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## BioTechCircle News®

**July, 2005**

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Quote of the month:

In experiments with rabbits, scientists were able to grow new bone tissue from a "bioreactor" environment they created on the surface of an animal's shin bone.

<http://www.healthday.com/view.cfm?id=527056>

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**In this articles section: links to 47 free Web articles in 7 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:

Contract Services (1 article) – Page 2  
Diagnostic Tools (1 article) – Page 2  
Drug Delivery (1 article) – Page 2  
Platform Technologies (7 articles) – Page 2  
Research Advancements (22 articles) – Page 4  
Research Tools (7 articles) – Page 7  
Therapeutic Category (8 articles) – Page 9

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### **CONTRACT SERVICES**

***Subcategory: Biomanufacturing***

## **Boosting Mammalian Cell-line Manufacturing Pilot Plant—A Case**

Rene Brecht, Ph.D., et al.

BioPharm International

01-Jul-05

Discusses the construction and operation of a contract plant designed around the production of recombinant proteins for mammalian cell lines using disposable systems.

<http://www.biopharm-mag.com/biopharm/article/articleDetail.jsp?id=170702>

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## **DIAGNOSTIC TOOLS**

### *Subcategory: Miscellaneous*

#### **Gene Tests 'Could Miss Problems'**

BBC News

30-Jun-05

A proposed change to prenatal genetic tests offered to UK couples could lead to chromosome abnormalities being missed, research suggests.

<http://news.bbc.co.uk/1/hi/health/4634593.stm>

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## **DRUG DELIVERY**

### *Subcategory: Gene Therapy*

#### **Delivering Genes via Nonviral Vector**

Bioscience Technology

25-Jul-05

Using silicon-based nanoparticles, researchers delivered genes into the brains of living mice. The technique, they say, may offer a more precise and safer alternative to the use of viral vectors for therapeutic gene delivery.

<http://www.biosciencetechnology.com/ShowPR~PUBCODE~090~ACCT~9000000100~ISSUE~0507~RELTYPE~PR~ORIGRELTYPE~RLSN~PRODCODE~00000000~PRODLETT~P.html>

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## **PLATFORM TECHNOLOGIES**

### *Subcategory: Bioinformatics*

#### **Users, Creators Wonder How Open Are Open-Source Tools**

Bernard Tulsi

Genomics & Proteomics

01-Jul-05

Tulsi reports that standardization and quality control remain concerns for the decentralized phenomenon of open-source bioinformatics.

<http://www.genpromag.com/ShowPR.aspx?PUBCODE=018&ACCT=1800000100&ISSUE=0507&RELTYPE=PR&ORIGRELTYPE=BIO&PRODCODE=00000000&PRODLETT=P>

### *Subcategory: Geriatrics*

#### **Raymond C. Kurzweil: Prophet Of Longevity**

Business Week

25-Jul-05

By 2030, Kurzweil believes, biomedical technology will have advanced to the point where it will be possible to halt the body's aging process.

[http://www.businessweek.com/magazine/content/05\\_31/b3945019.htm?chan=tc](http://www.businessweek.com/magazine/content/05_31/b3945019.htm?chan=tc)

***Subcategory: High Throughput Screening***

**NIH's New Screening Network Takes Shape**

Bioscience Technology

01-Jul-05

The National Institutes of Health (NIH) is awarding grants to 9 institutions to establish a Molecular Libraries Screening Centers Network that will use high-throughput screening techniques to identify small molecules.

<http://www.biosciencetechnology.com/ShowPR~PUBCODE~090~ACCT~9000000100~ISSUE~0507~RELTYPE~PR~ORIGRELTYPE~RLSN~PRODCODE~00000000~PRODLETT~A.htm>

**The Very Model of a Modern Model Genome**

Alan Dove

Genomics & Proteomics

01-Jul-05

With high-throughput sequencing, scientists now have the ability to compare diverse models of anatomy, physiology, disease, and genetics at the molecular level.

