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## BioTechCircle News®

**August 2008**

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Featured August articles:

### **Turning Waste Material into Ethanol**

By combining gasification with nanoscale porous catalysts, scientists hope to create ethanol from a range of biomass, including distiller's grain left over from ethanol production, corn stover from the field, grass, wood pulp, animal waste, and garbage.

<http://www.ameslab.gov/final/News/2008rel/syngas.html>

### **Key Patterns Discovered In The Packaging Of Genes**

Using a new technology called ChIP-Seq, scientists identified 39 histone modifications, including a "core set" of 17 modifications that tended to occur together and were associated with genes observed to be active.

<http://www.biosciencetechnology.com/ShowPR~PUBCODE~090~ACCT~9000000100~ISSUE~0807~RELTYPE~RLSN~PRODCODE~00000000~PRODLETT~Y.html>

### **New Research Results Explain How Dormant Tumor Cells Become Active in Later Years**

The switch from dormancy to proliferative, metastatic growth may be regulated, in part, through signaling from the surrounding microenvironment. The extracellular matrix (ECM) has been found to provide factors for cell growth and survival.

<http://www.cancer.gov/newscenter/pressreleases/MetastaticOutreachBarkan>

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**In this articles section: links to 57 free Web articles in 14 major categories.**

The major categories are in alphabetical order and further subdivided to make it easy for you to locate news and developments in technology, the business and the markets in the life science areas of interest to you.

*Note: if the links don't connect you directly, please copy and paste the entire URL into your web browser.*

Here are the major categories and the page where each category starts:

Agri-Biotech (7 articles) – Page 2  
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## AGRI-BIOTECH

### *Subcategory: Animal*

#### **Arsenic-containing Lipids in Fish Oil**

American Oil Chemists Society

01-Aug-08

A novel group of naturally occurring arsenic-containing lipids have been found in the plankton-feeding fish capelin. Whether the arsenic-containing hydrocarbons have a function or are made through inaccuracies in biosynthetic processes is uncertain.

<http://www.aocs.org/news/story.cfm?id=705>

### *Subcategory: Energy/ Fuel*

#### **Turning Waste Material into Ethanol**

Ames Laboratory

12-Aug-08

By combining gasification with nanoscale porous catalysts, scientists hope to create ethanol from a range of biomass, including distiller's grain left over from ethanol production, corn stover from the field, grass, wood pulp, animal waste, and garbage.

<http://www.ameslab.gov/final/News/2008rel/syngas.html>

#### **Elbow Deep In Ethanol Energy**

Chem.Info

29-Jul-08

Describes process using non-food ingredients, such as the leaves from a

corn plant or wood wastes, and convert the bio-based material through a gasification process to synthesis gas. Collaboration between Dow Chemical and Dept. of Energy.

<http://chem.info/ShowPR.aspx?PUBCODE=075&ACCT=0075274&ISSUE=0807&ORIGRELT YPE=TJI&RELTYPE=PR&PRODCODE=05085&PRODLETT=A&CommonCount=0>

### **Biomass Combo**

Steve Ritter

Chemical & Engineering News

18-Aug-08

Coproducing a bioplastic along with a biofuel derived from the plant's cellulose boosts the prospects for using switchgrass, other nonfood crops as renewable feedstocks for biorefineries expected to economically produce fuels and chemicals.

<http://pubs.acs.org/cen/news/86/i33/8633notw7.html>

### *Subcategory: Environment*

### **Pioneering Work In Bio-based Toners**

Chemi.Info

08-Aug-08

Describes bio-based toners and resins that use soy oil and protein, along with carbohydrates from corn, as its chemical feedstock. Inks are significantly easier to remove from the paper fiber.

<http://www.chem.info/ShowPR~PUBCODE~075~ACCT~0077009~ISSUE~0808~ORIGRELT YPE~TJI~RELTYPE~PR~PRODCODE~33345~PRODLETT~A.html>

### **Green Roofs Differ in Building Cooling, Water Handling Capabilities**

EurekaAlert!

12-Aug-08

The study of 6 different manufacturers' products found the green roofs varied greatly in capabilities such as how much they cooled down a building's interior and how much rainwater they captured during downpours.

[http://www.eurekaalert.org/pub\\_releases/2008-08/uota-grd081208.php](http://www.eurekaalert.org/pub_releases/2008-08/uota-grd081208.php)

### *Subcategory: Food*

### **Drug Tainted Food Is A Concern For Athletes**

Marc S. Reisch

Chemical & Engineering News

11-Aug-08

A number of published studies have shown that consumers who took blood tests soon after eating meat containing anabolic steroids tested positive for the hormones. As a result, many Olympics athletes made their own special food arrangements.

