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## BioTechCircle News®

January, 2007

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Our favorite article in this January issue:

### **Genetically Altered Cells May Help Artificial Skin Fight Infection**

Researchers have created genetically modified skin cells altered to produce higher levels of human beta defensin 4 (HBD4) that, when added to cultured skin substitutes, may help fight off potentially lethal infections in patients with severe burns.

[http://www.eurekalert.org/pub\\_releases/2007-01/uoc-gac010307.php](http://www.eurekalert.org/pub_releases/2007-01/uoc-gac010307.php)

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**In this articles section: links to 54 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  
Biobusiness Management (6 articles) – Page 2  
Drug Delivery (3 articles) – Page 3  
Industry (2 articles) – Page 4  
Investments/Government Support (1 article) – Page 4  
Organizations (2 articles) – Page 5  
Personalized Medicine (1 article) – Page 5  
Platform Technologies (18 articles) – Page 5  
Research Advancements (10 articles) – Page 9  
Research Tools (6 articles) – Page 11



<http://www.centientinvestor.com/articles.php?a=read&aid=1416>

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

**Demystifying the Patent Reform Act and its Impact on Company IP**

David A. Gay, William BioPharm International 01-Jan-07

The proposed Patent Reform Act of 2005 recommends changes that include simplifying the US patent system, harmonizing it with international standards, and reducing litigation costs. If enacted, companies need to review their strategies.

<http://www.biopharm-mag.com/biopharm/article/articleDetail.jsp?id=395609>

**Claims Under Fire**

Susan R. Morrissey Chemical & Engineering News 15-Jan-07

The future of embryonic stem cell research in the U.S. may hinge on the current review of 3 key patents held by the Wisconsin Alumni Research Foundation (WARF), a nonprofit organization that manages patents for the University of Wisconsin, Madison.

<http://pubs.acs.org/cen/coverstory/85/8503cover3.html>

***Subcategory: Personnel Issues***

**Be One of the "Best Recruiters"**

Peter Weddle Biospace 10-Jan-07

The Internet, alone, does not enable us to recruit the best talent, says Weddle. We must redesign our recruiting to capture the full potential of the technology. Suggests nurturing interest and trust among the best and brightest.

[http://www.biospace.com/news\\_story.aspx?StoryID=42269](http://www.biospace.com/news_story.aspx?StoryID=42269)

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**DRUG DELIVERY**

***Subcategory: Nanotechnology***

**Buckyballs Used as 'Passkey' into Cancer Cells**

Rice University 18-Jan-07

Scientists have discovered a new way to use buckyball nanoparticles as passkeys that allows drugs to enter cancer cells. The Bucky amino acid is based on pheyalanine, one of the 20 essential amino acids.

<http://media.rice.edu/media/NewsBot.asp?MODE=VIEW&ID=9213&SnID=139180049>

***Subcategory: Parenteral***

**Aggregate Knowledge**

Laura Bush BioPharm International 01-Jan-07

Bush reports on advances in one of the challenges of formulating

injectable proteins: adding preservatives.

<http://www.biopharm-mag.com/biopharm/article/articleDetail.jsp?id=395604>

***Subcategory: Regulatory/ Government***

**UMass Amherst Scientist Says New Study Challenges How Regulators Determine Risk**

University of Massachusetts

21-Dec-06

Study shows evidence that a key portion of the traditional dose-response model used in drug testing and risk assessment for toxins is wrong when it comes to measuring the effects of very low doses.

<http://www.umass.edu/newsoffice/newsreleases/articles/43024.php>

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**INDUSTRY**

***Subcategory: Geographic focus***

**Defining the Chinese Biopharmaceutical Market**

Eliza Yibing Zhou, Eric Langer

BioPharm International

01-Jan-07

China's thriving economy and evolving political landscape are luring companies from around the world to explore the Chinese biotechnology market. First in a monthly series that is based on "Advances in Biopharmaceutical Technology in China."

<http://www.biopharm-mag.com/biopharm/article/articleDetail.jsp?id=395607>

***Subcategory: Miscellaneous***

**Announcing the Bioinformatics Franklin Award Nominees**

Kevin Davis

Bio-IT World

31-Jan-07

The Bioinformatics Organization has nominated four leading American scientists for the 2007 Benjamin Franklin Award: Sean R. Eddy, Robert Gentleman, Don Gilbert and Steven Salzberg.

