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## BioTechCircle News®

July 2007

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Featured July article:

### **Studying Protein Structure Can Be A Musical Experience**

A blind student has developed software that allows him to navigate a protein structure simply by listening through headphones for musical cues; different atoms are represented by different musical instruments.

<http://pubs.acs.org/cen/education/85/8530education4.html>

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**In this articles section: links to 42 free Web articles in 12 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 (1 article) – Page 2  
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## AGRI-BIOTECH

### *Subcategory: Crops*

#### **Ant And Tech**

Economist

12-Jul-07

African mango farmers could increase their harvests by as much as two-thirds with the help of weaver ants, which hunt down and eat fruit flies and other pests. Although used in China, other Asian countries and Australia, the practice is new to Africa.

[http://www.economist.com/science/displaystory.cfm?story\\_id=9468901](http://www.economist.com/science/displaystory.cfm?story_id=9468901)

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## BIOBUSINESS MANAGEMENT

### *Subcategory: Facilities*

#### **Construction Boom Boosts New Lab Costs**

R & D Magazine

01-Jul-07

Tables and discussion of new lab costs by geographic location in the U.S. and selected countries, type of labs (such as biomedical, animal research, GMP production). Costs are also shown for renovation and component refurbishment.

[http://www.rdmag.com/pdf/RD0707\\_Lab.pdf](http://www.rdmag.com/pdf/RD0707_Lab.pdf)

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## DIAGNOSTIC TOOLS

### *Subcategory: Oncology*

#### **FDA Clears J&J Rapid Breast Cancer Test**

Forbes.com

16-Jul-07

New laboratory tests can diagnose cancer in lymph nodes in about 30 minutes, allowing surgeons to remove them immediately rather than having to wait 1-2 days for tissue sample results.

<http://www.forbes.com/feeds/ap/2007/07/16/ap3918891.html>

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## DRUG DELIVERY

### *Subcategory: Vectors*

#### **Viral vs. Non-viral: The debate**

Anna Lewcock

in-Pharma Technologist

18-Jul-07

Reports elements of both sides of one of the key debates in gene delivery: which is superior - viral or non-viral delivery at a Controlled Release Society meeting. Read the article to learn which side the attendees favored.

<http://www.in-pharmatechnologist.com/news/ng.asp?n=78290>

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## INDUSTRY

### *Subcategory: Distribution*

#### **Revolution in the Pharmaceutical Supply Chain**

Michael T. Ricci, BS, MBA, Drug Discovery & Development 01-Jul-07  
and Heather E. Fraser  
BPharm, MBA

As a greater volume and variety of new products move into clinical development, the industry's pipeline will become wider and more complex, and the demands placed on manufacturing and distribution will become even greater.

<http://www.dddmag.com/ShowPR.aspx?PUBCODE=016&ACCT=1600000100&ISSUE=0611&RELTYPE=TR&PRODCODE=00000000&PRODLETT=AK>

### *Subcategory: Energy/Fuel*

#### **BP, DuPont Form Ethanol Venture**

Glenn Hess Chemical & Engineering News 02-Jul-07

British oil giant BP is joining U.K. grain marketer Associated British Foods (ABF) and chemical maker DuPont to construct a \$400 million plant in northeastern England to make ethanol from locally grown wheat beginning in late 2009.

<http://pubs.acs.org/cen/news/85/i27/8527notw6.html>

#### **Boon For Biofuels**

Michael McCoy Chemical & Engineering News 09-Jul-07

Reviews new projects seeking to create energy from a range of renewable feedstocks. The oilseed jatropha is a desirable biodiesel feedstock because it does not compete with food crops for good agricultural land or adversely impact the rainforest.

<http://pubs.acs.org/cen/news/85/i28/8528notw6.html>

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## NOVEL APPLICATIONS

### *Subcategory: Computing Systems*

#### **Arresting Developments**

Economist

12-Jul-07

The ability to synthesize huge screeds of DNA at will means the genomes of viruses can be replicated already, and replicating those of bacteria is not far off. A researcher now proposes to recreate living organisms inside a computer.

[http://www.economist.com/science/displaystory.cfm?story\\_id=9468793](http://www.economist.com/science/displaystory.cfm?story_id=9468793)

### *Subcategory: Proteomics*

#### **Studying Protein Structure Can Be A Musical Experience**

Linda Wang

Chemical & Engineering News

23-Jul-07

A blind student has developed software that allows him to navigate a protein structure simply by listening through headphones for musical cues; different atoms are represented by different musical instruments.

<http://pubs.acs.org/cen/education/85/8530education4.html>

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## **ORGANIZATIONS**

### *Subcategory: Energy/ Fuel*

#### **Building Better Biofuels**

Neil Savage

Technology Review

06-Jun-07

Reviews some biotech startup companies that are positioning themselves to take advantage of an anticipated booming market for biofuels.

