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## BioTechCircle News®

**December 2007**

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Featured December articles:

### **Top 10 Scientific Discoveries**

Time

12-Dec-07

Among the top 10: regular skin cells to behave just like embryonic stem cells; 700 new species of organisms discovered; bone marrow stem cells grown into functioning human heart-valve tissue; a 405 year-old clam (killed to determine its age!).

[http://www.time.com/time/specials/2007/top10/article/0,30583,1686204\\_1686252\\_1690920,0](http://www.time.com/time/specials/2007/top10/article/0,30583,1686204_1686252_1690920,0)

### **Top 10 Medical Breakthroughs**

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Among the top 10: early-stage blood test for lung cancer; antiseizure drug Lyrica approved as a treatment for fibromyalgia; 4 new genetic variants linked to an increased risk of diabetes; discovery of stem cells in amniotic fluid.

[http://www.time.com/time/specials/2007/top10/article/0,30583,1686204\\_1686252\\_1690372,0](http://www.time.com/time/specials/2007/top10/article/0,30583,1686204_1686252_1690372,0)

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Most scientific and technical articles, such as those compiled in these monthly reports, present facts and opinion. We thought BioFables might be an entertaining (yet instructive) departure from the norm. Check out the introduction to our new series reporting on the exploits of Bioloney Maloney and his twin sister Melody as they explore the fascinating world of life science.

<http://www.techmanage.net/tmablog/article.php?story=20080105103416769>

**In this articles section: links to 76 free Web articles in 15 major categories.**

Year-end is often a time of reflection, when many observers look back and assess the significance of events occurring over the previous 12 months. And so we offer you a sampling of the many such articles covering 2007's advances in life sciences, in addition to the usual array of monthly articles. We hope you enjoy them.

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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## AGRI-BIOTECH

### *Subcategory: Animal*

#### **Sleuths Track Mystery Bee Die-Off**

Josie Glausiusz

Discover

28-Dec-07

A genetic analysis of the microorganisms harbored by the stricken bees has now strongly linked CCD (colony collapse disorder, which has wiped out 50-90% of bee colonies in 35 states) to Israeli acute paralysis virus (IAPV).

<http://discovermagazine.com/2008/jan/sleuths-track-mystery-bee-die-off>

### *Subcategory: Food*

#### **Stone Age Beer**

Larry Gallagher

Discover

22-Nov-05

Molecular archaeology uses analytic tools of modern chemistry to scrutinize the artifacts of lost worlds. "It's one thing to re-create a 9,000-year-old brew. It's another thing to drink it," says archeological chemist.

<http://discovermagazine.com/2005/nov/stone-age-beer/>

*Subcategory: Misc. Medical Devices*

**The Costs Of Biofuels**

William Schulz

Chemical & Engineering News

17-Dec-07

Two views explore whether corn ethanol and, eventually, ethanol from cellulosic biomass will efficiently deliver national energy security.

<http://pubs.acs.org/cen/coverstory/85/8551cover.html>

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**BIOBUSINESS MANAGEMENT**

*Subcategory: General/ Administrative*

**FDA Science and Mission at Risk**

Subcommittee on Science  
and Technology

FDA Science Board

01-Nov-07

Experts from industry, academia, other government agencies conclude that science at the FDA is in a precarious position: the Agency suffers from serious scientific deficiencies and is not positioned to meet current or emerging regulatory responsibilities.

[http://www.fda.gov/ohrms/dockets/ac/07/briefing/2007-4329b\\_02\\_01\\_FDA%20Report%20on%20Science%20and%20Technology.pdf](http://www.fda.gov/ohrms/dockets/ac/07/briefing/2007-4329b_02_01_FDA%20Report%20on%20Science%20and%20Technology.pdf)

*Subcategory: Government/ Approvals*

**The Logic of Biotech Bets**

Kerry Capell

Business Week

05-Dec-07

Biologics aren't vulnerable to generic competition; Instead of getting exclusive marketing rights for a decade, manufacturers of biologics get protection indefinitely, or at least until the U.S. Food & Drug Administration develops regulations.

