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Nano World: Nanofibers for heart cells. The heart function of rats following heart attacks can be improved using heart cells wrapped in organic fibers only nanometers or billionths of a meter long. These fibers are impregnated with growth hormones, experts tell UPI's Nano World. [Physorg 5.12.06](http://www.physorg.com/news66654477.html)
<http://www.physorg.com/news66654477.html>

Gold nanoparticles could improve antisense cancer drugs. In the fight against cancer, antisense drugs which prevent genes from producing harmful proteins such as those that cause cancer, have the potential to be more effective than conventional drugs, but the pace of development of these new drugs has been slow. Using gold nanoparticles combined with DNA, scientists at Northwestern University now have demonstrated a new method for developing antisense drugs that outperform conventional antisense agents. The findings will be published May 19 in the journal Science. [EurekAlert 5.18.06](#)

Methodist Neurosurgeon Makes Quantum Leap on Nano-Level. A neurosurgeon at the Methodist Neurological Institute (NI) is the first to use an enzyme-driven technique to label nanotubes with quantum dots, giving scientists a better way to see single-walled carbon nanotubes...Dr. David S. Koh, neurosurgeon at the Methodist NI, and his colleagues published these research findings in the November 2006 issue of BioTechniques. [Physorg 2.22.06](#)

Nanostructures in 3D. Max Planck researchers from Düsseldorf unveil the first three-dimensional electron microscope for examining nanomaterials structure. It is the world's first electron microscope that simultaneously and automatically investigating in three-dimensions the phase content, crystallographic texture, and crystal interfaces of materials - co-designed and put into service at the Department of Microstructure Physics and Metal Forming at the Max Planck Institute for Iron Research in Düsseldorf, Germany. The device contains a high-resolution scanning electron microscope and an ion-beam microscope. [Max Planck 2.22.06](#)

Richard Errett Smalley, a gifted chemist who shared a Nobel Prize for the discovery of buckyballs, helped pioneer the field of nanotechnology and became Houston's most notable scientist, died Tuesday afternoon after a six-year struggle with cancer. He was 62. Smalley possessed prodigious talent both within the field of chemistry where he cobbled individual atoms together like tinker toys, and outside academia after he won science's greatest prize. In the decade since he became a Nobel laureate, Smalley pushed Rice University and Houston to the forefront of nanotechnology research. [HoustonChronicle 10.29.05](#)

Scientists build world's first single-molecule car. Rice University Scientists have done it. After announcing the possibility of producing a car that would utilize nanotechnology practically for a functions, Rice University scientists developed the world's first single-molecule car- the car that is driven on a gold microscopic highway. It is a small coupe that is devoid of any plush seating or conventional steering system. But it is a real solution for the grid locked cities. With a wheelbase less than 5 nm, parking it is a cakewalk. [Physorg 10.20.05](#)

Purdue scientists treat cancer with RNA nanotechnology. Using strands of genetic material, Purdue University scientists have constructed tiny delivery vehicles that can carry anticancer therapeutic agents directly to infected cells, offering a potential wealth of new treatments for chronic diseases. They look nothing like delivery trucks, though that is their function once inside the body. Instead, they are called nanoparticles, which are assembled from three short pieces of ribonucleic acid, resemble triangles. The microscopic particles possess both the right size to gain entry into cells and also the structure to carry other therapeutic strands of RNA inside with them, where they are able to halt tumor growth or cancer's progress. The team has already tested the nanoparticles successfully against tumor growth in mice and lab-grown human cells. [Ascribe 9/13/05](#)

Nanotechnology Innovation Enables Recovery and Reuse of Spilled Oil. Interface Sciences Company announced that in response to oil spill problems stemming from the current Hurricane Katrina crisis and oil crises, the company is launching its proprietary oil remediation and recovery application. Interface Sciences' treated material absorbs about 40 times its weight in oil, far exceeding existing commercially available remediation materials. [Nanotech cafe 9/7/05](#)

Nano World: Nano for artificial kidneys. Nanotechnological filters could lead to wearable or implantable artificial kidneys, experts told UPI's Nano World. Animal studies for artificial-kidney prototype began one or two years from now, and clinical trials would follow a year or two afterward, reports scientists at Biophiltre in Burlingame, Calif., the medical-device company developing the artificial kidney technology. [Medlineplus 9/8/05](#)

Nano-surgeons break the atomic bond. The science of the small has moved a huge step forward with work in a subterranean Birmingham laboratory, reports Roger Highfield. The ultimate in nanosurgery has been carried out in a vibration-free bunker in deepest Birmingham. Not only have scientists there managed to remove a single atom of matter, measuring about a tenth of a millionth of a meter across, but they have achieved this feat even though their subject was thrashing around wildly. This is the ultimate in the science of the small, nanotechnology, that the practitioners hope will one day allow them to remove contaminants from the environment. One can also see it as an extreme version of precision chemistry, a far cry from what usually happens in a laboratory. [TelegraphUK 7/20/05](#)