<http://www.bio-itworld.com/newsitems/2007/01-30-07-franklin-award-nominees>

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**INVESTMENTS/ GOV. SUPPORT**

***Subcategory: Geographic focus***

**New Year Brings New Opportunities**

Peter O'Donnell

Applied Clinical Trials

01-Jan-07

O'Donnell reports that patient safety and orphan medicines are featured in the EU's 6-year research support budget. There will be more than €6 billion specifically for health, with further allocations for biotechnology, nanosciences, and nanotechnologies.



microbes, according to researchers.

<http://pubs.acs.org/cen/news/85/i03/8503notw7.html>

### *Subcategory: Cell Therapy*

#### **Rolling Out Stem Cells**

Sarah Everts

Chemical & Engineering News

15-Jan-07

Everts explains: this industry effectively consists of three types of companies: those that specialize in developing embryonic stem cells, others that focus on adult stem cells, and finally, companies that bank umbilical-cord-blood stem cells.

<http://pubs.acs.org/cen/coverstory/85/8503cover3a.html>

#### **Taming Stem Cells**

Sarah Everts

Chemical & Engineering News

15-Jan-07

Researchers are defining the chemical preferences of stem cells and figuring out what keeps them eternal and what destines them to a differentiated fate.

<http://pubs.acs.org/cen/coverstory/85/8503cover.html>

#### **Scientists Discover New, Readily Available Source of Stem Cells**

Karen Richardson

EurekaAlert!

07-Jan-07

Scientists have discovered a new source of stems cells and have used them to create muscle, bone, fat, blood vessel, nerve and liver cells in the laboratory: from the amniotic fluid that surrounds developing embryos.

[http://www.eurekaalert.org/pub\\_releases/2007-01/wfub-sdn010207.php](http://www.eurekaalert.org/pub_releases/2007-01/wfub-sdn010207.php)

#### **Scientists Discover Stage At Which An Embryonic Cell Is Fated To Become A Stem Cell**

Science Daily

11-Jan-07

Research has revealed evidence to suggest that differences between the embryonic cells are already apparent at the 4-cell-stage, much earlier in development than previously supposed.

<http://www.sciencedaily.com/releases/2007/01/070110181217.htm>

### *Subcategory: Diagnostic Test Systems*

#### **Reducing Animal Testing Using Stem Cells**

Sarah Everts

Chemical & Engineering News

15-Jan-07

Stem cells may provide a complementary alternative to animals as in vitro models of disease and for toxicological testing, reports Everts, especially since other mammals aren't always a great model for humans and are expensive to use.

<http://pubs.acs.org/cen/coverstory/85/8503cover1a.html>

### *Subcategory: Drug Discovery*

## **Novel Laboratory Technique Nudges Genes into Activity**

Bio.com

28-Jan-07

The technique employs RNA, a tiny chemical cousin of DNA, to turn on genes; it could lead to therapeutics for conditions in which nudging a gene awake would help alleviate disease.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=25800004>

### *Subcategory: Evolution Research*

## **Neanderthal Genome Sequencing Yields Surprising Results and Opens a New Door to Future Studies**

Bio.com

15-Nov-06

While the genomes of modern humans and Neanderthals are at least 99.5% identical, there is no evidence of any significant crossbreeding between the two. Conclusion is based on genomic DNA from fossilized Neanderthal bones.

<http://www.bio.com/realm/features.jhtml?realmId=1&cid=23700011>

### *Subcategory: Genomics*

## **Scientists Discover New Class of RNA**

David Cameron

Massachusetts Institute of Technology

11-Jan-07

Describes 21U-RNAs, named after their distinctive features: Each molecule contains 21 chemical building blocks (or nucleotides), and each begins with the chemical uridine, represented by the letter U (the only RNA nucleotide not also found on DNA).

<http://web.mit.edu/newsoffice/2007/rna-whitehead.html>

## **Jefferson Researchers Uncover New Way Nature Turns Genes On and Off**

Steven Benowitz

Thomas Jefferson University

03-Jan-07

Researchers detail a possible mechanism by which non-coding RNAs (ncRNAs) briefly control the functioning of homeotic, or HOX, genes, which guide the master developmental plan of the organism.

<http://www.jeffersonhospital.org/news/2006/article13255.html>

### *Subcategory: Immunology/ Infectious Diseases*

## **Chopping off Protein Puts Immune Cells into High Gear**

St Jude's Children's Hospital

24-Jan-07

When activated, certain T lymphocytes called effector T cells reproduce, increasing their numbers and enhancing their ability to protect the body, according to researchers. This represents a new concept in how T cells are regulated.

