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## BioTechCircle News®

January 2009

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**Featured January articles** - **Featured Green Articles**

**A Willy Wonka Who Wants to Feed the World**

What is food? Chef driven by a techno-utopian vision of decentralized food, in which the world's ever-growing appetites are met by a radical transformation of agriculture itself, says "we have to start thinking a little crazier about what food is."

<http://blog.wired.com/wiredscience/2008/12/whatisfood.html>

**New Partnership Embarks on European SonoDrugs Project**

Drugs delivered directly to disease sites via a patient's bloodstream are activated by focused ultrasound pulses. The SonoDrugs project aims to maximize therapeutic efficiency, minimize side effects of drug treatments for cancer, cardiovascular disease.

<http://appliedclinicaltrialsonline.findpharma.com/appliedclinicaltrials/News/ArticleStandard/Article/detail/577962?contextCategoryId=3300>

**Researchers Use Bacteria to Generate Biofuels**

Escherichia coli (E. coli) bacteria may be the key to more efficiently synthesizing and mass producing biofuels.

[http://today.ucla.edu/portal/ut/080102\\_e-coli\\_biofuels.aspx](http://today.ucla.edu/portal/ut/080102_e-coli_biofuels.aspx)

**Scientists Can Now Differentiate Between Healthy Cells and Cancer**

Researchers demonstrate the difference between normal stem cells and cancer stem cells in humans using robotic screening for available molecules that may have untapped potential to eradicate cancer.

[http://www.biologynews.net/archives/2009/01/05/scientists\\_can\\_now\\_differentiate\\_between\\_healthy\\_cells\\_and\\_cancer\\_cells.html](http://www.biologynews.net/archives/2009/01/05/scientists_can_now_differentiate_between_healthy_cells_and_cancer_cells.html)



developing a better understanding of gene regulation in breeding enhanced crops that produce higher yields, are more resistant to disease, can better tolerate environmental stress.

[http://www.mcgill.ca/newsroom/news/item/?item\\_id=103077](http://www.mcgill.ca/newsroom/news/item/?item_id=103077)

### **King of Bionic Ag Uses Turbocharged Seeds, Precision Chemistry, and a Little TLC**

Bill Donahue

Wired

22-Dec-08

Describes how the soybean king of the world is able to harvest 155 bushels of soybeans per acre from a small plot and 329 bushels of corn per acre.

[http://www.wired.com/science/planetearth/magazine/17-01/mf\\_extreme\\_farming](http://www.wired.com/science/planetearth/magazine/17-01/mf_extreme_farming)

### *Subcategory: Energy/ Fuel*

### **Modified Plants May Yield More Biofuel**

Penn State University

22-Dec-08

Plants, genetically modified to ease the breaking down of their woody material, could be the key to a cheaper and greener way of making ethanol and also could help turn agricultural waste into food for livestock.

<http://live.psu.edu/story/36682/rss30>

### *Subcategory: Food*

### **Coloring Food, Naturally**

Melody Voith

Chemical & Engineering News

15-Dec-08

Concerns about additives are changing the food market, as natural colors are growing at 5% a year, while synthetics are growing by only 1%.

<http://pubs.acs.org/cen/business/86/8650bus1.html>

### **A Willy Wonka Who Wants to Feed the World**

Brandon Keim

Wired

30-Dec-08

What is food? Chef driven by a techno-utopian vision of decentralized food, in which the world's ever-growing appetites are met by a radical transformation of agriculture itself, says "we have to start thinking a little crazier about what food is."

<http://blog.wired.com/wiredscience/2008/12/whatisfood.html>

### *Subcategory: Human Therapeutics*

### **Chemists Engineer Plants to Produce New Compounds**

Anne Trafton

MIT News

18-Jan-09

Chemists have, for the first time, genetically altered a plant to produce entirely new compounds, some of which could be used as drugs against cancer and other diseases. Researchers hope periwinkle plant cells could synthesize potential drugs.

