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## BioTechCircle News®

February, 2007

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Favorite February article:

**New Forecasting Tool Could Reduce Drug Development Costs**

Researchers present a forecasting model that may increase the efficiency of drug R&D and save hundreds of millions of dollars per new drug. They also argue for more data sharing by the drug industry, particularly of "negative" data.

<http://www.childrenshospital.org/newsroom/Site1339/mainpageS1339P1sublevel276.html>

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**In this articles section: links to 54 free Web articles in 11 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:

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## BIOBUSINESS MANAGEMENT

### *Subcategory: Government/ Approvals*

#### **'Accelerated Enforcement' Now Against Unapproved Drugs**

FDA Review

08-Feb-07

Explains why some drugs on the market have never obtained FDA approval, which include so-called DESI (Drug Efficacy Study

Implementation) products; prescription 'wrap-up drugs'; and post-1962 drugs.

<http://www.fdaweb.com/default.php?ea=fv&aid=D5104815&cate=FN>

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## DIAGNOSTIC TOOLS

### *Subcategory: Nanotechnology*

#### **Scientists Use Nanoparticle to Discover Disease-causing Proteins**

Bio.com

12-Feb-07

A complex molecule called a dendrimer and snake venom may provide researchers with a more reliable method of diagnosing human diseases and developing new drugs.

<http://www.bio.com/realm/research.jhtml?realmId=2&cid=26100019>

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## DRUG DELIVERY

### *Subcategory: Nanotechnology*

#### **Nanoneedles Pierce Cells**

Michael Freemantle

Chemical & Engineering News

31-Jan-07

Research shows that the uptake of functionalized carbon nanotubes by living cells does not depend on cell type and provides evidence that nanotubes act like nanoneedles when they penetrate cell membranes.

<http://pubs.acs.org/cen/news/85/i06/8506notw7.html>

#### **Coated Nanoparticles Solve Sticky Drug-Delivery Problem**

Johns Hopkins Medicine

24-Jan-07

Because of mucus barriers, doctors often must prescribe pills or injections that send drugs through the entire body. Researchers have found a way to coat nanoparticles with a chemical that helps them slip through this sticky barrier.

[http://www.jhu.edu/~news\\_info/news/home07/jan07/hanes.html](http://www.jhu.edu/~news_info/news/home07/jan07/hanes.html)

### *Subcategory: Proteomics*

#### **Man-made Proteins Could Be More Useful than Real Ones**

Howard Hughes Medical Institute

14-Feb-07

Researchers have created the first nonprotein oligomer that has been verified experimentally to look and act much like a true protein. Nonproteins that act like proteins have potential use for proteinlike therapeutics that wouldn't be degraded by enzymes.

<http://www.hhmi.org/news/schepartz20070206.html>

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## INDUSTRY

### *Subcategory: Collaboration*

#### **New Forecasting Tool Could Reduce Drug Development Costs**

Children's Hospital Boston

01-Feb-07

Researchers present a forecasting model that may increase the efficiency of drug R&D and save hundreds of millions of dollars per new drug. They also argue for more data sharing by the drug industry, particularly of "negative" data.

<http://www.childrenshospital.org/newsroom/Site1339/mainpageS1339P1sublevel276.html>

### *Subcategory: Environmental*

#### **UK Organization Issues Hazardous Waste Advice**

in-Pharma Technologist

05-Feb-07

A UK-based firm is offering advice to chemical and pharmaceutical companies on reducing hazardous waste and adhering to the Registration, Evaluation and Authorisation of Chemicals Regulation (REACH), which becomes law on 1 June 2007.

<http://www.in-pharmatechnologist.com/news/ng.asp?id=73927>

### *Subcategory: Geographic focus*

#### **City's Latest Top Job Ranking Recognizes Biotech Impact**

Cathy Luebke

The Business Journal

19-Feb-07

Reports on Forbes Magazine's list of the Best U.S. Cities for Jobs also recognizes efforts in attracting technology firms -- biotech in particular.