[http://www.businessweek.com/globalbiz/content/dec2007/gb2007125\\_601848.htm](http://www.businessweek.com/globalbiz/content/dec2007/gb2007125_601848.htm)

*Subcategory: Merger Decisions*

**Patents Assume Increasing Global Importance**

Laboratory Equipment

01-Dec-07

The centuries-old United States patent system is still regarded as a reliable mechanism to preserve the legal protections covering technological achievements, as reflected in the steady increase of United States and foreign issued patents.

<http://www.laboratoryequipment.com/ShowPR.aspx?PUBCODE=020&ACCT=2000000100&IS>

***Subcategory: Patent/Intellectual Property Issues***

**Patent Delays Mar Bumper Year for US Tech Transfer**

Chemistry World

11-Dec-07

Despite filing more applications than in preceding years, U.S. universities secured fewer patents because of delays at the US Patent and Trademark Office.

<http://www.rsc.org/chemistryworld/News/2007/December/11120701.asp>

***Subcategory: Privacy/Records Management***

**Who Owns My Tissue?**

J. Mark Waxman

Drug Discovery & Development

01-Dec-07

Researchers must be aware that patient concerns focus not only on privacy, but on questions of ownership, particularly as the commercial potential of donated biological materials is closer to being realized.

<http://www.dddmag.com/intellectual-property-and-biological-materials.aspx>

***Subcategory: Proteomics***

**An Express Lane to Careers in Proteomics And Genomics**

Corinne A. Marasco

Chemical & Engineering News

10-Dec-07

Biotechnology firms often demand a greater number of skilled workers than are available and are projected to need more workers than are currently in training programs, resulting in an academic model known as the "Professional Science Master's" (PSM).

<http://pubs.acs.org/cen/employment/85/8550employment.html>

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## CLINICAL TRIALS

***Subcategory: Government/ Approvals***

**Empowering FDA**

Bette Hileman

Chemical & Engineering News

03-Dec-07

Discusses impact of the Food & Drug Administration Amendments Act of 2007 (FDAAA) which went into effect on Oct. 1 2007. The FDAAA is the most wide-ranging revision in 40 years and includes higher drug review fees and expanded clinical trial postings.

<http://pubs.acs.org/cen/coverstory/85/8549cover3.html>

***Subcategory: Miscellaneous***

**CDISC Clinical Research Glossary, Version 6.0**

Applied Clinical Trials

01-Dec-07

37-page resource provides brief definitions relating to all aspects of

clinical research, alphabetized, from "510(k)" and "absorption" to "World Wide Web."

<http://actmagazine.findpharma.com/appliedclinicaltrials/ArticleStandard/Article/detail/477822>

### **Acronyms, Abbreviations, and Initials, Version 6.0**

Applied Clinical Trials

01-Dec-07

13-page resource list of abbreviations relating to clinical trials, alphabetized, from AAAS (American Association for the Advancement of Science) to XML (eXtensible Markup Language).

<http://actmagazine.findpharma.com/appliedclinicaltrials/ArticleStandard/Article/detail/477823>

### **Internet Resources Guide**

Applied Clinical Trials

01-Dec-07

4-page resource lists sites for clinical trial professionals and/or potential participants, from the Adult AIDS Clinical Trials Group (AACTG) to WHO Research Tools. Descriptions and links to sites. Notes that pharma company sites also offer access.

<http://actmagazine.findpharma.com/appliedclinicaltrials/ArticleStandard/Article/detail/477828>

### **Professional Societies and Associations**

Applied Clinical Trials

01-Dec-07

10-page resource list of not-for-profit organizations relevant to clinical trials, alphabetized, from Association of the British Pharmaceutical Industry to TOPRA (The Organization for Professionals in Regulatory Affairs). Details, contact info.