<http://web.mit.edu/newsoffice/2009/plant-drug-0118.html>

### *Subcategory: Materials*

#### **Does Even More than a Spider Can**

Economist

29-Jan-09

The problem with the products of evolution is that they are honed to do jobs for the creature they come from, not for humanity. Describes how engineers are looking to extend the range of properties of spider silk beyond those found in nature.

[http://www.economist.com/science/displaystory.cfm?story\\_id=13013043](http://www.economist.com/science/displaystory.cfm?story_id=13013043)

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## **BIOBUSINESS MANAGEMENT**

### *Subcategory: Government Entities*

#### **A New Respect for Science**

The New York Times

22-Dec-08

Discusses scientist appointments to sub-cabinet positions: Jane Lubchenco, a marine biologist, to head the National Oceanic and Atmospheric Administration (NOAA) and John Holdren, a Harvard physicist, as Barack Obama's science adviser.

[http://www.nytimes.com/2008/12/22/opinion/22mon2.html?\\_r=2&ref=opinion](http://www.nytimes.com/2008/12/22/opinion/22mon2.html?_r=2&ref=opinion)

### *Subcategory: Nanotechnology*

#### **Nanomaterial Characterization**

Britt E. Erickson

Chemical & Engineering News

15-Dec-08

When it comes to studying the environmental, health, and safety (EHS) aspects of nanomaterials, it is critical for researchers to know what material they are working with, experts say.

<http://pubs.acs.org/cen/government/86/8650gov1.html>

### *Subcategory: Regulatory/ Government*

#### **Of Mice, Mountains, and Magma**

Peter O'Donnell

Applied Clinical Trials

01-Jan-09

Discusses what EU antitrust authorities have uncovered so far in their search for sabotage: "competition in this industry does not work as well as it should" but there is little evidence to support that any failings are due to improper activity.

<http://appliedclinicaltrialsonline.findpharma.com/appliedclinicaltrials/Drug+Development//ArticleStandard/Article/detail/574843>

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## **CLINICAL TRIALS**

### *Subcategory: Miscellaneous*

#### **Encyclopedia of Clinical Trials Now Available**

Applied Clinical Trials

15-Jan-09

Describes the Wiley Encyclopedia of Clinical Trials as a unique and world-class compendium of basic concepts, methodologies and applications in clinical trials.

<http://appliedclinicaltrialsonline.findpharma.com/appliedclinicaltrials/News/ArticleStandard/Article/detail/575643?contextCategoryId=3300>

### *Subcategory: Privacy/ Records Management*

#### **IntraLinks' Poll Shows Fifty Percent Share Critical Info via E-mail**

Applied Clinical Trials

26-Jan-09

Top concerns of those considering web-based solutions for exchanging clinical trial information are security (40%), ease, flexibility of use (23%), speed of information sharing (17%), standardization across the enterprise (7%).

<http://appliedclinicaltrialsonline.findpharma.com/appliedclinicaltrials/News/ArticleStandard/Article/detail/577379?contextCategoryId=3300>

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## **DIAGNOSTIC TOOLS**

### *Subcategory: Genomics*

#### **New Technique Enables Faster Genetic Diagnosis for Hereditary**

Universitei Antwerpent

08-Dec-08

Joining together multiplex PCR and massive parallel sequencing makes it possible to screen all of a person's relevant hereditary matter at one time. This parallel technology offers an affordable solution for molecular diagnostics of numerous disorders.

[http://www.vib.be/NR/rdonlyres/E8FB2BC8-3D32-4D76-BFC1-9609FA07C689/2782/20081205\\_ENG\\_DelFavero\\_Newtechniqueenablesfasterge.pdf](http://www.vib.be/NR/rdonlyres/E8FB2BC8-3D32-4D76-BFC1-9609FA07C689/2782/20081205_ENG_DelFavero_Newtechniqueenablesfasterge.pdf)

### *Subcategory: Oncology*

#### **New Technique Lets Researchers Find Cancer-Promoting Gene Fusions**

Howard Hughes Medical Institute

11-Jan-09

Combining 2 different methods to sequence the messenger RNA inside a cell is an efficient new way to detect genes that have been inappropriately fused together, a type of genetic abnormality that spurs the growth of blood and prostate cancers.