[http://www.stjude.org/media/0.2561.453\\_4187\\_22470.00.html](http://www.stjude.org/media/0.2561.453_4187_22470.00.html)

### *Subcategory: Nanotechnology*

## **New Nanotechnology Able to Examine Single Molecules, Aiding in Determining Gene Expression**

Bio.com

24-Jan-07

A new nanotechnology that can examine single molecules in order to determine gene expression is paving the way for scientists to more accurately examine single cancer cells.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=25400024>

## **Quantum Biology -- Powerful Computer Models Reveal Key Biological Mechanism**

Bio.com

16-Jan-07

Researchers are working to harness the reaction to develop a "nanoswitch" for a variety of applications, from targeted drug delivery to genomics and proteomics to sensors.

<http://www.bio.com/realm/research.jhtml?realmId=3&cid=25200003>

## **Nanotubes Functionalized Controllably**

Mitch Jacoby

Chemical & Engineering News

08-Jan-07

Researchers are looking into ways of using molecular electronics to probe antibody-antigen interactions and other types of biomolecular reaction dynamics.

<http://pubs.acs.org/cen/news/85/i02/8502notw1.html>

### *Subcategory: Oncology*

## **Turning Green Gunk to Gold, Anti-cancer Gold**

University of Michigan

08-Jan-07

Combining synthetic chemistry techniques with a knowledge of the properties and actions of enzymes, scientists have been able to produce an exciting class of anti-cancer drugs originally isolated from blue-green algae.

<http://www.ns.umich.edu/htdocs/releases/story.php?id=3088>

## **Dual Gene Therapy Suppresses Lung Cancer in Preclinical Test**

University of Texas

15-Jan-07

Combination gene therapy delivered in lipid-based nanoparticles drastically reduces the number and size of human non-small cell lung cancer tumors in mice, say researchers. The genes wrapped in the nanoparticles were p53.

<http://www.mdanderson.org/departments/newsroom/display.cfm?id=D74FE902-97EA-4B42-98C0DD36EDCD4271&method=displayFull&pn=00c8a30f-c468-11d4-80fb00508b603a14>

### *Subcategory: Proteomics*

## **New Study Sheds Light on "Dark States" in DNA**

Bio.com

09-Jan-07

Chemists have probed an unusual high-energy state produced in single

nucleotides when they absorb ultraviolet (UV) light. The "dark" energy state may be linked to DNA damage which can lead to diseases such as cancer.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=24800075>

### **Tiny Laboratory Enables Huge Leaps in Mapping Protein Function**

Howard Hughes Medical Institute

12-Jan-07

A laboratory about the size of a quarter is capable of conducting thousands of experiments simultaneously to measure how specialized proteins bind their DNA targets.

<http://www.hhmi.org/news/quake20070112.html>

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## **RESEARCH ADVANCEMENTS**

### *Subcategory: Immunology/ Infectious Diseases*

#### **Genetically Altered Cells May Help Artificial Skin Fight Infection**

Amanda Harper

EurekAlert!

08-Jan-07

Researchers have created genetically modified skin cells altered to produce higher levels of human beta defensin 4 (HBD4) that, when added to cultured skin substitutes, may help fight off potentially lethal infections in patients with severe burns.

[http://www.eurekalert.org/pub\\_releases/2007-01/uoc-gac010307.php](http://www.eurekalert.org/pub_releases/2007-01/uoc-gac010307.php)

#### **UMass Scientists Reveal a Virus' Secret Weapon, Sheds Light on How Brain, Kidney Viruses Infect**

Dan Hebert

University of Massachusetts

17-Jan-07

Researchers have uncovered the secret to one virus's success: a concealed pair of proteins that when unleashed can slice through membranes that are normally impenetrable.

<http://www.umass.edu/newsoffice/newsreleases/articles/43616.php>

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

#### **Study Identifies Glucose "Sensor" That Plays Dual Role in Glucose Metabolism and Fat Synthesis**

Scripps Research Institute

26-Dec-06

The integration of glucose sensing and control of lipogenesis by LXR may explain why low-fat/high-carbohydrate diets induce hypertriglyceridemia. Research may also have implications for heart disease and stroke.