<http://www.technologyreview.com/Biztech/18827/>

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## **PLATFORM TECHNOLOGIES**

### *Subcategory: Biomanufacturing*

#### **Safflower Seeds Sowing a Protein-producing Future**

Katrina Megget

in-Pharma Technologist

17-Jul-07

Safflower seed is being used as a protein-producing factory at commercial levels of an atherosclerosis treatment. The seed lines have also proved successful in producing ~43 other therapeutic proteins at a fraction of the cost of conventional methods.

<http://www.in-pharmatechnologist.com/news/ng.asp?id=78254>



## **Semiconductor Membrane Mimics Biological Behavior of Ion Channels**

University of Illinois

12-Jul-07

Nanopores in the membrane, built from thin silicon layers doped with different impurities, allows separation of charged species, flow regulation of charged molecules and ions, thereby mimicking the operation of biological ion channels.

<http://www.news.uiuc.edu/news/07/0712membrane.html>

### *Subcategory: Proteomics*

## **Protein Pulling: Learning How Proteins Fold by Pulling Them Apart**

Rice University

19-Jul-07

At the halfway point between its folded and unfolded state, a protein is like a roller coaster balanced at the crest of the highest hill on the track. New experimental method reveals the slope, height of the energy barrier that the protein must overcome.

<http://www.media.rice.edu/media/NewsBot.asp?MODE=VIEW&ID=9793&SnID=219374520>

### *Subcategory: Virology*

## **Team Builds Viruses to Combat Harmful 'Biofilms'**

Massachusetts Institute of Technology

06-Jul-07

A "plug and play" library of "parts" could allow many more viruses to be custom-designed to target different species or strains of bacteria as well as for use in industrial and medical devices.

<http://web.mit.edu/newsoffice/2007/biofilm-0706.html>

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## **RESEARCH ADVANCEMENTS**

### *Subcategory: Cardiology/ Vascular Diseases*

## **UK Scientists Lift Lid on Genetics of Coronary Artery Disease**

University of Leicester

18-Jul-07

Scientists have confirmed 6 new genetic variants that increase the chance of developing coronary artery disease. Some of the variants are involved in cell growth and cell division and scientists are working to understand how it leads to heart disease.

<http://www2.le.ac.uk/ebulletin/news/press-releases/2000-2009/2007/07/nparticle.2007-07-19.1346005064>

### *Subcategory: Evolution Research*

## **The Skull Man**

Economist

19-Jul-07

Researchers show skull data coupled with genetic data agree with each other in concluding that modern humans originated in Africa and then

spread around the world. Not clear is whether modern humans left their African homeland once or many times.

[http://www.economist.com/science/displaystory.cfm?story\\_id=9507453](http://www.economist.com/science/displaystory.cfm?story_id=9507453)

### *Subcategory: Immunology/ Infectious Diseases*

#### **Killing Ttime**

Economist

19-Jul-07

Chronic fatigue may be a by-product of an anti-infection mechanism, as scientists show that tumor necrosis factor alpha (TNF-a) appears to suppress 6 of the "clock genes" that would then be expected to promote sleep.

[http://www.economist.com/science/displaystory.cfm?story\\_id=9507462](http://www.economist.com/science/displaystory.cfm?story_id=9507462)

### *Subcategory: Neurology*

#### **Expanded Vocabulary**

Economist

05-Jul-07

Normally, there are 20 types of amino acid corresponding to the 61 words of genetic instruction. Describes how a scientist got mammal cells to use a 21st type of amino acid as well. Technology can be used in understanding how nerve cells operate.

[http://www.economist.com/science/displaystory.cfm?story\\_id=9433775](http://www.economist.com/science/displaystory.cfm?story_id=9433775)

#### **Faster-Acting Antidepressants Closer to Becoming a Reality**

National Institute of

24-Jul-07

Experimental medication ketamine relieves depression in just hours instead of weeks or months. Although side effects will keep ketamine from being used itself as an antidepressant, study points to targets for new medications.

[http://www.nimh.nih.gov/press/ketamine\\_2.cfm](http://www.nimh.nih.gov/press/ketamine_2.cfm)

#### **Saving Memories**

Katherine Bourzac

Technology Review

23-Jul-07

Scientists show that a gene called SIRT1 and a plant compound found in red wine called resveratrol can protect against neuron degeneration in a mouse model of Alzheimer's disease and amyotrophic lateral sclerosis.

<http://www.technologyreview.com/Biotech/19080/>

#### **Research Teams Uncover Risk Genes for Multiple Sclerosis**

University of California

29-Jul-07

Discusses 2 papers: the first comprehensive study to investigate the overall genetic basis of MS and a study on one variant in the interleukin-7 receptor (IL-7R) gene, which researchers now know increases the risk of MS.