[http://www.bizjournals.com/phoenix/stories/2007/02/19/daily3.html?from\\_rss=1](http://www.bizjournals.com/phoenix/stories/2007/02/19/daily3.html?from_rss=1)

### *Subcategory: Miscellaneous*

#### **Pharma Industry to Reap Rewards from Government Security Tech**

in-Pharma Technologist

06-Feb-07

A security technology that had been strictly limited to use by governmental organizations is now available commercially and is set to aid the battle against the growing counterfeit drugs market, estimated to hit \$75billion annually by 2010.

<http://www.in-pharmatechnologist.com/news/ng.asp?id=73948>

#### **The Most Prestigious International Biomedical Industry Research Honor**

Prix Galien 14-Feb-07  
Prix Galien, the “Nobel Prize” for applied medical research and development, is launching a new award program to recognize US-based scientific innovation in celebration of its 37th anniversary.  
<http://www.prix-galien-usa.com/Press%20Release.doc>

*Subcategory: Patent/Intellectual Property Issues*

**Drug Patent Struggles in Asia**

Jean François Tremblay Chemical & Engineering News 05-Feb-07  
Reports impact of Thailand government's revoking of patents on Plavix, an anti-blood-clotting pill and on HIV treatment Kaletra; Novartis appeal in India to obtain patent protection for its leukemia drug Gleevec.  
<http://pubs.acs.org/cen/news/85/i06/8506notw8.html>

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**INVESTMENTS/ GOV. SUPPORT**

*Subcategory: Environmental*

**Chemist Wins Gold In Million-Dollar Arsenic Challenge**

Stephen K. Ritter Chemical & Engineering News 05-Feb-07  
Reports on winners of gold, silver and bronze winners of Grainger Challenge Prizes for Sustainability for designing a simple, inexpensive system for filtering naturally occurring arsenic from drinking water.  
<http://pubs.acs.org/cen/news/85/i07/8507prize.html>

**ACS, Pharma Initiative Awards First Grant**

Stephen K. Ritter Chemical & Engineering News 08-Feb-07  
A joint effort toward greening of the pharmaceutical industry targets amide reduction with its first research grant to a group seeking to develop a cleaner, more efficient method of reducing amides to amines, an important transformation in drug synthesis.  
<http://pubs.acs.org/cen/news/85/i07/8507notw9.html>

*Subcategory: Neurology*

**SARRC launches Phase II of Autism Genome Project**

Angela Gonzales The Business Journal 19-Feb-07  
Scientists will apply gene-chip technologies to scan the autism genome for association with new genetic markers, then conduct high-throughput screening experiments as a first step in developing a cure for the disorder.  
<http://www.bizjournals.com/phoenix/stories/2007/02/19/daily6.html>

*Subcategory: Venture*

## Venture Capital's Growing Aspirations

Aaron Ricadela

Business Week

05-Feb-07

Reviews trends in U.S. venture capital funding, reports findings of research by Dow Jones Venture One: Some of the biggest venture capital firms are raising large funds, targeting more established companies, and increasingly setting their sights abroad.

[http://www.businessweek.com/technology/content/feb2007/tc20070205\\_680724.htm](http://www.businessweek.com/technology/content/feb2007/tc20070205_680724.htm)

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## NOVEL APPLICATIONS

### *Subcategory: Energy/ Fuel*

#### **Biofuels Merger**

Michael McCoy

Chemical & Engineering News

19-Feb-07

Diversa and Celunol plan to combine into a new company that they say will be the first to offer an integrated technology package for producing the biofuel ethanol from cellulosic raw materials.

<http://pubs.acs.org/cen/news/85/i08/8508notw9.html>

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## PERSONALIZED MEDICINE

### *Subcategory: Government/ Approvals*

#### **Has Personalized Medicine Arrived?**

David Ewing Duncan

Technology Review

02-Feb-07

Reviews the impact of the Food and Drug Administration's (FDA) announcement to investigate genetic tests that use proprietary algorithms to predict risk.