Nanowires In Blood Vessels May Help Monitor, Stimulate Neurons In The Brain. Working with platinum nanowires 100 times thinner than a human hair--and using blood vessels as conduits for the wires--a team of U.S. and Japanese researchers has demonstrated a technique that may one day allow doctors to monitor individual brain cells and perhaps provide new treatments for neurological disorders such as Parkinson's. Writing in the July 5, 2005, online issue of The Journal of Nanoparticle Research, the researchers explain it is becoming feasible to create nanowires far thinner than even the tiniest capillary vessels. That means nanowires could, in principle, be threaded through the circulatory system at any point in the body without blocking the normal flow of blood or interfering with the exchange of gasses and nutrients through the blood-vessel walls.

[ScienceDaily 7/19/05](#)

Scientists making self-cleaning building products. From catalytic converters to alternative fuels, the fight against big-city smog has for years been fought inside combustion engines and exhaust pipes. Now scientists are taking the fight to the streets by developing "smart" building materials designed to

air with a little help from the elements. Using technology already available for self-cleaning windows and bathroom tiles, scientists hope to paint up cities with materials that dissolve and wash away pollutants when exposed to sun and rain.

[Clarionledger 7/23/05](#)

Foresight Nanotech Institute Launches Nanotechnology Roadmap. Foresight Nanotech Institute, the leading nanotechnology think tank and public interest organization, and Battelle, a leading global research and development organization, have launched a Technology Roadmap for Productive Nanosystems through a grant of \$250,000 from The Waitt Family Foundation. The group is assembling a world-class steering committee to guide this groundbreaking project, and has garnered the support of several important industry organization roadmap partners. Productive Nanosystems are molecular-scale systems that make other useful material devices that are nanostructured. The Technology Roadmap for Productive Nanosystems will provide a framework for understanding the pathways for developing such systems, the challenges that must be overcome in their development and the applications that they can address. [Foresight 6/21/05](#)

Nanotube bike enters Tour de France. This year's Tour de France will see cyclists from the Phonak Team riding a bike with a frame containing carbon nanotubes. Swiss manufacturer BMC claims that the frame of its "P Machine" weighs less than 1 kg and has excellent stiffness and strength. To create the frame, BMC uses composite technology developed by US sports equipment specialist Easton. The company's "enhanced system" embeds carbon fibre in a resin matrix that's reinforced with carbon nanotubes. Easton says that this improves strength and toughness in the spaces between the carbon fibres. [Nanotechweb 7/1/05](#)

Nanotech As Disease Detector. Startup Nanosphere may have a technology that can sniff out telltale molecules early enough to advance treatment. The challenge: translating potential to real-life results. There's tremendous hype about the promise of nanotechnology in medicine. Now, the companies pioneering the field have to see if their promise can become a reality. Among the players making the rounds at the Biotechnology Industry Organization convention in Philadelphia is William Moffitt, president and chief executive officer of Nanosphere, a startup that uses nanotechnology to revolutionize the medical-testing industry. "Nanotech is going to create the next advance in diagnostics," Moffitt says. [Businessweek 6/21/05](#)

Nanoparticles transport cancer-killing drug into tumor cells to increase efficacy, lower drug toxicity. U-M scientists use folic acid as bait to get methotrexate inside tumor cells. University of Michigan scientists have created the nanotechnology equivalent of a Trojan horse to smuggle a powerful chemotherapeutic

drug inside tumor cells - increasing the drug's cancer-killing activity and reducing its toxic side effects..."This is the first study to demonstrate a nanoparticle-targeted drug actually leaving the bloodstream, being concentrated in cancer cells, and having a biological effect on the animal's tumor," says James R. Baker Jr., M.D., the Ruth Dow Doan Professor of Biologic Nanotechnology at the University of Michigan, who directed the study.

[UMHS 6/15/05](#)

Scientists unveil 'clay' robots that will shape our world. TINY robots that can turn into any shape from a human replica to a banana to a mobile phone - are being developed by scientists in the United States. A new science of claytronics, which will use nanotechnology to create tiny robots called catoms, could enable three-dimensional copies of people to be "faxed" around the world for virtual meetings. The robots could also consult with a patient over the phone, even taking their pulse by holding the wrist of a claytronic replica, reports New Scientist. [Scotsman 6/9/05](#)

Nano World: Nano for stem-cell research. Cutting-edge nanotechnology is beginning to help an equally pioneering field of stem-cell research, with devices that can precisely control stem cells and provide self-assembling biodegradable scaffolds and magnetic tracking systems, experts told U.S. News & World Report. "Nanotechnology might show people once and for all that you really can help regenerate tissue with stem-cell biology and help people walk again, help people after heart attacks, help people after stroke," said John Kessler, a neurologist at Northwestern University in Evanston, Ill. [World Post 8/25/05](#)