<http://pub.ucsf.edu/newsservices/releases/200707301/>

### *Subcategory: Oncology*

## **Flip of Genetic Switch Causes Cancers in Mice to Self-destruct, Stanford Researchers Find**

Stanford School of Medicine

30-Jul-07

By turning off a mutated gene producing the protein Myc, researchers found that uncontrolled cell division ceased and the cells reactivated a normal physiological mechanism, senescence, which makes it possible for a cell to eventually die.

[http://med.stanford.edu/news\\_releases/2007/july/senescence.html](http://med.stanford.edu/news_releases/2007/july/senescence.html)

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## **RESEARCH TOOLS**

### *Subcategory: Computing Systems*

#### **Building a Google for Bioinformatics**

Biomarker Breakthroughs

13-Jul-07

One of the big challenges is combining data sets, such as metabolomic and gene expression data which requires a lot of manual manipulation. A new software platform lets researchers look at all the data related to their field of interest.

[http://www.biomarkerbts.com/articles/07/july11/casestudy/Building\\_a\\_Google.asp](http://www.biomarkerbts.com/articles/07/july11/casestudy/Building_a_Google.asp)

#### **Modeling in the Life Sciences Pushes Into New Areas**

R & D Magazine

01-Jul-07

Life science modeling is new including wide-ranging medical contingencies, like pandemics and natural immunities. A software-based and an experimental tool offer researchers new systems for therapeutic or drug discovery studies.

<http://www.rdmag.com/ShowPR.aspx?PUBCODE=014&ACCT=1400000100&ISSUE=0707&R>

#### **Mapping Complex Diseases**

Katherine Bourzac

Technology Review

09-Jul-07

A computer model of epidemiological data from 1.5 million people illuminates the genetic origins of many common diseases, showing strong overlap between schizophrenia, bipolar disorder, and autism, for example.

<http://www.technologyreview.com/Biotech/19023/>

### *Subcategory: Evolution Research*

#### **Genographic Project Releases First DNA Data**

Allison Proffitt

Bio-IT World

29-Jun-07

The \$40-million collaboration between IBM, the National Geographic Society, and the Waitt Family Foundation has released the first results from the voluntary genealogical DNA analysis program started in 2005.

<http://www.bio-itworld.com/newsitems/2007/june/06-29-07-genographic>

### *Subcategory: Genomics*

#### **The Long and the Short of It**

Economist

12-Jul-07

Children may inherit their lifespans from their fathers, not their mothers, according to a study of an Amish community where men and women are equally long lived.

[http://www.economist.com/science/displaystory.cfm?story\\_id=9468801](http://www.economist.com/science/displaystory.cfm?story_id=9468801)

### *Subcategory: Imaging*

#### **A Nanowire Microscope**

Bethany Halford

Chemical & Engineering News

02-Jul-07

Researchers have created an optical probe that potentially combines fluorescence microscopy and force microscopy. Probe could also be used in advanced information technology, cryptography, and signal-processing circuits.

<http://pubs.acs.org/cen/news/85/i27/8527notw3.html>

#### **Closing the Imaging Gap Between Optical and Electron Microscopy**

R & D Magazine

01-Jul-07

A new tabletop SEM combines the high magnification of electron microscopy with the ease of use of optical microscopy to improve performance in a benchtop instrument.

<http://www.rdmag.com/ShowPR.aspx?PUBCODE=014&ACCT=1400000100&ISSUE=0707&RELTYPE=CVS&PRODCODE=00000000&PRODLETT=P>

### *Subcategory: Monofluidics*

#### **Viewing Bacterial Dark Matter**

Katherine Bourzac

Technology Review

26-Jul-07

A major hurdle to studying many bacteria that can't be cultured has been the difficulty of creating a pure sample of a single bacterial cell's genome that is large enough to sequence. A new microfluidic device overcomes this problem.

<http://www.technologyreview.com/Biotech/19103/>

### *Subcategory: Oncology*

#### **New Single-Molecule Detector**

Prachi Patel-Predd

Technology Review

10-Jul-07

Using tiny silicon rings that trap and circulate light, researchers have made an ultrasensitive device that can detect single biomolecules. The detection method could help catch cancer in its very early stages and pathogens before they spread.

<http://www.technologyreview.com/Nanotech/19029/>



Researchers have developed an imaging agent called "tumor paint" that allows physicians to identify and surgically remove smaller areas of tumor tissue than is possible with standard imaging techniques.

<http://www.technologyreview.com/Biotech/19062/>

*Subcategory: Wound/Tissue Repair*

**Nanoglue Sticks Underwater**

Prachi Patel-Predd

Technology Review

18-Jul-07

A nanoglue, made of 400-nanometer-wide silicone pillars covered with a polymer that mimics the adhesive proteins found in mussels could be used in drug-delivery patches and in adhesive tapes to close surgical wounds.

<http://www.technologyreview.com/Nanotech/19061/>

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