<http://www.technologyreview.com/blog/post.aspx?id=17517&author=duncan>

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## PLATFORM TECHNOLOGIES

### *Subcategory: Cell Therapy*

#### **Epigenetics to Shape Stem Cell Future**

Bio.com

19-Feb-07

Scientists say it may be necessary to decipher the epigenetic signals that give stem cells their unique ability to self-renew and transform them into different cell types.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=26300026>

### *Subcategory: Cloning Techniques*

#### **Mice Cloned from Skin Cells**

Howard Hughes Medical Institute 12-Feb-07  
Healthy and viable mice that survive until adulthood have, for the first time, been cloned from adult stem cells, using cells called keratinocyte stem cells, which represent a new model system for cloning.  
<http://www.hhmi.org/news/fuchs20070212.html>

*Subcategory: Genomics*

**Opening and Closing the Genome**

Bio.com 22-Feb-07  
In an average cell, only about 1 in 10 genes is expressed at any given moment. Scientists discover an enzyme responsible for removing certain molecules involved in opening or closing chromatin, the material that makes up chromosomes.  
<http://www.bio.com/realm/research.jhtml?realmId=1&cid=26400014>

**Researchers Publish First Working Model that Explains how Biological Clocks Work**

University of Georgia 12-Feb-07  
When the biological clock goes awry in mammals, it can lead to many diseases, ranging from cancer and sleep disorders to heart and lung disease. Researchers have produced the first working model that explains how biological clocks work.  
<http://www.bio.com/realm/research.jhtml?realmId=1&cid=26100024>

**Novel Laboratory Technique Nudges Genes into Activity**

University of Texas Southern Medical Center 28-Jan-07  
Results of gene-activating method are significant because they demonstrate the most effective and consistent method to date for coaxing genes into making the proteins that carry out all of life's functions, a process formally called gene expression.  
<http://www.utsouthwestern.edu/utsw/cda/dept37389/files/340173.html>

*Subcategory: Human Therapeutics*

**Discovering Drugs with Bubbles**

Prachi Patel-Predd Technology Review 13-Feb-07  
Using tiny bubbles to perform logical operations could lead to smart lab-on-a-chip devices for drug discovery and chemical and biological analyses.  
<http://www.technologyreview.com/Nanotech/18174/>

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

**NYIT Professor Discovers Next Generation of DNA and RNA**

Bio.com 13-Feb-07  
Scientists discovered how to immobilize intact double-stranded (ds-),

multi-stranded or alternative DNA and RNA on one microarray, providing the methodology to analyze more than 150,000 non-denatured genes.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=26200011>

### **MIT Improves Protein Sorting with a New Microchip**

Massachusetts Institute of Technology 05-Feb-07

A new microchip system promises to speed up the separation and sorting of biomolecules such as proteins, which could help scientists better detect certain molecules associated with diseases, potentially leading to earlier diagnoses or treatments.

<http://web.mit.edu/newsoffice/2007/sieve.html>

### *Subcategory: Nanotechnology*

### **Nanotechnology Meets Biology and DNA Finds its Groove**

Bio.com 08-Feb-09

Scientists have developed a quick, inexpensive and efficient method to extract single DNA molecules and position them in nanoscale troughs or "slits," where they can be easily analyzed and sequenced.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=26100011>

### *Subcategory: Proteomics*

### **Human Proteins Evolving Slowly Thanks to Multi-tasking Genes**

Bio.com 06-Feb-07

The gene sequences that code for human proteins have a double role, slowing down the rate at which they evolve. By tweaking the dual role regions, gene therapy techniques could produce proteins that are even better than those found in nature.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=25900030>

### **Cholera Pathogen Reveals How Bacteria Generate Energy To Live**

Rensselaer Polytechnic 29-Jan-07

New research on the organization of the single-cell organism, *Vibrio cholerae*, enzyme's structure could yield insight into how cells transform energy from the environment into the forms required to sustain life.

[http://news.rpi.edu/update.do?artcenterkey=1911&setappvar=page\(1\)](http://news.rpi.edu/update.do?artcenterkey=1911&setappvar=page(1))

### *Subcategory: Virology*

### **The Connector Rotation Hypothesis? Phage do not Pack their DNA by Rotation**

Bio.com 19-Feb-07

The life cycles of many viruses include a self-assembly stage in which a powerful molecular motor must pack the DNA genome into the virus's preformed shell (the capsid). Researchers propose a compression-extension model.