<http://www.hhmi.org/news/chinnaiyan20090111.html>

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## **DRUG DELIVERY**

### *Subcategory: Ultrasound*

#### **New Partnership Embarks on European SonoDrugs Project**

Applied Clinical Trials

28-Jan-09

Drugs delivered directly to disease sites via a patient's bloodstream are activated by focused ultrasound pulses. The SonoDrugs project aims to maximize therapeutic efficiency, minimize side effects of drug treatments for cancer, cardiovascular disease.

<http://appliedclinicaltrialsonline.findpharma.com/appliedclinicaltrials/News/ArticleStandard/Article/detail/577962?contextCategoryId=3300>

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## **INDUSTRY**

### *Subcategory: Employment/Jobs*

#### **Why Women Leave Science**

Sue V. Rosser and Mark  
Zachary Taylor

Technology Review

01-Jan-08

Offers vivid evidence that when female scientists and engineers lose the struggle to balance career and family, scientific resources are lost as well.

<http://www.technologyreview.com/article/21859/>

### *Subcategory: General*

#### **Buckle-Up Biopharma**

Chitra Sethi

BioPharm International

01-Jan-09

"What is the general outlook for the industry? Will employment opportunities decrease in the future? "How will the economic downturn affect me? What are salary trends and gender gaps?" Sethi reports on BioPharm International's third annual salary survey.

<http://biopharminternational.findpharma.com/biopharm/Feature+Rotating+Article/Buckle-Up-Biopharma/ArticleStandard/Article/detail/575126>

### *Subcategory: Miscellaneous*

#### **Life Science's Undercurrent**

Paul Livingstone

R & D Magazine

27-Jan-09

Reports on Geron's FDA approval for embryonic stem cell studies, RNA screening lab for researchers who, due to budget constraints and lack of access, might otherwise never conduct high-throughput screening on attractive genomic targets.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~140000101~ISSUE~0901~RELTYPE~PR~ORIGRELTYPE~EDNT~PRODCODE~00000000~PRODLETT~KF.html>

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## **INVESTMENTS/GOV. SUPPORT**

### *Subcategory: Education*

#### **Wanted: More Science and Math Teachers in the US**

Stacy Teicher Khadaroo                      The Christian Science Monitor                      29-Dec-08

Describes financial and training incentives that school officials hope will help fill the need for 200,000 new teachers.

<http://www.csmonitor.com/2008/1229/p02s01-usgn.html>

### *Subcategory: Energy/ Fuel*

#### **Backyard Reactors? Firms Shrink the Nukes.**

Mark Clayton                                      The Christian Science Monitor                      29-Dec-08

Like solar and wind power, a pocket nuke is a modular, carbon-free power source. Unlike those other energy sources, it would generate power 24/7 and at a fraction of the cost of a diesel generator, advocates say.

<http://features.csmonitor.com/environment/2008/12/29/backyard-reactors-firms-shrink-the->

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## **NOVEL APPLICATIONS**

### *Subcategory: Microorganisms*

#### **Researchers Use Bacteria to Generate Biofuels**

Matthew Chin                                      University of California                      02-Jan-08

Escherichia coli (E. coli) bacteria may be the key to more efficiently synthesizing and mass producing biofuels.

[http://today.ucla.edu/portal/ut/080102\\_e-coli\\_biofuels.aspx](http://today.ucla.edu/portal/ut/080102_e-coli_biofuels.aspx)

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## **PLATFORM TECHNOLOGIES**

### *Subcategory: Cell Therapy*

#### **Columbia University Scientist Devises New Way to More Rapidly Generate Bone Tissue**

Alex Lyda    Columbia University                      15-Dec-08

Researchers co-transplanted hematopoietic and mesenchymal stem/progenitor cells to promote the regeneration of vascularized tissues. What they found was that the tissue regenerated in bone more rapidly than when either type of stem cell was used alone.

