



---

## BioTechCircle News®

November, 2006

---

Favorite November article:

Bacterial conversations by way of molecules are ubiquitous. These bacteria are talking about when to infect a host or when to inhabit slimy, protective biofilms that keep nutrients from diffusing away and antibiotics from diffusing inside.

<http://pubs.acs.org/cen/coverstory/84/8443cover.html>

---

**In this articles section: links to 43 free Web articles in 9 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:

Drug Delivery (2 articles) – Page 2  
Industry (1 article) – Page 2  
Investments/Government Support (1 article) – Page 2  
Novel Applications (1 article) – Page 3  
Platform Technologies (16 articles) – Page 3  
Research Advancements (12 articles) – Page 6  
Research Tools (7 articles) – Page 8  
Strategic Relationships (2 articles) – Page 10  
Therapeutic Category (4 articles) – Page 10

---

## DRUG DELIVERY

### *Subcategory: Human Therapeutics*

#### **Delivering RNA Interference**

Celia Henry Arnaud                      Chemical & Engineering News                      13-Nov-06

Therapeutics based on RNAi take advantage of natural gene-silencing mechanism. Small, double-stranded interfering RNA molecules (siRNAs) are administered directly to the disease location such as the eye to treat age-related macular degeneration.

<http://pubs.acs.org/cen/coverstory/84/8446cover.html>

### *Subcategory: Miscellaneous*

#### **Losing Their Religion**

Lisa Davis                                      Chemical & Engineering News                      30-Oct-06

Major biotech players have become converts to a "mode independent" philosophy; shifting from relying on therapeutic proteins to combating disease to antibodies or fragments, peptides, small molecules, combinations.

<http://pubs.acs.org/cen/coverstory/84/8444cover.html>

---

## INDUSTRY

### *Subcategory: Nanotechnology*

#### **Responsible Nanotechnology**

Susan Morrissey                      Chemical & Engineering News                      20-Nov-06

With more than 300 nanomaterial products on the market, scientists say understanding of the environmental, health, and safety impacts of nanotechnology has not kept pace, identify 5 challenges to stimulate research on the potential risks.

<http://pubs.acs.org/cen/news/84/i47/8447notw6.html>

---

## INVESTMENTS/ GOV. SUPPORT

### *Subcategory: Genomics*

#### **Gene Sequencing Center to Receive \$156 Million**

EurekaAlert!                                      20-Nov-06

A \$156 million, 4-year grant has been awarded to use the powerful tools of DNA sequencing to unlock the secrets of cancer and other human diseases, to improve understanding of the human genome and non-human genome sequencing.

[http://www.eurekaalert.org/pub\\_releases/2006-11/wuso-gsc111706.php](http://www.eurekaalert.org/pub_releases/2006-11/wuso-gsc111706.php)

---

## NOVEL APPLICATIONS

### *Subcategory: Nuclear Medicine*

#### **Nuclear Medicine Patients: No-Alarm Holiday Travel Tips**

The Society of Nuclear Medicine

09-Nov-06

Patients that undergo a nuclear medicine treatment or test can set off detectors in public buildings and transportation sites after treatment.

Provides advice about how to deal with that situation.

<http://interactive.snm.org/index.cfm?PageID=5660&RPID=10>

---

## PLATFORM TECHNOLOGIES

### *Subcategory: Diagnostic Test Systems*

#### **Genes Offer Researchers A 'Crystal Ball' to Help Them Prevent, Diagnose and Treat Cancer**

Bio.com

13-Nov-06

Researchers say they can detect "cancer genes" in the breath of smokers, and can test the presence of 2 proteins in men they say will predict development of prostate cancer a decade in advance.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23600001>

### *Subcategory: Drug Discovery*

#### **Probing Enzyme Function in Cells**

Stu Borman

Chemical & Engineering News

30-Oct-06

A systematic approach to find substrates, products, functional roles, and selective inhibitors of previously unknown enzymes has been developed which could ease the discovery of small-molecule drugs that target newly found enzymes.