<http://www.genpromag.com/ShowPR.aspx?PUBCODE=018&ACCT=1800000100&ISSUE=0507&RELTYPE=PR&ORIGRELTYPE=CVS&PRODCODE=00000000&PRODLETT=N>

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

**Getting More Out of Cell-Based GPCR Assays**

Lori Valigra

Drug Discover &

01-Jul-05

GPCRs (G-protein-coupled receptors) are popular because they are proven targets in a wide range of major disorders including heart disease, obesity, cancers, pain, and diabetes.

<http://www.dddmag.com/ShowPR.aspx?PUBCODE=016&ACCT=1600000100&ISSUE=0507&RELTYPE=PR&ORIGRELTYPE=CEL&PRODCODE=00000000&PRODLETT=F>

***Subcategory: Miscellaneous***

**Real Promise for Synthetic Biology**

Bio-IT World

22-Jul-05

Looks at new companies involved in customizing microbial vehicles for groundbreaking scientific advances, including the development of alternative energy sources, and the production of new vaccines and pharmaceuticals.

<http://www.bio-itworld.com/newsitems/2005/07-05/07-22-05-news-synthetic-biology>

**Reengineering Peptide and Protein Therapeutics**

Bioscience Technology

06-Jul-05

Researchers found a way to solve the problem of the propensity of peptides to aggregate or form deposits, which can negatively impact development and production, and decrease the activity of the drug

when administered to patients.

<http://www.biosciencetechnology.com/ShowPR~PUBCODE~090~ACCT~9000000100~ISSUE~0507~RELTYPE~PR~ORIGRELTYPE~RLSN~PRODCODE~00000000~PRODLETT~C.html>

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## RESEARCH ADVANCEMENTS

### *Subcategory: Cardiology/ Vascular Diseases*

#### **Gene's Mutations Found to Cause Life-threatening Aortic Disease**

EurekAlert!

22-Jul-05

Researchers found that mutations in the Transforming Growth Factor Beta Receptor Type II (TGFB2) caused aortic aneurysms and dissections, giving a molecular pathway to study for development of therapies and for biological markers of the disease.

[http://www.eurekalert.org/pub\\_releases/2005-07/uoth-gm072205.php](http://www.eurekalert.org/pub_releases/2005-07/uoth-gm072205.php)

### *Subcategory: Geriatrics*

#### **Elderly Mice Yield Clues To The Process Of Growing Old**

Bio.com

14-Jul-05

Growing old, according to a new study, occurs, in part, as mutations build up in the DNA of mitochondria, triggering the death of critical cells that lead to such things as loss of muscle mass, weakened bones and fewer circulating red blood cells.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=12400069>

#### **Family of Life-Extending Genes Discovered**

EurekAlert!

28-Jul-05

Scientists have discovered 4 cousins of the SIR2 gene that also extend lifespan, suggesting that the whole family of SIR2 genes is involved in controlling lifespan.

[http://www.eurekalert.org/pub\\_releases/2005-07/hms-fo1072705.php](http://www.eurekalert.org/pub_releases/2005-07/hms-fo1072705.php)

#### **Researchers Identify Gene's Role in Suppressing Longevity**

Howard Hughes Medical

19-Jul-05

The discovery that SIRT1 deficiency enables cells to proliferate beyond senescence could be valuable to researchers growing cells for study.

<http://www.hhmi.org/news/alt7.html>

#### **Researchers Have Identified 23 New Longevity Genes**

News-Medical

25-Jul-05

Researchers have identified 23 new longevity genes in the worm *Caenorhabditis elegans*. Each of the 23 genes somehow normally acts to reduce longevity, whereas inhibiting any one of them increases lifespan.

<http://www.news-medical.net/?id=11967>

*Subcategory: Immunology/ Infectious Diseases*

**Gene For Immune Deficiency Syndromes Found**

Bio.com

11-Jul-05

A newly discovered gene mutation may account for many cases of immune deficiency. The discovery may lead to a new diagnostic test.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=12400017>

**Stolen Gene Allows Insect Virus To Enter Cells**

Bio.com

01-Jul-05

A gene enabling an insect virus to enter new cells was likely stolen from a host cell and adapted for the virus's use, according to research. Discusses how baculoviruses took the evolutionary leap needed to become the nasty bugs they are today.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=12100002>

**Gene for Immune Deficiency Syndromes Found**

EurekAlert!