<http://pubs.acs.org/cen/business/86/8632bus1b.html>

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## **BIOBUSINESS MANAGEMENT**

### *Subcategory: Computing Systems*

### **Internet Security Hole Revealed**

Erica Naone Technology Review 08-Aug-08  
Describes major design flaw in the Internet domain name server system, allowing attackers to gain access to e-mail accounts or to infiltrate the systems in place to make online transactions secure. Patches are called a “stopgap.”

<http://www.technologyreview.com/Infotech/21198/?a=f>

*Subcategory: Environment*

**International Standards Help Companies Talk About Sustainability**

Melody Voith Chemical & Engineering News 18-Aug-08

Discusses sustainability reporting by chemical companies such as 3M and Albemarl, based on the Global Reporting Initiative (GRI), a voluntary set of guidelines for reporting on a company's financial, social, and environmental sustainability.

<http://pubs.acs.org/cen/coverstory/86/8633cover2box.html>

**Sustainability**

Rudy M. Baum Chemical & Engineering News 18-Aug-08

For most of human existence, humans lived off the sun in real time. Vastly more sunshine falls on the planet each day than we currently or even conceivably could consume. That's the good news. The bad news? Fossil fuels have made us lazy.

<http://pubs.acs.org/cen/coverstory/86/8633cover.html>

*Subcategory: Government/ Approvals*

**Industry Squirms Under Antitrust Spotlight**

Peter O'Donnell Applied Clinical Trials 01-Aug-08

The increased cost and complexity of clinical trials is one of the reasons behind the reduced productivity of the European pharmaceutical industry, according to the European Federation of Pharmaceutical Industries and Associations (EFPIA).

<http://appliedclinicaltrialsonline.findpharma.com/appliedclinicaltrials/Regulatory+Articles/ArticleStandard/Article/detail/534158?contextCategoryId=44907>

*Subcategory: M&A Activities*

**Roche's Big Hurdle with Genentech**

Arlene Weintraub Business Week 24-Jul-08

Big drugmakers have been buying biotechs at a record pace. Consolidation yields short-term cost savings but doesn't always improve drug discovery, as top biotech executives tend to leave rather than sacrifice their freedom.

[http://www.businessweek.com/magazine/content/08\\_31/b4094028637650.htm](http://www.businessweek.com/magazine/content/08_31/b4094028637650.htm)

*Subcategory: Research Labs*

## **Out in the Open: Some Scientists Sharing Results**

Carolyn Y. Johnson

Boston Globe

21-Aug-08

The open-science movement encourages scientists to share techniques and even their work long before they are ready to present results, when they are devising research questions, running experiments, and analyzing data.

[http://www.boston.com/news/local/articles/2008/08/21/out\\_in\\_the\\_open\\_some\\_scientists\\_sha](http://www.boston.com/news/local/articles/2008/08/21/out_in_the_open_some_scientists_sha)

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## **DIAGNOSTIC TOOLS**

### *Subcategory: Imaging*

#### **Spit Sensor Spots Oral Cancer**

Brittany Sauser

Technology Review

06-Aug-08

An optical sensor can measure proteins in saliva that are linked to oral cancer. The device is highly sensitive, allowing doctors and dentists to detect the disease early.

<http://www.technologyreview.com/Biotech/21174/?a=f>

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## **DRUG DELIVERY**

### *Subcategory: Nanotechnology*

#### **Shape Matters for Nanoparticles**

Kevin Bullis

Technology Review

07-Aug-08

Nanoparticles shaped to resemble certain bacteria can more easily infiltrate human cells. Results suggest that altering the shape of nanoparticles can make them more effective at treating disease.

<http://www.technologyreview.com/Nanotech/21181/?a=f>

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## **INDUSTRY**

### *Subcategory: Educational Issues*

#### **'Hell Week' for U.S. Teen Scientists**

Albert Sun

Business Week

14-Aug-08

Explains how some of the best and brightest U.S. high school students spend summers preparing to tackle science's biggest challenges in biotechnology, IT, alternative energy and other projects.

[http://www.businessweek.com/technology/content/aug2008/tc2008085\\_116154.htm](http://www.businessweek.com/technology/content/aug2008/tc2008085_116154.htm)

### *Subcategory: Energy/ Fuel*

#### **Sunny Forecast For Fuel Cells**



Indian, Chinese companies are performing the most advanced types of R&D for multinational corporations. Conclusion: global technology landscape has changed dramatically over the last decade and we're at the beginning of a new wave of globalization.