<http://actmagazine.findpharma.com/appliedclinicaltrials/ArticleStandard/Article/detail/477826>

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## **CONTRACT SERVICES**

### *Subcategory: Contract Research*

#### **Challenges & Opportunities in the World of Independent Research**

R & D Magazine

01-Dec-07

Contract research organizations see a strong future for their style of R&D, offer insights into growth expectations for 2008.

[http://www.rdmag.com/pdf/RD712\\_IRDO.pdf](http://www.rdmag.com/pdf/RD712_IRDO.pdf)

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## **DIAGNOSTIC TOOLS**

### *Subcategory: Diagnostic Test Systems*

#### **Antibodies Against RNA**

Carmen Drahl

Chemical & Engineering News

24-Dec-07

Researchers can now use a generally applicable method to elicit antibodies against RNA. May lead to the widespread use of RNA-binding









Executives from the United States government labs offer insight into their current challenges, ranging from business to infrastructure and education.

[http://www.rdmag.com/pdf/RD712\\_GR.pdf](http://www.rdmag.com/pdf/RD712_GR.pdf)

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## PERSONALIZED MEDICINE

### *Subcategory: Drug Discovery*

#### **Personalized Medicine May Rationalize the Coverage of Specialty**

Jill Wechsler

BioPharm International

01-Dec-07

Medicines targeted to select patients can justify premium prices, reduce drug safety problems, and improve care. Personalized medicine also means developing research and marketing strategies for therapies that work in only a small patient population.

<http://biopharminternational.findpharma.com/biopharm/ArticleStandard/Article/detail/477605>

### *Subcategory: Food*

#### **Science Diet**

Carmen Drahl

Chemical & Engineering News

10-Dec-07

The maturing metabolomics field is moving toward guiding personalized nutrition. Physicians could design a customized diet to work with a patient's specific metabolism, using follow-up blood tests to measure biomarkers indicating the diet's effectiveness.

<http://pubs.acs.org/cen/coverstory/85/8550cover.html>

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## PLATFORM TECHNOLOGIES

### *Subcategory: Biomanufacturing*

#### **A Logical Approach to Designer Cells**

Chemistry World

18-Dec-07

Logic gates made from proteins could lead the way to yeast cells that can self regulate during fermentation; technology is expected to greatly benefit research into engineering cells capable of making small molecules.

[http://www.rsc.org/Publishing/ChemScience/Volume/2008/01/logical\\_designer\\_cells.asp](http://www.rsc.org/Publishing/ChemScience/Volume/2008/01/logical_designer_cells.asp)

### *Subcategory: Cell Therapy*

#### **Harvard's Brock Reeve Sizes up the Prospects for Stem Cells in 2008**

Malorye Allison

Xconomy

20-Dec-07

Discusses the most important things expected to see happen in 2008 for stem cells, such as reprogramming of human stem cells without methods like retroviruses.

<http://www.xconomy.com/2007/12/20/harvards-brock-reeve-sizes-up-the-prospects-for-stem-cells-in-2008-and-beyond/>

### *Subcategory: Computing Systems*

#### **Calculating Drugs' Side Effects**

Jocelyn Rice

Technology Review

17-Dec-07

Drugs work much like a key fitting into a lock. New method analyzes the shape of the intended lock, then combs through the structures of other proteins to look for similarly shaped locks, called "off-target." Could predict the toxicity of drug candidates.

<http://www.technologyreview.com/Biotech/19911/>

### *Subcategory: Drug Discovery*

#### **Testing Drugs with Stem Cells**

Jennifer Chu

Technology Review

13-Dec-07

Researchers are using human embryonic stem cells to determine the toxicity of potential pharmaceuticals, said to provide a far more accurate prediction of a drug's potential toxicity than conventional animal models can.

<http://www.technologyreview.com/Biotech/19893/>

### *Subcategory: Energy/ Fuel*

#### **Energy Recovery**

Rachel Petkewich

Chemical & Engineering News

17-Dec-07

The same microbes that degrade oil could allow oil companies to extract difficult-to-recover energy, in the form of methane, from oil fields and oil sands through existing infrastructures.