<http://pubs.acs.org/cen/news/84/i44/8444notw7.html>

### *Subcategory: Genomics*

#### **Novel Experiment Documents Evolution of Genome in Near-real Time**

Bio.com

06-Nov-06

Researchers report that they grew E. coli in an environment that favored the emergence of mutants after only 6 days of growth, when the organism was fed glycerol, a poorly metabolized carbon and energy source.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23400004>

#### **Scientists Discover Role for Dueling RNAs**

Bio.com

16-Nov-06

Researchers have found that a class of RNA molecules, previously

thought to have no function, may in fact protect sex cells from self-destructing. Central to this discovery is the fundamental process of gene expression.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23900002>

### **University of Iowa Scientists Explore Function of 'Junk DNA'**

Bio.com

13-Nov-06

Scientists have found that some of the junk DNA is not junk at all, but instead consists of sequences that can generate microRNAs. MicroRNAs are being shown to play roles in cancer and in normal development.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23600004>

### **Genes Can Control Each Other From a Distance**

Bio.com

01-Nov-06

Certain key genes in the genetic material of the mouse can control interactions both within and between different chromosomes in the genetic material. Discoveries may entail a fundamental change in our view of how genes are regulated.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23800003>

### **RNA Map Provides First Comprehensive Understanding of Alternative Splicing**

Bio.com

09-Nov-06

Research shows for the first time how the specific location of short snippets of RNA affects the way that alternative splicing is controlled in the brain. Focus was on a brain protein that binds to RNA called Nova.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23500007>

### **Harvard Researchers Map New Form of Genetic Diversity**

Bio.com

26-Nov-06

Though humans normally have two copies of their DNA, researchers found that some people have 3, 4 or 5 more copies of certain DNA segments, while others have just one copy or are even missing them entirely. May explain disease susceptibility.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=24000032>

### **Nobel Laureate Finds 'Elegant' Explanation for DNA Transcribing Enzyme's High Fidelity**

Bio.com

30-Nov-06

A portion of the enzyme known as the trigger loop acts like a "trap door," swinging beneath a matching nucleoside triphosphate (NTP) building block, coupling NTP recognition and catalysis, ensuring the fidelity of transcription.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=24000049>

### **DNA Repair Teams' Motto: 'To Protect and Serve'**

Bio.com

16-Nov-06

Researchers found that right before cell division cellular repair proteins are recruited to exposed DNA ends, a second conglomeration of repair proteins called the homologous recombination (HR) machinery creates the protective structure.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23900003>

***Subcategory: Imaging***

**DNA Gets Kinky Easily at the Nanoscale**

Univ. of Pennsylvania

03-Nov-06

DNA is much more flexible than previously believed when examined over extremely small lengths, as demonstrated by a technique called atomic force microscopy.

<http://www.upenn.edu/pennnews/article.php?id=1048>

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

**Taking "Chips" to the next Level of Gene Hunting**

Johns Hopkins Medicine

14-Nov-06

Researchers have invented 2 new gene "chip" technologies that can be used to help identify otherwise elusive disease-causing mutations in the 97% of the genome long believed to be "junk."

[http://www.hopkinsmedicine.org/Press\\_releases/2006/11\\_14\\_06.html](http://www.hopkinsmedicine.org/Press_releases/2006/11_14_06.html)

***Subcategory: Oncology***

**Grape Seed Extract Halts Cell Cycle, Checking Growth Of Colorectal Tumors In Mice**

American Association of Cancer Research 18-Oct-06

Researchers documented a 44% reduction of advanced colorectal tumors in mice and also revealed the molecular mechanism: increased availability of a critical protein, Cip1/p21 by which grape seed extract works to inhibit cancer growth.

<http://www.aacr.org/home/about-us/news.aspx?d=668>

***Subcategory: Proteomics***

**Protein Gel Minds Nuclear Gates**

Ivan Amato

Chemical & Engineering News

06-Nov-06

Scientists report on how nuclear pores rely on polymeric meshes to regulate macromolecular traffic, allowing free passage of water, ions, metabolites and other small solutes while controlling passage of big molecules such as messenger RNA and proteins.

<http://pubs.acs.org/cen/news/84/i45/8445notw8.html>

**Sticky Proteins Provide New Insight into Drug Action**

Medical College of Georgia

14-Nov-06

New research may help explain how cells respond correctly to epinephrine: the drug interacts with a G protein that doesn't let go of the beta-gamma subunit. Helps explain how just 4 classes of G proteins can produce so many physiologic results.

<http://www.mcg.edu/news/2006NewsRel/Lambert111406.html>

### **Study Shows How Genetic Repair Mechanism Helps Seal DNA Breaks**

Scripps Research Institute

23-Oct-06

Researchers reveal for the first time how DNA ligases can dynamically assemble and change their shape to join DNA ends during DNA replication and repair.