[http://www.businessweek.com/technology/content/jun2008/te20080610\\_151383.htm?chan=se](http://www.businessweek.com/technology/content/jun2008/te20080610_151383.htm?chan=se)

### *Subcategory: Government/ Approvals*

#### **Parexel Data Indicate U.S. Marketing Applications for New Molecular Entities Bounce Back**

Applied Clinical Trials

25-Aug-08

New data show only 16 new molecular entities (NME) approvals in the U.S., and global new active substance (NAS) launches declined 19% to 25, during 2007. Marketing applications for NMEs increased to 28 in 2007, up from 21 in 2006.

<http://appliedclinicaltrialsonline.findpharma.com/appliedclinicaltrials/News/ArticleStandard/Article/detail/544135?contextCategoryId=3300>

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## NOVEL APPLICATIONS

### *Subcategory: Energy/ Fuel*

#### **Water Refineries?**

National Science Foundation

31-Jul-08

Using a surprisingly simple, inexpensive technique, chemists have found a way to pull pure oxygen from water using relatively small amounts of electricity, common chemicals and a room-temperature glass of water.

[http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=111975](http://www.nsf.gov/news/news_summ.jsp?cntn_id=111975)

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## PEOPLE PROFILES

### *Subcategory: Computing Systems*

#### **IO Informatics Puts Semantic Web Ideas to Work**

John Russell

Bio-IT World

09-Jul-08

Discusses the transformation of Biosentients into IO Informatics, which turns semantic web technology into practical applications that enhance biomedical research.

<http://www.bio-itworld.com/news/2008/07/09/io-informatics-puts-semantic-web-ideas-to->

### *Subcategory: Energy/ Fuel*

#### **Algae Expert Fuels Designs for Custom Biofuels**

R&D Magazine

27-Aug-08

One type of algae might produce oil appropriate for a motor

vehicle, another for home heating oil, yet another for powering aircraft, others. Could produce oil useful for other products, such as the omega three fatty acids.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~140000101~ISSUE~0808~RELTYPE~PSC~PRODCODE~00000000~PRODLETT~MV.html>

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## PERSONALIZED MEDICINE

### *Subcategory: Computing Systems*

#### **Breakthrough Approach Matches Tumor Profiles to Best Possible Anticancer Treatments**

University of Virginia

24-Jul-08

Researchers have devised and tested an algorithm designed to match the best potential treatment(s) for a particular tumor in a particular patient.

<http://www.virginia.edu/uvatoday/newsRelease.php?id=2404>

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## PHARMACEUTICALS

### *Subcategory: Cell Therapy*

#### **Patient-Matched Stem Cells**

Emily Singer

Technology Review

01-Aug-08

Stem cells derived from the skin of an 82-year-old patient with amyotrophic lateral sclerosis (ALS) could provide a novel model for studying the degenerative motor disease, screening new treatment drugs.

<http://www.technologyreview.com/Biotech/21157/>

### *Subcategory: Proteomics*

#### **Special Delivery To Mitochondria**

Carmen Drahl

Chemical & Engineering News

25-Aug-08

Defects in mitochondria, the cell's energy factories, can play a part in cancer, diabetes, and other ailments. Peptide-based biochemical tools that traverse the mitochondrial membrane could lead to better-targeted and more powerful treatments for disease.

<http://pubs.acs.org/cen/news/86/i34/8634notw10.html>

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## PLATFORM TECHNOLOGIES

### *Subcategory: Cell Therapy*

#### **Scientists Replicate Diseases in the Lab with New Stem Cell Lines**

Howard Hughes Medical 07-Aug-08  
Researchers have converted cells from individuals with the diseases into stem cells with the same genetic errors. These disease-specific stem cells grow indefinitely, and scientists can coax them into becoming a variety of cell types.  
<http://www.hhmi.org/news/daley20080807.html>

**Stanford Fruit-fly Study Adds Weight to the Theories about Another Type of Adult Stem Cell**

Krista Conger Stanford University 31-Jul-08  
Mature, specialized cells have been found to naturally regress to a kind of stem cell during the fruit-fly life cycle. Organisms might use both undifferentiated cells and differentiated yet reversible facultative stem cells under different conditions.  
[http://med.stanford.edu/news\\_releases/2008/july/fruit-fly.html](http://med.stanford.edu/news_releases/2008/july/fruit-fly.html)

*Subcategory: Energy/ Fuel*

**Biofuels, Batteries, And Solar Cells: The Future Of Driving**

Steven K. Ritter Chemical & Engineering News 18-Aug-08  
Plug-in hybrid vehicles offer the possibility of running on a combination of low carbon emissions and carbon-free electricity. A major shortcoming in the technology is the limited driving range on battery power, which typically is less than 20 miles.  
<http://pubs.acs.org/cen/coverstory/86/8633cover3box1.html>