[http://www.cumc.columbia.edu/news/press\\_releases/20081215\\_Mao\\_Bone\\_PLoS.html](http://www.cumc.columbia.edu/news/press_releases/20081215_Mao_Bone_PLoS.html)

#### **Drugs Unlock the Body's Own Stem Cell Cabinet**

Andy Coghlan                                      New Scientist                      01-Jan-09

Instead of injecting patients with stem cells from donors, embryos or stem cell banks, doctors could simply inject the drugs and the patients

would produce the cells themselves.

<http://www.newscientist.com/article/dn16383-drugs-unlock-the-bodys-own-stem-cell->

### **A Single Virus Creates Pluripotent Stem Cells**

R & D Magazine

08-Jan-09

Scientists discovered a more efficient way to create induced Pluripotent Stem (iPS) cells, derived from mouse fibroblasts, by using a single virus vector instead of multiple viruses in the reprogramming process.

<http://www.rdmag.com/ShowPR.aspx?PUBCODE=014&ACCT=140000101&ISSUE=0901&RELTYPE=LST&PRODCODE=00000000&PRODLETT=AY&CommonCount=0>

### **Stem Cells Undo Birth Defects**

Jocelyn Rice

Technology Review

07-Jan-09

By injecting stem cells directly into the brain, scientists have successfully reversed neural birth defects in mice whose mothers were given heroin during pregnancy. The transplanted cells induced the brain's own cells to carry out extensive repairs.

<http://www.technologyreview.com/biomedicine/21930/>

### *Subcategory: Epigenetics*

### **Mysterious Ways**

Economist

22-Jan-08

Just how identical are identical twins? The answer: “not as identical as you might think”. The differences may help to illuminate epigenesis, which allows characteristics to be inherited in a way that is partly independent of the composition of their DNA.

[http://www.economist.com/science/displaystory.cfm?story\\_id=12971012](http://www.economist.com/science/displaystory.cfm?story_id=12971012)

### *Subcategory: Genomics*

### **Bad Old Genes**

Economist

13-Nov-08

Genetic diseases seem to be caused so disproportionately by old genes; discovery suggests that such diseases are an inescapable component of life which even evolution cannot get rid of.

[http://www.economist.com/science/displaystory.cfm?story\\_id=12592274](http://www.economist.com/science/displaystory.cfm?story_id=12592274)

### **Re-write the Textbooks: Transcription Is Bidirectional**

EMBL Heidelberg

25-Jan-09

Study redefines the concept of promoters (the start sites of transcription), contradicting the established notion that they support transcription in one direction only.

<http://www.embl.de/aboutus/news/press/press09/25jan09/index.html>

### **Rise of the Garage Genome Hackers**

Phil McKenna

New Scientist

07-Jan-09



### *Subcategory: Evolution Research*

#### **12 Elegant Examples of Evolution**

Brandon Keim

Wired

31-Dec-08

Feathers on flightless dinosaurs may first have served an insulating or aesthetic, rather than aerodynamic, purpose. Read about 11 more "Elegant examples of evolution."

<http://blog.wired.com/wiredscience/2008/12/evolutionexampl.html>

### *Subcategory: Gastroenterology*

#### **UTSouthwestern Scientists Identify 'Border Patrol Agents' in the Gut**

University of Texas Southwestern

08-Dec-08

Paneth cells, which line the guts of mammals, including humans, have been found to play a major role in making sure that bacteria — both good and bad types — remain in the right places.

<http://www.utsouthwestern.edu/utsw/cda/dept353744/files/504007.html>

### *Subcategory: Immunology/ Infectious Diseases*

#### **NYU Scientists Discover Dangerous New Method for Bacterial Toxin**

Lorinda Klein

NYU Medical Center

06-Jan-09

Bacterial swapping of toxins and other disease-aiding factors may be more common than previously imagined, by co-opting viral parasites as secret pipelines for transferring toxin genes to vastly different bacterial species.