<http://pubs.acs.org/cen/news/85/i51/8551notw9.html>

### *Subcategory: Evolution Research*

#### **Tiny DNA Molecules Show Liquid Crystal Phases, Pointing To New Scenario For First Life On Earth**

Brookhaven National

22-Nov-07

Surprisingly short segments of DNA have been found to assemble into several distinct liquid crystal phases that "self-orient" parallel to one another and stack into columns when placed in a water solution... favorable conditions for forming longer molecules.

[http://www.bnl.gov/bnlweb/pubaf/pr/PR\\_display.asp?prID=07-X15](http://www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=07-X15)

#### **Darwin's Children**

Economist

13-Dec-07

Human evolution has speeded up over the past 80,000 years, raising awkward questions about the concept of "race." Suggests why more bad

science has been conducted on the concept of human race than on any other field of biology.

[http://www.economist.com/science/displaystory.cfm?story\\_id=10283306](http://www.economist.com/science/displaystory.cfm?story_id=10283306)

### **Changing Environment Organizes Genetic Structure**

Rice University

14-Nov-07

The information that allows all living things to survive and reproduce is encoded in genes. Research suggests that the beautiful, intricate and interrelated structures observed in nature may be the generic result of evolution in a changing environment.

<http://www.media.rice.edu/media/NewsBot.asp?MODE=VIEW&ID=10267>

### *Subcategory: Food*

#### **Cataloging Life**

Bob Grant

The Scientist

01-Dec-07

Since 2003, several barcoding projects have probed the mitochondrial DNA of everything from birds and fish to leeches and mosquitoes. Relates use for DNA barcoding to ascertain the identity of poisonous fish meat.

<http://www.the-scientist.com/2007/12/1/36/1/>

### *Subcategory: Genomics*

#### **The Richard Dimpleby Lecture 2007: Dr J Craig Venter – A DNA-Driven**

BBC News

05-Dec-07

Text of a lecture by Dr J Craig Venter, who says the future of life depends not only in our ability to understand and use DNA, but also...in creating new synthetic life forms...forged not by Darwinian evolution but created by human intelligence.

[http://www.bbc.co.uk/print/pressoffice/pressreleases/stories/2007/12\\_december/05/dimpleby.sh](http://www.bbc.co.uk/print/pressoffice/pressreleases/stories/2007/12_december/05/dimpleby.sh)

#### **Bacteria Invade Genomes, Not Just Bodies**

Sarah Bates

Discover

07-Dec-07

The entire genome of a bacterial parasite has been discovered to be lodged in the DNA of an unsuspecting fruit fly species, where it will be passed on through the fly's reproductive system to the next generation, just like the fly's own genes.

<http://discovermagazine.com/2007/dec/bacteria-invade-genomes-not-just-bodies>

#### **MIT Team Discovers Bacterial Surprise**

MIT News

03-Dec-07

A group of bacterial genes, known as the dnd gene cluster, gives bacteria the ability to modify oligonucleotides (short strands of DNA) on their own by adding sulfur to the sugar-phosphate DNA backbone as a phosphorothiolate.

<http://web.mit.edu/newsoffice/2007/dna-modification-1203.html>

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

#### **Small RNA Plays Parallel Roles in Bacterial Metabolism**

Diana Yates,

UIUC News

29-Nov-07

Researchers have identified the unique metabolic activities of a small ribonucleic acid (sRNA) in bacteria called SgrS. The molecule performs dual roles, both of which inhibit the transport of glucose into the cell in the presence of excess glucose.

<http://www.news.uiuc.edu/news/07/1129rna.html>

### *Subcategory: Miscellaneous*

#### **Burning Batteries**

Mitch Jacoby

Chemical & Engineering News

17-Dec-07

Hazardous failures of lithium-ion batteries are uncommon, but researchers still focus on minimizing dangers through use of new anode materials such as lithium titanate. Videos showing response to industry-standard tests.