[http://www.scripps.edu/newsandviews/e\\_20061023/tainer.html](http://www.scripps.edu/newsandviews/e_20061023/tainer.html)

---

## **RESEARCH ADVANCEMENTS**

### *Subcategory: Cardiology/ Vascular Diseases*

#### **Genetic 'Missing Link' Sheds Light on Sudden Cardiac Death**

Bio.com

07-Nov-06

An electrical imbalance caused by a malfunctioning gene called Caveolin-3, which influences the electrical-muscular impulses that drive the heart's rhythm, and triggers a potentially fatal heart rhythm disorder.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23400019>

### *Subcategory: Disease Prevention*

#### **MRSA Vaccine Shows Promise in Mouse Study**

University of Chicago

30-Oct-06

By combining the 4 bacterial surface proteins that generate the strongest immune response in mice, researchers have created a vaccine that significantly protects immunized animals from drug-resistant strains of Staphylococcus aureus.

<http://www-news.uchicago.edu/releases/06/061030.mrsavaccine.shtml>

### *Subcategory: Gastroenterology*

#### **Scientists Make World Breakthrough**

Univeristy of Adelaide

05-Oct-06

Scientists have discovered that a highly potent bacterial toxin, subtilase cytotoxin, kills cells by inactivating an essential component in the endoplasmic reticulum (ER).

<http://www.adelaide.edu.au/news/news15061.html>

### *Subcategory: Immunology/ Infectious Diseases*

#### **Driving A Spike Into Viruses**

Celia Arnaud

Chemical & Engineering News

20-Nov-06

A charged polymeric coating that inactivates influenza virus and pathogenic bacteria might one day be used to kill infectious agents on surfaces such as door handles.

<http://pubs.acs.org/cen/news/84/i47/8447notw1.html>

### **Bacterial Conversations**

Sarah Everts

Chemical & Engineering News

23-Oct-06

Bacterial conversations by way of molecules are ubiquitous. These bacteria are talking about when to infect a host or when to inhabit slimy, protective biofilms that keep nutrients from diffusing away and antibiotics from diffusing inside.

<http://pubs.acs.org/cen/coverstory/84/8443cover.html>

### **Researchers Discover Key Mechanism by Which Lethal Viruses Ebola and Marburg Cause Disease**

Columbia University

16-Oct-06

Discovery is expected to lead to new drugs for treatment of certain viral hemorrhagic fevers in humans and apes.

<http://www.mailman.hs.columbia.edu/news/key-mechanism-ebola.html>

### **Gene Pool: New Therapy Improves Memory, Learning in Stressed Rats**

Stanford School of Medicine

08-Nov-06

A gene designed to enhance memory and learning ability in animals under stress might lead to new forms of gene therapy that can reduce the severe neurological side effects of steroids, which are prescribed for arthritis, asthma and other illnesses.

<http://news-service.stanford.edu/news/2006/november8/stress-110806.html>

### *Subcategory: Neurology*

### **Hopkins Researchers Discover How Brain Protein Might Control**

Bio.com

10-Nov-06

The protein called Arc has been implicated in memory-linked behaviors ranging from song learning in birds to rodents being aware of 3-D space. In people, Arc may be a culprit behind certain long-term memory-based behaviors like drug addiction.

<http://www.bio.com/realm/research.jhtml?realmId=2&cid=23500018>

### *Subcategory: Oncology*

### **Scientists Find Tumor Suppressor Gene Protects Against Pre-cancerous Development**

Bio.com

01-Nov-06

A gene, caveolin-1 (Cav-1), thought to play a role in suppressing tumors actually can protect against the development of pre-cancerous cell growth as well. Suggests a potentially important role of the tumor "microenvironment" in the cancerous process.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23100040>

### **Study Reveals Mechanism for Cancer-drug Resistance**

University of Texas

09-Oct-06

Using the worm *Caenorhabditis elegans*, researchers have discovered a mechanism by which cancer cells become resistant to a specific class of drugs, a derivative of a compound called hemiasterlin.

<http://www.utsouthwestern.edu/utsw/cda/dept37389/files/322336.html>

#### *Subcategory: Pain Management*

### **New Pathway To Pain Medications**

Stu Borman

Chemical & Engineering News

30-Oct-06

A gene, the enzyme it encodes, and a small molecule it helps produce have been found to control sensitivity to chronic pain in people. The gene codes for an enzyme called GTP cyclohydrolase-1 (GCH1).

<http://pubs.acs.org/cen/news/84/i44/8444notw8.html>

#### *Subcategory: Proteomics*

### **Weill Cornell Group Finds New Protein Structure**

Weill Cornell Medical College

15-Nov-06

Scientists discovered that the structure of one of the most common protein-to-protein "hook-ups" — the alpha helical "coiled coil" — is more variable than previously believed, increasing the challenge to understanding diseases such as Parkinson's.