<http://communications.med.nyu.edu/news/2009/nyu-scientists-discover-dangerous-new-method-bacterial-toxin-transfer>

#### **Biologists Learn Structure, Mechanism of Powerful 'Molecular Motor' in Virus**

Purdue News

26-Dec-08

Parts of a virus molecular motor move in sequence like the pistons in a car's engine, progressively drawing the genetic material into the virus's head, or capsid.

<http://news.uns.purdue.edu/x/2008b/081224RossmannMotors.html>

#### **Study Reveals Scientists' Fear of Law Enforcement**

R & D Magazine

30-Dec-08

Researchers have identified a set of 3 genes that helped underpin the extraordinary virulence of the 1918 virus that killed between 20 and 50 million people 90 years ago.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~1400000100~ISSUE~0812~RELTYPE~LST~PRODCODE~00000000~PRODLETT~CX.html>

#### **Scripps Research Scientists Identify Blood Component that Turns Bacteria Virulent**

Scripps Research Institute

20-Nov-08

Scientists have discovered the key chemical that signals Bacillus





### *Subcategory: Reproduction*

#### **Conceivable Risk**

Economist

11-Dec-08

Among those who used ovulation-inducing drugs the risk of developing uterine cancer was 3 times that of untreated women. Among women who had taken over a year to conceive, the risk increased eightfold.

[http://www.economist.com/science/displaystory.cfm?story\\_id=12758697](http://www.economist.com/science/displaystory.cfm?story_id=12758697)

### *Subcategory: Virology*

#### **Interferon Needed for Cells to 'Remember' How to Defeat a Virus, Researchers Report**

University of Texas

03-Dec-08

Scientists have determined that the immune-system protein interferon plays a key role in “teaching” the immune system how to fight off repeated infections of the same virus.

<http://www.utsouthwestern.edu/utsw/cda/dept353744/files/503302.html>

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## **RESEARCH TOOLS**

### *Subcategory: Collaboration*

#### **Putting Heads (And Computers) Together to Solve Global Problems**

Anne Trafton

MIT News

13-Jan-09

MIT's Center for Collective Intelligence (CCI) is trying to bring together the planet's collective brainpower and computing power to tackle some of the world's toughest problems, including global climate and cancer.

<http://web.mit.edu/newsoffice/2009/cci-0113.html>

### *Subcategory: Databases*

#### **Genes Immortalized Outside Biology**

R & D Magazine

12-Jan-09

Scientists have synthesized for the first time RNA enzymes that can replicate themselves without the help of any proteins or other cellular components, and the process proceeds indefinitely.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~140000101~ISSUE~0901~RELTYPE~LST~PRODCODE~00000000~PRODLETT~CE.html>

### *Subcategory: Evolution Research*

#### **Ten Extinct Beasts That Could Walk the Earth Again**

Henry Nicholls

New Scientist

07-Jan-09

Reviews the problems and possibilities of creating living animals that

have been long extinct, provides "revival recipe" and reality check for each step.

<http://www.newscientist.com/article/mg20126905.000-ten-extinct-beasts-that-could-walk-the-earth-again.html>

### *Subcategory: Genome Sequence*

#### **CSHL Scientists Find a New Class of Small RNAs and Define its Function**

Peter Tarr Cold Spring Harbor Laboratory 27-Jan-09

Discovery of a new class of small RNAs significantly improves understanding of how functional information is stored in the genome.

The research is part of a multinational project called ENCODE.

[http://www.cshl.edu/public/releases/09\\_small\\_rnas.html](http://www.cshl.edu/public/releases/09_small_rnas.html)

#### **Genome Hunters Set Their Sights on Creatures Great and Small**

Jane Charlesworth Guardian 01-Jan-09

Charlesworth comments on the genomes that sequencers hope to crack in 2009, including the dog, horse, rabbit, alpaca and pig chosen because of their economic or human disease importance as well as the brown bat and 9-banded armadillo.

<http://www.guardian.co.uk/science/blog/2009/jan/07/genome-sequence-genetics>

### *Subcategory: High Throughput Screening*

#### **Scientists Can Now Differentiate Between Healthy Cells and Cancer**

McMaster University 05-Jan-09

Researchers demonstrate the difference between normal stem cells and cancer stem cells in humans using robotic screening for available molecules that may have untapped potential to eradicate cancer.