<http://www.bio.com/realm/research.jhtml?realmId=2&cid=25900031>

***Subcategory: Neurology***

**Common Gene Version Optimizes Thinking -- But with a Possible**

Bio.com

09-Feb-07

Research results raise the question of whether a gene variant favored by evolution, that would normally confer advantage, may translate into a disadvantage if the prefrontal cortex is impaired, as in schizophrenia.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=26100014>

**Undoing Brain Damage**

Sophie Rovner

Chemical & Engineering News

12-Feb-07

Results of a test in mice offer hope that Rett syndrome and other autism-related disorders as well as schizophrenia could be cured in humans.

<http://pubs.acs.org/cen/news/85/i07/8507notw7.html>

**Mcmaster Researchers Discover Postal Codes for Protein**

McMaster University

30-Jan-07

Scientists are very close to defining small molecule drugs that should be able to redirect the huntingtin protein from accumulating in the wrong place within brain cells, which could potentially translate to a therapy for Huntington's Disease (HD).

<http://dailynews.mcmaster.ca/story.cfm?id=4477>

***Subcategory: Oncology***

**"Bridge" Protein Spurs Deadliest Stages of Breast Cancer**

Burnham Institute for Medical Research

21-Feb-07

The protein Gab-2, known for its ability to "bridge" interactions between other cellular proteins, may spur metastasis in breast cancer, the disease's deadliest stage.

<http://www.burnham.org/default.asp?contentID=413>

**Cold Spring Harbor Laboratory Scientists Discover New Gene That Prevents Multiple Types of Cancer**

Cold Spring Harbor

08-Feb-07

Research discovery identifies CHD5, a protein that prevents cancer, as a novel tumor suppressor. Ability to function as a master switch for a tumor suppressive network suggests it is responsible for a large number of diverse forms of human cancers.

[http://www.cshl.edu/public/releases/07\\_new\\_gene.html](http://www.cshl.edu/public/releases/07_new_gene.html)

**New Drug May Dissolve Tumors' Defense Against Chemotherapy**

MIT

12-Feb-07

After chemotherapy, many tumors use a signaling pathway associated with the inflammatory response in order to survive. Researchers say

drugs that knock out this inflammatory defense mechanism would render tumors much more susceptible to chemotherapy.

<http://web.mit.edu/newsoffice/2007/cancer-yaffe.html>

### **Gut Research Yields New Cancer Approach**

University of Rochester

01-Feb-07

Research shows a group of compounds called peroxisome proliferator-activated receptor-gamma (PPAR<sub>γ</sub>) inhibitors may have an unexpected cancer-fighting effect on colorectal cancer, and potentially cancers of the esophagus, liver and skin.

<http://www.urmc.rochester.edu/pr/news/story.cfm?id=1360>

### *Subcategory: Otolaryngology*

### **Improving Cochlear Implants**

Northwestern University

15-Feb-07

Hearing-impaired individuals with cochlear implants may hear better if studies exploring the use of lasers to stimulate auditory nerve fibers prove effective and safe.

<http://www.medschool.northwestern.edu/newsworthy/2007K-February/cochlear.html>

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## **RESEARCH TOOLS**

### *Subcategory: Computing Systems*

### **Investigating the Invisible Life in Our Environment**

Bio.com

01-Feb-07

A new computational method to analyze environmental DNA samples sheds light on the microbial composition of different habitats, from soil to water. Study reveals that microbes evolve faster in some environments than in others.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=25800050>

### *Subcategory: Databases*

### **New Functional Atlas Gives the 411 on Gene Partners**

Howard Hughes Medical Institute

21-Feb-07

Discusses epistatic miniarray profiles (E-MAPs) as a means to unravel a key process that prevents DNA damage during cellular replication. The E-MAP catalogs thousands of gene-gene (or epistatic) interactions in an entirely new way.