<http://www.scripps.edu/news/press/122606.html>

### *Subcategory: Neurology*

#### **Decoding Alzheimer's**

- Business Week 08-Jan-07
- Describes the development and promise of Alzhemed, a drug designed to keep Alzheimer's disease from slowly, relentlessly destroying the brain, something no drug has yet done.  
[http://www.businessweek.com/magazine/content/07\\_02/b4016060.htm](http://www.businessweek.com/magazine/content/07_02/b4016060.htm)
- Subcategory: Oncology***
- Gene Switch Makes Tumours Shrink** 25-Jan-07  
 BBC News  
 Sparking a key gene, tumor-suppressing gene p53, back into life could provide a powerful new treatment for cancer, scientists have found.  
<http://news.bbc.co.uk/2/hi/health/6291855.stm>
- 'Quiet Revolution' May Herald New RNA Therapeutics** 21-Jan-07  
 EurekAlert!  
 "Junk" DNA is estimated to produce around half a million varieties of RNA of unknown functions. A form of RNA is involved in regulation of the dihydrofolate reductase gene (DHFR) which controls thymine production, necessary in rapidly dividing cells.  
[http://www.eurekalert.org/pub\\_releases/2007-01/wt-rm011807.php](http://www.eurekalert.org/pub_releases/2007-01/wt-rm011807.php)
- Molecular Link Between Inflammation And Cancer Discovered** 25-Jan-07  
 Science Daily  
 Scientists say that the linkage of a basic cellular mechanism that may explain why cancer, which is normal growth and development gone awry, can result from chronic inflammation, which is an out-of-control response to danger.  
<http://www.sciencedaily.com/releases/2007/01/070125122719.htm>
- Linheng Li Lab Documents the Development of Cancer Stem Cells** 22-Jan-07  
 Stowers Institute  
 Research clarifies how normal stem cells become cancer stem cells and how cancer stem cells can cause the formation of tumors.  
<http://www.stowers-institute.org/WhatsNew/pr2007/PR012207.asp>
- Small Molecule Offers Big Hope Against Cancer** 16-Jan-07  
 Ryan Smith Univerisy of Alberta  
 Dichloroacetate (DCA) is shown to cause regression in several cancers, including lung, breast and brain tumors. Being so small, DCA is easily absorbed in the body, and, after oral intake, it can reach areas in the body that other drugs cannot.  
<http://www.expressnews.ualberta.ca/article.cfm?id=8153>
- Researchers Identify New Drug Targets for Cancer** 29-Dec-06  
 University of California  
 Researchers looked at a common characteristic of cancer cells called



light on the role of nucleosomes in the process of "reprogramming" an adult cell to its original embryonic state.

<http://www.dfc.harvard.edu/abo/news/press/2007/scientists-map-key-landmarks-in-human->

### *Subcategory: Imaging*

#### **A Ruler of Gold and DNA**

Bio.com

11-Oct-06

A molecular ruler offers label-free and real-time measurement of a range of protein-DNA interactions at an extremely high resolution, helping to understand how genetic information flows from DNA to RNA to gene expression.

<http://www.bio.com/realm/features.jhtml?realmId=5&cid=22600025>

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## **STRATEGIC RELATIONSHIPS**

### *Subcategory: Bio Pharma*

#### **Biotechs Target Small Molecules**

Lisa Jarvis

Chemical & Engineering News

08-Jan-07

Amgen and Genentech, the two largest biotechnology companies each signed small-molecule drug development agreements last week. In a twist, the deals allow the firms to see more data before making a bigger commitment to the drugs.

<http://pubs.acs.org/cen/news/85/i02/8502notw7.html>

### *Subcategory: Geographic focus*

#### **Ohio Seeks Healthy Job Ties With Israel**

The Plain Dealer

20-Jan-07

Because of its small size, Israel has a limited commercial market for quickly developing new medical technologies. So Israeli companies often branch out to the United States or Europe to gain access to larger markets.

<http://www.cleveland.com/business/plaindealer/index.ssf?base/business/116928581672900.xm>

### *Subcategory: Licensing Deals*

#### **Biopharmaceuticals**

Lisa Jarvis

Chemical & Engineering News

01-Jan-07

GSK gains the rights to HuMax-CD20, a fully human monoclonal antibody currently in Phase III trials for treatment of both non-Hodgkin's lymphoma and a type of leukemia. It is in Phase II studies to treat patients with rheumatoid arthritis.

<http://pubs.acs.org/cen/news/85/i01/8501notw9.html>

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## **THERAPEUTIC CATEGORY**

*Subcategory: Oncology*

**New Research Identifies Human Enzyme That Could Be Programmed To Kill Cancer Cells**

Science Daily

29-Dec-06

Researchers studying the behavior of an enzyme called sphingosine phosphate lyase (SPL) found the enzyme makes cancer cells more vulnerable to chemotherapy, whereas removing the enzyme makes the cells more resistant to treatment.

<http://www.sciencedaily.com/releases/2006/11/061120182022.htm>

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