**Brew Your Own**

Economist 30-Jul-08  
Making hydrogen at home, using a membrane, gets around the problem of a lack of hydrogen filling stations. Hydrogen becomes a way of storing off-peak electricity, pumped into your car and run through a fuel cell, or burned in a conventional engine.  
[http://www.economist.com/science/tm/displaystory.cfm?story\\_id=11831730](http://www.economist.com/science/tm/displaystory.cfm?story_id=11831730)

*Subcategory: Epigenetics*

**Putting microRNAs On The Stem Cell Map**

Cristin Carr Bioscience Technology 15-Aug-08  
Discovery of how microRNAs fit into embryonic stem cell circuitry moves closer to understanding how adult cells can be reprogrammed to an embryonic state, then to other types of cells, to understanding role of microRNAs in cancer, other diseases.  
<http://www.biosciencetechnology.com/ShowPR~PUBCODE~090~ACCT~9000000100~ISSUE~0808~RELTYPE~RLSN~PRODCODE~00000000~PRODLETT~O.html>

**One Cell Becomes Another: No Stem Cells Needed**

R&D Magazine 28-Aug-08

Scientists used a virus to coax one type of cell to become another, without the intermediate stem cell step. Technique could soon be used to treat people with diabetes and has major impact on the field of regenerative medicine.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~1400000101~ISSUE~0808~RELTYPE~LST~PRODCODE~00000000~PRODLETT~MZ.html>

### *Subcategory: Evolution Research*

#### **Switching On Cell Types Early In Embryo Development**

TS-SI Science Access

14-Aug-08

A molecular switch occurs when 2 central control genes, Hox and Senseless (Sens), compete for influence to regulate genetic signals that instruct cells to differentiate and begin tissue and/or blood formation.

<http://ts-si.org/content/view/3422/991/>

### *Subcategory: Genomics*

#### **Are DNA Barcodes Always Accurate?**

Bioscience Technology

28-Aug-08

DNA barcoding is a movement to catalog all life on earth by a simple standardized genetic tag. However, scientists have not been careful in monitoring the accuracy of the underlying data, say some experts.

<http://www.biosciencetechnology.com/ShowPR~PUBCODE~090~ACCT~9000000100~ISSUE~0808~RELTYPE~RLSN~PRODCODE~00000000~PRODLETT~AK.html>

#### **Making Genetic Testing Useful**

Emily Singer

Technology Review

22-Jul-08

In a project to convert identified disease-risk genes into useful medical information, scientists will use previously donated DNA samples to identify 100 different variations in the participants, then sift through data to clarify how they affect health.

<http://www.technologyreview.com/Biotech/21113/>

#### **Consortium Develops New Method to Manipulate Genetic Material**

Nick Hanson

University of Minnesota

24-Jul-08

Researchers may now engineer customized zinc-finger nucleases (ZFNs), which can be used to target and manipulate DNA sequences for inactivation or repair in many types of cells, including plants, model organisms such as fruit flies and human cells.

<http://www.ahc.umn.edu/news/releases/consortium072408/home.html>

### *Subcategory: Lab-on-a-chip/ DNA Chips/*

#### **Amplifying Small Molecules**

Celia Henry Arnaud

Chemical & Engineering News

18-Aug-08

Describes method using a supramolecular complex to design a structure

to recognize a molecule of interest ranging from chemical weapons and biological toxins to neurotransmitters and small-molecule disease markers.

<http://pubs.acs.org/cen/news/86/i33/8633notw4.html>

### ***Subcategory: Nanotechnology***

#### **MIT Creates New Material for Fuel Cells**

Elizabeth A. Thomson                      Massachusetts Institute of Technology                      31-Jul-08

Engineers have improved the power output of one type of fuel cell by more than 50% using a relatively new technique known as layer-by-layer assembly to create a thin-film membrane that may completely replace expensive Nafion.

<http://web.mit.edu/mitei/research/spotlights/fuel-cell.html>

### ***Subcategory: Proteomics***

#### **Key Patterns Discovered In The Packaging Of Genes**

Bioscience Technology                      16-Jul-08

Using a new technology called ChIP-Seq, scientists identified 39 histone modifications, including a “core set” of 17 modifications that tended to occur together and were associated with genes observed to be active.

<http://www.biosciencetechnology.com/ShowPR~PUBCODE~090~ACCT~9000000100~ISSUE~0807~RELTYPE~RLSN~PRODCODE~00000000~PRODLETT~Y.html>

#### **RNA Snippets Pack Power**

Carrie Arnold                      Chemical & Engineering News                      04-Jul-08

Studies show that cells use miRNAs to fine-tune protein synthesis and that each miRNA molecule can control the production of a surprisingly large number of proteins.