<http://pubs.acs.org/cen/science/85/8551sci1.html>

### *Subcategory: Oncology*

#### **Who Likes Kinases?**

James Netterwald

Drug Discovery & Development

01-Dec-07

There is much interest in protein kinase inhibitors in oncology, as potential cancer drugs. Drug companies are likely to develop more of them as functional genomic data lead to increased kinase discovery.

<http://www.dddmag.com/Protein-kinase-inhibitors-become-increasingly-popular.aspx>

### *Subcategory: Pharmacogenomics*

#### **Caution Urged in New Method for Stem Cells**

Colin Nickerson

Boston Globe

17-Dec-07

The stem cell wars are not over, say leading researchers who believe that the cloning of human embryos still represents the key to developing effective treatments for an array of horrific diseases.

[http://www.boston.com/news/education/higher/articles/2007/12/17/caution\\_urged\\_in\\_new\\_method\\_for\\_stem\\_cells/](http://www.boston.com/news/education/higher/articles/2007/12/17/caution_urged_in_new_method_for_stem_cells/)

### *Subcategory: Prescription*

#### **After Stem-Cell Breakthrough, the Work Begins**

ANDREW POLLACK

The New York Times

27-Nov-07

There are 2 ways that stem cells can lead to treatments for diseases: direct, by making replacement tissues for ailing organs; indirect, by using the cells to learn about diseases and then applying that knowledge to develop conventional drugs.

[http://www.nytimes.com/2007/11/27/science/27stem.html?\\_r=1&ref=science&oref=slogin](http://www.nytimes.com/2007/11/27/science/27stem.html?_r=1&ref=science&oref=slogin)

*Subcategory: Proteomics*

**Scientists Get First Look at How Water “Lubricates” Proteins**

Ohio State University

14-Nov-07

Water normally moves on the scale of a trillionth of a second, whereas proteins move in a few billionths of a second. Studies show water molecules slow upon reaching a protein, forming a layer around the only 3 molecules thick.

<http://researchnews.osu.edu/archive/waterpro.htm>

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**RESEARCH ADVANCEMENTS**

*Subcategory: Cardiology/ Vascular Diseases*

**Mutant Gene Identified as Villain in Hardening of the Arteries**

Yale University

01-Dec-07

Researchers found that mice engineered without the Akt1 gene and fed a high cholesterol diet had many more signs of aortic atherosclerosis compared to their littermates.

<http://www.yale.edu/opa/newsr/07-12-18-01.all.html>

*Subcategory: Gastroenterology*

**Q&A: The Future of Probiotics**

Emily Singer

Technology Review

14-Dec-07

An emerging body of scientific data is showing how probiotic treatments can beneficially impact both the millions of microbes within our gut and the health of their human host. Discusses implications of the latest clinical trials in probiotics.

<http://www.technologyreview.com/Biotech/19900/>

*Subcategory: Geriatrics*

**Can We Cure Aging?**

Kathleen McGowan

Discover

04-Dec-07

Aging is a side effect of the essential inflammatory system that protects us against infectious disease. As we fight off invaders, we inflict massive collateral damage on ourselves, poisoning our own organs and breaking down our own tissues.

[http://discovermagazine.com/2007/dec/can-we-cure-aging/article\\_view?b\\_start:int=0&-C=](http://discovermagazine.com/2007/dec/can-we-cure-aging/article_view?b_start:int=0&-C=)

**A Molecular Map of Aging**

Emily Singer

Technology Review

04-Dec-07

Researchers' findings suggest that different tissues age very differently; this could help pinpoint when it is appropriate to use mice as a model

of human aging--and when it's not. Database shows distinct patterns of aging in different tissues.

<http://www.technologyreview.com/Biotech/19810/>

### *Subcategory: Immunology/ Infectious Diseases*

#### **The Germ of an Idea**

Economist

29-Nov-07

Some people are more prone to infection than others. One answer could be to dose them with the molecules that their immune systems cannot make.