[http://news.med.cornell.edu/wcmc/wcmc\\_2006/11\\_15\\_06.shtml](http://news.med.cornell.edu/wcmc/wcmc_2006/11_15_06.shtml)

---

## **RESEARCH TOOLS**

#### *Subcategory: Computing Systems*

### **Scientists Find New Way to Manipulate DNA**

Bio.com

15-Nov-06

Long polymer chains are subject to breakage, called scission. Scientists have developed equations that can be applied to design flows that break polymers into certain lengths, allowing scientists another tool to control the length of the strands of DNA.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23800002>

#### *Subcategory: Databases*

### **Protein Structure Initiative Launches New Resources for the Scientific Community**

Bio.com

06-Nov-06

Now that the Protein Structure Initiative (PSI) has established efficient

pipelines for determining the three-dimensional shapes of proteins, it is creating new mechanisms for sharing the resources it has developed with the scientific community.

<http://www.bio.com/realm/research.jhtml?realmId=2&cid=23400007>

### *Subcategory: Evolution Research*

#### **Genetic Variation: We're More Different than We Thought**

Bio.com

22-Nov-06

Discovery of the extent of genetic variation by mapping the number of duplicated or deleted genes (copy number variations or CNVs) is expected to change the way researchers think about genetic diseases and human evolution.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=23900045>

### *Subcategory: Human Diagnostics*

#### **Breath Test**

Celia Arnaud

Chemical & Engineering News

20-Nov-06

Scientists show that mass spectrometry can be used to measure semivolatile and even nonvolatile compounds in breath. Such a method could be used for metabolic studies or diagnostic tests.

<http://pubs.acs.org/cen/news/84/i47/8447notw3.html>

### *Subcategory: Immunology/ Infectious Diseases*

#### **Nanotech Tools Yield DNA Transcription Breakthrough**

Bio.com

16-Nov-06

Transcription is the first step cells employ to read and carry out the out instructions contained in genes and is carried out by the molecular machine RNA polymerase, which synthesizes an RNA copy of the information in DNA. Describes "DNA scrunching."

<http://www.bio.com/realm/research.jhtml?realmId=5&cid=23900008>

### *Subcategory: Pulmonary/ Respiratory Diseases*

#### **U of M Researchers Turn Cord Blood Into Lung Cells**

Univ. of Minnesota

01-Nov-06

The cord blood cells differentiated into a type of lung cell called type II alveolar cells. With better characterization, the cells could be used as a research tool to better understand lung development and disease.

<http://www.ahc.umn.edu/news/releases/lung110106.html>

### *Subcategory: SNP*

#### **Mouse DNA to Aid Biomedical Research**

National Institutes of Health

25-Oct-06

More than 8.3 million single nucleotide polymorphisms (SNPs) were discovered among the genomes of the 15 mouse strains most commonly used in biomedical research and the data are now publicly available.

<http://www.niehs.nih.gov/oc/news/snp2.htm>

---

## STRATEGIC RELATIONSHIPS

### *Subcategory: Collaboration*

#### **Bioethanol R&D**

Michael McCoy

Chemical & Engineering News

06-Nov-06

New R&D agreements have been signed between enzymes companies and ethanol producers, with the goal of economically converting cellulose into fuel ethanol: Novozymes with Broin Companies and Dyadic with Abengoa Bioenergy.

<http://pubs.acs.org/cen/news/84/i45/8445notw2.html>

### *Subcategory: Oncology*

#### **Innovative Cancer Research Approach Features Scientists Working in a 'Boundary-less' Environment**

EurekaAlert!

28-Nov-06

A new "boundary-less" environment to making advances in cancer research is focused on a which the scientists expect will stimulate faster, cross-disciplinary results and increased collaboration between scientists and physicians.

[http://www.eurekaalert.org/pub\\_releases/2006-11/tmgi-icr112006.php](http://www.eurekaalert.org/pub_releases/2006-11/tmgi-icr112006.php)

---

## THERAPEUTIC CATEGORY

### *Subcategory: Immunology/ Infectious Diseases*

#### **New Allergy Vaccine Provides Long-lasting Hay Fever Relief after Just Six Weeks of Shots**

Johns Hopkins Medicine

04-Oct-06

An experimental DNA-based vaccine is shown to protect against ragweed allergies after just 6 injections. Patients receiving the vaccine showed an average 60% reduction in allergy symptoms compared to those receiving a placebo.

[http://www.hopkinsmedicine.org/Press\\_releases/2006/10\\_05\\_06.html](http://www.hopkinsmedicine.org/Press_releases/2006/10_05_06.html)

---

Copyright 2006, Technology Management Associates, Inc.. All rights reserved. Please do not reprint, e-mail or host on your Web site, without explicit permission. This newsletter is for your use only.