow by 9.3% from 2008-2012 compared with the 130% increase witnessed from 2004-2008.

With this slowdown, governments are urging more emphasis on application-driven research that will help individual countries meet their particular grand challenges whether it is energy independence or clean drinking water.

Cientifica's research has also revealed that the long-time leaders of nanotechnology funding, the United States and Japan, have now fallen to third and fourth behind the EU and Russia, with the US being tied with China for third.

Cientifica CEO, Tim Harper commented "with over ten years of research funding under its belt, nanotechnologies are finally becoming mature enough for mainstream applications."

<http://www.nanovip.com/node/55128>

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