<http://www.hhmi.org/news/weissman20070221.html>

### **2,000 Influenza Virus Genomes: Now Completed and Publicly Accessible**

National Institute of Allergy and

Infectious Diseases

21-Feb-07

The entire genetic blueprints of more than 2,000 human and avian influenza viruses taken from samples around the world will help scientists understand how influenza viruses evolve and spread, say scientists.

<http://www3.niaid.nih.gov/news/newsreleases/2007/flu2000.htm>

### **Simulating Human Metabolism to Find New Diets to New Drugs**

University of California

29-Jan-07

Bioengineering researchers have assembled a virtual human metabolic network that will give researchers a new way to hunt for better treatments for hundreds of human metabolic disorders, from diabetes to high levels of cholesterol in the blood.

<http://ucsdnews.ucsd.edu/newsrel/science/metabolic07.asp>

### *Subcategory: Genome Sequence*

#### **Which Genome Variants Matter?**

Bio.com

08-Feb-07

Genetic variants with a biological effect will help prioritize regions of the genome to be investigated for association with disease, an important step to understanding links between genes and disease for individuals, and across populations.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=26100013>

### *Subcategory: Genomics*

#### **Another Role for RNA**

Celia Arnaud

Chemical & Engineering News

05-Feb-07

In addition to silencing gene expression, short pieces of double-stranded RNA may be able to activate gene expression. Researchers envision these RNA molecules being used as research tools and eventually even as therapeutics.

<http://pubs.acs.org/cen/news/85/i06/8506notw3.html>

### *Subcategory: Imaging*

#### **Pick A Shape, Any Shape**

Celia Henry Arnaud

Chemical & Engineering News

07-Feb-07

Chemists can rapidly fabricate whatever shape they want through multiphoton photolithography in less than 10 minutes. Researchers hope to use this technique to create 3-D replicas of biological materials.

<http://pubs.acs.org/cen/news/85/i07/8507notw3.html>

#### **Molecular Close-Up**

Ron Dagani

Chemical & Engineering

26-Feb-07

By confining a single, small organic molecule inside a narrow, single-walled carbon nanotube, scientists have been able to use transmission electron microscopy (TEM) to follow the molecule's motions with

near-atomic resolution.

<http://pubs.acs.org/cen/news/85/i09/8509notw4.html>

### **Unlocking a Cell's Inner Secrets**

R&D Magazine

01-Feb-07

Researchers have discovered a breakthrough imaging method, quantitative phase imaging (QPI), which allows researchers to view live cell membranes and create images of the internal systems of living cells and their movements in their natural states.

<http://www.rdmag.com/ShowPR.aspx?PUBCODE=014&ACCT=140000100&ISSUE=0701&RELTYPE=PR&Cat=0&SubCat=0&ProdCode=00000000&PRODLETT=DF&SearchText=inner%>

### *Subcategory: Immunology/ Infectious Diseases*

### **Rapid Response to Avian Flu Threat**

University Arkansas Daily

25-Jan-07

Researchers have developed a portable biosensor for in-field, rapid screening of avian influenza virus. The inexpensive device specifically and sensitively detects the avian influenza strain H5N1 from poultry swab samples in less than 30 minutes.

<http://dailyheadlines.uark.edu/9896.htm>

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

### **New Genomic Tool for Diabetes**

Broad Institute

12-Feb-07

Researchers announced the completion of a genome-wide map of genetic differences in humans and their relationship to type 2 diabetes and other metabolic disorders. All results are being made accessible, free of charge on the internet.

[http://www.broad.mit.edu/cgi-bin/news/display\\_news.cgi?id=2721](http://www.broad.mit.edu/cgi-bin/news/display_news.cgi?id=2721)

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## **STRATEGIC RELATIONSHIPS**

### *Subcategory: Miscellaneous*

### **Biology Goes Open Source**

Matthew Herper and Robert Langreth Forbes.com

12-Feb-07

Some of the world's biggest drug companies are finding that their genetic research is worth more to them if they give it away.

<http://www.forbes.com/home/2007/02/12/novartis-genes-diabetes-research-biz->

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