[http://www.economist.com/science/displaystory.cfm?story\\_id=10205154](http://www.economist.com/science/displaystory.cfm?story_id=10205154)

### *Subcategory: Miscellaneous*

#### **2007 Chemistry Highlights**

Stu Borman

Chemical & Engineering News

24-Dec-07

Reviews some of the most important research advances from among the stories published by the magazine in 2007. Selections include numerous advances in structural analysis and molecular biology.

<http://pubs.acs.org/cen/coverstory/85/8552cover.html>

#### **Top 10 Medical Breakthroughs**

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Among the top 10: early-stage blood test for lung cancer; antiseizure drug Lyrica approved as a treatment for fibromyalgia; 4 new genetic variants linked to an increased risk of diabetes; discovery of stem cells in amniotic fluid.

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### *Subcategory: Neurology*

#### **Instant Insight: Think Outside the Cell**

Chemistry World

20-Dec-07

Extracellular protein chaperones and their receptors may comprise the foundation of an extracellular system for protein folding quality control, a system that may be overwhelmed in extracellular protein deposition diseases such as Alzheimer's disease.

[http://www.rsc.org/Publishing/Journals/cb/Volume/2008/2/Outside\\_cell.asp](http://www.rsc.org/Publishing/Journals/cb/Volume/2008/2/Outside_cell.asp)

## **Fragile X Syndrome Corrected in Mice**

Steven Reinberg

Washington Post

19-Dec-07

By targeting one gene, scientists have been able to correct many of the abnormalities associated with fragile X syndrome, the most common inherited form of childhood retardation.

<http://www.washingtonpost.com/wp-dyn/content/article/2007/12/19/AR2007121901098.html>

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## **RESEARCH TOOLS**

### *Subcategory: Collaboration*

#### **Mapping Professional Networks**

Erica Naone

Technology Review

28-Dec-07

As people start using social software and expanding their professional networks, you can determine a lot of value in the relationships from statistical analysis of that data.

<http://www.technologyreview.com/Infotech/19985/>

### *Subcategory: Computing Systems*

#### **Probing Large Protein Systems**

Stu Borman

Chemical & Engineering News

03-Dec-07

A new structural analysis technique has been developed and used to obtain the first detailed structure of the nuclear pore complex (NPC), one of the largest biological assemblies found in cells.

<http://pubs.acs.org/cen/news/85/i49/8549notw1.html>

#### **The Tide is Rising**

Neil Canavan

Drug Discovery & Development

01-Dec-07

Tools are needed fast to control the deluge of bioinformatics data from overflowing its databanks, worries Canavan.

<http://www.ddmag.com/tool-are-needed-to-control-bioinformatics-data.aspx>

### *Subcategory: Gene Sequences*

#### **Taking Your Genes in Hand**

Economist

06-Dec-07

Genetic testing promises to tell people things ranging from their risks of developing ailments as diverse as heart disease, cancer and autism to how much coffee they can safely drink. It also promises a lucrative market for those doing the testing.

[http://www.economist.com/science/displaystory.cfm?story\\_id=10250288](http://www.economist.com/science/displaystory.cfm?story_id=10250288)

### *Subcategory: Imaging*

#### **In The Niche Of Time**



Patricia Short

Chemical & Engineering News

10-Dec-07

Discusses Novartis and Merck collaborations with specialist drug discovery firms that reflect the Big Pharma's quest to fill product pipelines.

<http://pubs.acs.org/cen/news/85/i50/8550notw9.html>

*Subcategory: M&A Activities*

**Eisai To Acquire MGI Pharma**

Ann Thayer

Chemical & Engineering News

17-Dec-07

Japanese firm Eisai is the latest to expand by buying a U.S. biotech firm. The acquisition is part of Eisai's "Dramatic Leap" business plan and will gain 5 oncology products from its purchase of MGI Pharma.

<http://pubs.acs.org/cen/news/85/i51/8551notw2.html>

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