10-Jul-05

The discovery of a gene for immune deficiency syndrome may lead to a new diagnostic test.

[http://www.eurekalert.org/pub\\_releases/2005-07/chb-gfi070705.php](http://www.eurekalert.org/pub_releases/2005-07/chb-gfi070705.php)

**Researchers Identify Genes Associated with Lung Transplant Rejection**

EurekAlert!

13-Jul-05

Researchers have identified six genes associated with lymphocytic bronchitis, which is thought to lead to obliterative bronchitis (OB), the most common cause of long-term failure of transplanted lungs.

[http://www.eurekalert.org/pub\\_releases/2005-07/uoc-rig071205.php](http://www.eurekalert.org/pub_releases/2005-07/uoc-rig071205.php)

**Genomics Researchers Discover Protein Deficit That Causes Drug Toxicity**

EurekAlert!

08-Jul-06

Researchers have discovered an inherited structural mechanism that can make drugs for some diseases toxic for some patients. The mechanism decreases a protein and in turn causes certain individuals to metabolize thiopurine drugs differently.

[http://www.eurekalert.org/pub\\_releases/2005-07/mc-grd070805.php](http://www.eurekalert.org/pub_releases/2005-07/mc-grd070805.php)

**Chronic Fatigue Is Not All in the Mind**

New Scientist

21-Jul-05

Differences in gene expression have been found in the immune cells of people with chronic fatigue, a discovery that could lead to a blood test for the disorder and perhaps even to drugs for treating it.

<http://www.newscientist.com/article.ns?id=mg18725093.700>

**Parasites' Genomes May Reveal Common Weak Spot**

New Scientist

14-Jul-05

By comparing newly published genomes of parasites which cause

sleeping sickness, Chagas disease and Leishmaniasis, researchers have discovered thousands of genes common to all three.

<http://www.newscientist.com/article.ns?id=dn7675>

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

#### **DNA Test for Diabetes and Obesity**

BBC News

17-Jul-05

Faulty versions of the gene ENPP1 disrupt the way the body stores energy and handles sugar by blocking the hormone insulin. Children with faulty versions were obese at as young as five years old.

<http://news.bbc.co.uk/1/hi/health/4686611.stm>

#### **Protein Could Lead to New Diabetes Drugs**

HealthDay

21-Jul-05

A protein known as retinol binding protein 4, or RBP4 that's overproduced by fat cells in obese individuals appears to promote insulin resistance -- elevating the risk for diabetes, heart disease and early death, according to researchers.

<http://www.healthday.com/view.cfm?id=526939>

### *Subcategory: Musculoskeletal*

#### **Scientists Develop 'In-Body Bone Factory'**

HealthDay

28-Jul-05

In experiments with rabbits, scientists were able to grow new bone tissue from a "bioreactor" environment they created on the surface of an animal's shin bone.

<http://www.healthday.com/view.cfm?id=527056>

### *Subcategory: Nephrology/ Urology*

#### **Enzyme Deficiency May Contribute to Liver Cancer, Mount Sinai Research Indicates**

EurekAlert!

27-Jul-05

The likelihood of hepatoma, or primary liver cancer, increases substantially when half the normal amount of an enzyme called Plk4 is present.

[http://www.eurekalert.org/pub\\_releases/2005-07/uot-edm072705.php](http://www.eurekalert.org/pub_releases/2005-07/uot-edm072705.php)

### *Subcategory: Neurology*

#### **Nerve Damage Repair Agent Hope**

BBC News

25-Jul-05

Scientists say they have discovered a protein, KDI tripeptide, that could be injected to repair damaged nerves and brain cells. It works by blocking the harmful effects of glutamate which is present in degenerative brain diseases and spinal cord injuries.

<http://news.bbc.co.uk/1/hi/health/4707023.stm>

### *Subcategory: Oncology*

#### **Cell Death Mark Liver Cancer Clue**

BBC News

23-Jul-05

Scientists say they have discovered how a protein, gankyrin, causes liver cancer: it tags cancer preventing cell machinery for destruction.