<http://pubs.acs.org/cen/news/86/i31/8631notw8.html>

#### **Ten-year Study Reveals Method to Protein Motion**

R&D Magazine                      28-Aug-08

Research shows that not only are protein motions more restricted, but also that these restricted, controlled motions are part of the function of the proteins. Counters belief that proteins have many random, uncontrolled movements.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~1400000101~ISSUE~0808~RELTYPE~LST~PRODCODE~00000000~PRODLETT~NH.html>

#### **New Protein Survey Upends Understanding of Cell Death Process**

Mark Schrope                      Scripps Research Institute                      25-Aug-08

Study results have nearly tripled the number of proteins known to be involved in the critical process of programmed cell death, opens doors for potential new drug discoveries.

[http://www.scripps.edu/newsandviews/e\\_20080825/protein.html](http://www.scripps.edu/newsandviews/e_20080825/protein.html)



Discusses 2 drugs that increase the expression of a gene called PPAR $\delta$ , which increases running stamina. Could provide a new way to induce the health benefits of exercise, especially in people who find it difficult but are most in need.

<http://www.technologyreview.com/Biotech/21154/>

### *Subcategory: Neurology*

#### **Harvard-Columbia Team Creates Neurons from ALS Patient's Skin**

Alex Lyda

Columbia University

11-Aug-08

Describes the first time that skin cells from a chronically-ill patient have been reprogrammed into a stem cell-like state, and then coaxed into the specific cell types that would be needed to understand and treat amyotrophic lateral sclerosis (ALS).

[http://www.cumc.columbia.edu/news/press\\_releases/stemcell.als.henderson.html](http://www.cumc.columbia.edu/news/press_releases/stemcell.als.henderson.html)

### *Subcategory: Oncology*

#### **New Research Results Explain How Dormant Tumor Cells Become Active in Later Years**

National Cancer Institute

01-Aug-08

The switch from dormancy to proliferative, metastatic growth may be regulated, in part, through signaling from the surrounding microenvironment. The extracellular matrix (ECM) has been found to provide factors for cell growth and survival.

<http://www.cancer.gov/newscenter/pressreleases/MetastaticOutreachBarkan>

### *Subcategory: Proteomics*

#### **Team Unravels New Cellular Repair Mechanism**

Mark Schrope

Scripps Research Institute

11-Aug-08

A new biochemical pathway has been found that triggers a critical repair response to correct errors in the DNA replication process that could otherwise lead to harmful or fatal mutations in cells. Potential for new cancer therapies.

[http://www.scripps.edu/newsandviews/e\\_20080811/wittenberg.html](http://www.scripps.edu/newsandviews/e_20080811/wittenberg.html)

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## **RESEARCH TOOLS**

### *Subcategory: Computing Systems*

#### **Biology Enters "The Matrix" Through New Computer Language**

Harvard University

20-Jul-08

A new computer language for modeling biological phenomenon can "think" like cells and molecular mechanisms think, thereby simulating the dynamics of biological phenomenon.

<http://web.med.harvard.edu/sites/RELEASES/html/072208Gunawardena.html>

*Subcategory: Genomics*

**Zooming in on Genomics**

R&D Magazine

05-Aug-08

Researchers have developed a novel and freely available visualization tool that helps users simultaneously integrate and analyze different types of genomic data; can zoom in on a specific genomic region pan out for a broad, whole genome view.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~1400000100~ISSUE~0808~RELTYP~SOFT~PRODCODE~00000000~PRODLETT~BM.html>

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## STRATEGIC RELATIONSHIPS

*Subcategory: Academia/ Laboratories*

**Ausiello: More Academy-Industry Collaboration Needed**

Catherine Varmazis

Bio-IT World

28-Jul-08

Partnerships between academia and industry are needed more than ever; while many academic researchers fail to appreciate that understanding a disease is an academic pursuit, curing it is a business.

<http://www.bio-itworld.com/ecliniqua/2008/07/28/ausiello-dia-keynote.html>

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## THERAPEUTIC CATEGORY

*Subcategory: Psychiatry/ Psychology*

**A Touch of Generosity**

Economist

14-Aug-08

It is known that stroking rats can raise the level of oxytocin, a hormone active in the brain and implicated in various social interactions. Discusses how touch can inspire generosity towards those you trust.

[http://www.economist.com/science/displaystory.cfm?story\\_id=11919360](http://www.economist.com/science/displaystory.cfm?story_id=11919360)

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