[http://www.biologynews.net/archives/2009/01/05/scientists\\_can\\_now\\_differentiate\\_between\\_healthy\\_cells\\_and\\_cancer\\_cells.html](http://www.biologynews.net/archives/2009/01/05/scientists_can_now_differentiate_between_healthy_cells_and_cancer_cells.html)

### *Subcategory: Proteomics*

#### **Studies Offer Guide as Protein Interaction Mapping Comes of Age**

Bill Schaller Dana-Farber Cancer 06-Jan-09

Interactome maps, a comprehensive catalog of interactions between cell proteins, are constructed from a variety of sources, including new experiments and data from earlier studies.

<http://www.dana-farber.org/abo/news/press/2009/studies-offer-guide-as-protein-interaction-mapping-comes-of-age.html>

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## **STRATEGIC RELATIONSHIPS**

### *Subcategory: Biomarker*

#### **Imaging Biomarker Network**

Lisa Henderson Applied Clinical Trials 01-Jan-09

With greater attention and acceptance of biomarker use in clinical trials, the Society of Nuclear Medicine (SNM) is hoping to capitalize on its expertise in this area through the creation of the SNM Clinical Trials Network.

<http://appliedclinicaltrialsonline.findpharma.com/appliedclinicaltrials/Therapeutics/ArticleStandard/Article/detail/574837>

### *Subcategory: Collaboration*

#### **Clinical and Translational Science Awards**

The National Center for Research Resources 01-Jan-09

A national consortium is transforming how clinical and translational research is conducted, ultimately enabling researchers to provide new treatments more efficiently and quickly to patients. Multiple links.

[http://www.ncrr.nih.gov/clinical\\_research\\_resources/clinical\\_and\\_translational\\_science\\_award](http://www.ncrr.nih.gov/clinical_research_resources/clinical_and_translational_science_award)

### *Subcategory: Education*

#### **Twelve Schools Chosen To Expand HHMI's Innovative Science Education Program**

Howard Hughes Medical Institute 08-Jan-09

Describes the Science Education Alliance, which allows faculty to work together to deliver innovative science education programs and bring the excitement of the doing of science directly to students in a novel, collaborative way.

<http://www.hhmi.org/news/20090108sea.html>

### *Subcategory: Research Labs*

#### **Amateurs Are Trying Genetic Engineering at Home**

Marcus Wohlsen Associated Press 29-Dec-08

Describes a community lab where the public could use chemicals and lab equipment, set up for hobbyists trying to create new life forms through genetic engineering.

[http://hosted.ap.org/dynamic/stories/D/DO\\_IT\\_YOURSELF\\_DNA?SITE=VABRM&SECTION=HOME&TEMPLATE=DEFAULT](http://hosted.ap.org/dynamic/stories/D/DO_IT_YOURSELF_DNA?SITE=VABRM&SECTION=HOME&TEMPLATE=DEFAULT)

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## **THERAPEUTIC CATEGORY**

### *Subcategory: Metabolism: Obesity, Diabetes*

#### **Obesity: Reviving the Promise of Leptin**

McMaster University 06-Jan-09

Researchers report the first agents demonstrated to sensitize the brain to leptin, an appetite-suppressing hormone secreted by fat tissue.

[http://www.biologynews.net/archives/2009/01/06/obesity\\_reviving\\_the\\_promise\\_of\\_leptin.ht](http://www.biologynews.net/archives/2009/01/06/obesity_reviving_the_promise_of_leptin.ht)

*Subcategory: Pain Management*

**Air Force to Use 'Battlefield Acupuncture' for Pain Relief**

Noah Shachtman

Wired

11-Dec-08

Using tiny needles that barely penetrate the skin of a patient's ear, Air

Force doctors say they can interrupt pain signals going to the brain.

<http://blog.wired.com/defense/2008/12/air-force-turns.html>

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