<http://news.bbc.co.uk/2/hi/health/4707917.stm>

#### **Researchers Discover How Tumor Suppressor Gene Works**

Bio.com

11-Jul-05

A critical event in the development of melanoma and other human cancers is the inactivation of a gene known as "p16." The p16 gene works by producing a protein that attaches to key enzymes.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=12400018>

#### **Gene Found in 90 Percent of Breast Cancers May Be Cancer Vaccine**

EurekaAlert!

25-Jul-05

TRPS-1 is a gene found at high levels in all forms of breast cancer, from DCIS to invasive disease, but in none of the normal tissues tested, except for low levels found in normal breast tissue.

[http://www.eurekaalert.org/pub\\_releases/2005-07/uotm-gfi072505.php](http://www.eurekaalert.org/pub_releases/2005-07/uotm-gfi072505.php)

#### **Genes Discovered That May Predict Breast Cancer Spread to Lungs**

HealthDay

27-Jul-05

The finding of a set of genes that seems to predict if breast cancer will spread could eventually help doctors to predict whose disease will become aggressive and spread, and potentially help them to better target treatments.

<http://www.healthday.com/view.cfm?id=527071>

### *Subcategory: Pulmonary/ Respiratory Diseases*

#### **Researchers Discover Gene that Determines Asthma Susceptibility by Regulating Inflammation**

Johns Hopkins Medicine

05-Jul-05

Disruption of a single gene, Nrf2, plays a critical role in determining the susceptibility to asthma, according to researchers. Controlling inflammation is a focus of asthma therapy.

[http://www.jhsph.edu/publichealthnews/press\\_releases/2005/biswal\\_asthma.html](http://www.jhsph.edu/publichealthnews/press_releases/2005/biswal_asthma.html)

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## **RESEARCH TOOLS**

### *Subcategory: Computing Systems*

#### **In Silico Techniques Tell How the Protein Turns**

Elizabeth Tolchin

Genomics & Proteomics

01-Jul-05

Computational methods that can predict the structure of a protein

from its amino acid sequence are improving. Developers of such programs say that the technology may one day completely supplant experimental structure determination.

<http://www.genpromag.com/ShowPR.aspx?PUBCODE=018&ACCT=1800000100&ISSUE=0507&RELTYPE=PR&ORIGRELTYPE=PRO&PRODCODE=00000000&PRODLETT=T>

### *Subcategory: Databases*

#### **London Calls for Gene Codes Forensics Database**

Bio-IT World

13-Jul-05

In the wake of the worst terrorist strike in British history in London, scientists have used the Mass Fatality Identification System (M-FISys) for disaster recovery efforts and as a missing persons database.

<http://www.bio-itworld.com/newsitems/2005/07-05/07-13-05-news-genecodes>

### *Subcategory: Evolution Research*

#### **Bioinformatics Window on Evolution**

Bio-IT World

25-Jul-05

Researchers have discovered that mammalian chromosomes have evolved over tens of millions of years by breaking at specific sites rather than randomly, as had been widely thought.

<http://www.bio-itworld.com/newsitems/2005/07-05/07-25-05-news-evolution>

### *Subcategory: Miscellaneous*

#### **New Gene Scanning Technology Marks a Major Advance in Disease**

EurekAlert!

06-Jul-05

A gene mutation scanning technique has been successfully applied to search for rare genetic mutations in the population at large.

[http://www.eurekalert.org/pub\\_releases/2005-07/cshl-ngs070605.php](http://www.eurekalert.org/pub_releases/2005-07/cshl-ngs070605.php)

### *Subcategory: Neurology*

#### **Researchers Make Headway In Mystery Of Migraines**

Bio.com

27-Jul-05

New research reveals how gene mutations known to cause a form of inherited migraine -- the kind that cause debilitating headaches and light flashes known as auras -- target a cellular process involved in brain cell communication.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=12400196>

### *Subcategory: Oncology*

#### **DNA Scans Reveal Possible Location of Lung Cancer Genes**

EurekAlert!