[6/13/05](#)

A V6 Engine for the Nano-Age. The world of the very small is about to receive a very powerful Berkeley Lab scientist has created the world's smallest electric motor that may someday power nanoscale devices that walk, crawl, swim, and fly. Although it is too early to determine what it will propel - perhaps probes that deliver disease-fighting drugs inside the body or winged nanobots that sniff out explosives - it packs a big kick in its tiny frame. The motor measures only 200 nanometers (a nanometer is one-billionth of a meter), but its power density is 100 million times greater than a 225-horsepower V6 engine. [Berkeley Lab 5/13/05](#)

Tiny Bundles Seek And Destroy Breast Cancer Cells. A Penn State College of Medicine study is the first time in an animal model that ceramide, a naturally occurring substance that prevents the growth of cells, can be administered through the blood stream to target and kill cancer cells. "Ceramide is a substance that accumulates in cancer tissues and helps to kill cancer cells when patients undergo chemotherapy and radiation," said Mark Kester, professor of pharmacology, Penn State College of Medicine, Penn State Milton S. Hershey Medical Center. [Penn State 5/24/05](#)

NASA Goes Nano for Air Purification. "For human space flight missions, NASA must continue to monitor air quality and toxicity levels to ensure the health and safety of the crew," said Spacehab Operating Officer Michael Bain. But, he added, "developing, transporting and installing large, complex detection and classification equipment in orbit is extremely problematic." ...The NASA/Spacehab team aims to further reduce the size down to that of a stack of playing cards. To create a device that fits on Spacehab has enlisted the help of Zyvex, a company that specializes in nanotechnology. [NASA](#)

Smart Nanocarriers to Combat Tumors. IBN's technology spells hope for cancer patients who suffer from side-effects of chemotherapy. A 'smart' nanocarrier technology developed by a team of researchers at the Institute of Bioengineering and Nanotechnology (IBN) is set to vastly improve the way cancer patients are treated. Anticancer drugs are now being administered to patients using methods that cause the indiscriminate killing of both diseased and healthy cells. Such chemotherapy leads to side-effects, such as nausea, fatigue, and weakness, and makes the patient weak and frail. Between 1998 and 2002, 38,447 people in Singapore were diagnosed with some type of cancer, while 20,289 died of the disease. Hence, there is a crucial need for the development of an effective cancer therapy, which not only minimizes side-effects but also directly targets diseased cells. IBN has found a way to tackle this problem through the use of anticancer drug delivery vehicles that transport drugs only to where they are needed in the body. This method significantly reduces or even eliminates the side-effects typically induced by conventional chemotherapeutics. [AStar 3/21/05](#)

NanoMarkets Releases New White Paper on Nanotechnology and Energy Markets. NanoMarkets, a leading industry consulting firm based here, today announced the release of a new white paper titled, "How Nanotechnology is Changing the Energy Equation" that reviews the many ways in which the energy industry is being (and will continue to be) impacted by nanotech. The paper is drawn from NanoMarkets' current research on emerging alternative energy and power markets and addresses topics such as fossil fuels and nanocatalysis, fuel cells, wind, biomass and geothermal energy. The paper can be accessed from the firm's [Web PRNewswire 3/31/05](#)

Drug-Delivering Contact Lenses Revealed. Scientists at the Institute of Bioengineering and Nanotechnology in Singapore have developed new contact lenses that are designed to provide a slow release of medication. New Scientist reports: Contact lenses that release controlled doses of drugs to treat eye diseases such as glaucoma have been created by nano-engineers in Singapore. [medGadget 4/1/05](#)

President's advisers to consider export controls on nanotech. A panel that advises President Bush on energy issues will explore whether nanotechnology needs regulating. The committee, which will be assembled next year, is expected to review other nations' nanotechnology capabilities, their competitiveness and nanotech's impact on national security. Lawyers who specialize in export law recommend nanotechnology companies to ensure they comply if regulations eventually are put in place. The scope could range from export restrictions on international trade to rules on staffing foreign nationals. (Smalltimes 2/3/05)

http://www.smalltimes.com/document_display.cfm?document_id=8727

Test could detect Alzheimer's earlier. A highly sensitive new test could lead to a different way to diagnose with Alzheimer's disease, possibly helping find the illness in its early stages when there might be time for treatment...Test measures proteins in spinal fluid. Many companies have experimental therapies, he said those therapeutics aren't very good if you can't definitively diagnose and follow a disease," explained Miller researcher — along with William L. Klein — on a team that developed the new test, which can detect small amounts of proteins in spinal fluid. The team's findings are reported in Tuesday's issue of Proceedings of the National Academy of Science. (MSNBC 2/1/05) <http://www.msnbc.msn.com/id/6890966>

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