01-Jul-05

With equipment designed to probe the smallest segments of the genetic code, researchers have found something much larger: sections of the

chromosomes of lung cancer cells where cancer-related genes may lurk.  
[http://www.eurekalert.org/pub\\_releases/2005-07/dci-dsr062805.php](http://www.eurekalert.org/pub_releases/2005-07/dci-dsr062805.php)

*Subcategory: Otolaryngology*

**U Iowa Researchers Prevent Hereditary Deafness in Mice**

EurekaAlert!

27-Jul-05

Scientists have shown that it is possible to cure a certain type of hereditary deafness by silencing a gene that causes hearing loss.

[http://www.eurekalert.org/pub\\_releases/2005-07/uo-i-uir072705.php](http://www.eurekalert.org/pub_releases/2005-07/uo-i-uir072705.php)

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**THERAPEUTIC CATEGORY**

*Subcategory: Immunology/ Infectious Diseases*

**Flu Mutates Quicker than Thought**

BBC News

26-Jul-05

Scientists previously believed that gene swapping progressed gradually from season to season. However, a research team found that influenza A exchanged several genes at once, causing sudden and major changes to the virus.

<http://news.bbc.co.uk/1/hi/health/4717183.stm>

*Subcategory: Metabolism: Obesity, Diabetes*

**Bad Cholesterol: Genes Make the Difference**

Lawrence Berkley Lab

08-Jul-05

Researchers have discovered that no matter what their lifestyle, people's genes play an overriding role in their cholesterol response.

<http://www.lbl.gov/Science-Articles/Archive/LSD-twin-cholesterol.html>

*Subcategory: Miscellaneous*

**Gene Silencing Technique Offers New Strategy For Treating, Curing**

Bio.com

31-Jul-05

Because virtually every disease starts at the level of malfunctioning gene expression, or viral or bacterial gene expression, scientists say this approach could theoretically produce a drug for the treatment or cure of almost any disease.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=12400236>

*Subcategory: Oncology*

**UIC Researchers Show How Cancer-preventing Foods Work**

EurekaAlert!

08-Jul-05

Two key proteins, Keap1 and Nrf2, are involved in spurring the defense against cancer when disease-preventing foods are ingested.

[http://www.eurekalert.org/pub\\_releases/2005-07/uoia-urs070805.php](http://www.eurekalert.org/pub_releases/2005-07/uoia-urs070805.php)

***Subcategory: Otolaryngology***

**Chronic Sinus Infection Thought to Be Tissue Issue, Mayo Clinic Scientists Show It's Snot**

EurekAlert!

28-Jul-05

New research indicates that scientists might need to take not only the tissue but also the mucus into account when trying to understand what causes chronic sinus infections and probably other airway diseases.

[http://www.eurekalert.org/pub\\_releases/2005-07/mc-csi072805.php](http://www.eurekalert.org/pub_releases/2005-07/mc-csi072805.php)

***Subcategory: Pain Management***

**Scientists Make Breakthrough in Understanding Muscle Contraction**

EurekAlert!

29-Jul-05

Electrical signals tell the muscle when to contract, but when the muscle needs to relax, the signal is deliberately ignored. A research team has found that calcium fills a small structure in the cell, forcing the muscle to relax.

[http://www.eurekalert.org/pub\\_releases/2005-07/uol-smb072905.php](http://www.eurekalert.org/pub_releases/2005-07/uol-smb072905.php)

***Subcategory: Reproduction***

**New Discovery May Help Doctors Treat Infertility**

EurekAlert!

20-Jul-05

Research suggests that medications commonly referred to as fertility drugs may be ineffective for women who lack a gene called the estrogen receptor beta.

[http://www.eurekalert.org/pub\\_releases/2005-07/nioe-ndm072005.php](http://www.eurekalert.org/pub_releases/2005-07/nioe-ndm072005.php)

***Subcategory: Wound/Tissue Repair***

**Stress Slows Wound Healing; Oxygen Helps**

EurekAlert!

28-Jul-05

Researchers found that in mice, psychological stress, brought on by confinement, delayed the closing of wounds by more than 45%.

Introduction of hyperbaric oxygen nearly eliminated the delay in healing.

[http://www.eurekalert.org/pub\\_releases/2005-07/uoia-ssw072805.php](http://www.eurekalert.org/pub_releases/2005-07/uoia-ssw072805.php)

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