



BioTechCircle News®

September 2007

Featured September article:

Forging a New Model for Cancer Monitoring: The Predictive Biosciences Plan

Company aims to pioneer tests to greatly augment standard procedures, such as mammograms, cystoscopies, colonoscopies, and biopsies. The mechanism links how tumors grow, how cancer expands, and how it becomes metastatic.

<http://www.biomarkerbts.com/articles/07/sept5/Strategy/bts.asp>

New This Month: You'll see several articles with {Blog} after the title. We'll be commenting on additional articles after this September report is uploaded, so we invite you to check out the BioBlog from time to time and to feel free to add your own comments and observations at:

<http://techmanage.net/tmablog>.

In this articles section: links to 46 free Web articles in 13 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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AGRI-BIOTECH

Subcategory: Energy/ Fuel

Ethanol, Schmethanol

Economist

27-Sep-07

Argues that ethanol is a "lousy fuel" and reports on efforts to make a better fuel that is equally as green as ethanol, such as biobutanol, engineering enzymes to make octanol and a type of isoprenoid by using synthetic biology.

http://www.economist.com/science/displaystory.cfm?story_id=9861379

Subcategory: Food

How Nature Makes Earth Aroma {Blog}

Stephen K. Ritter

Chemical & Engineering News

19-Sep-07

Researchers determined that geosmin (a terpene responsible for the pleasant scent of moist soil) is made through a bi-functional enzyme. Method to block its formation could avoid the sometimes musty taste of water, wine, fish, and other foods.

<http://pubs.acs.org/cen/news/85/i39/8539notw8.html>

BIOBUSINESS MANAGEMENT

Subcategory: Diagnostic Test Systems

A Genetic Test That Very Few Need, Marketed to the Masses

ANDREW POLLACK

New York Times

11-Sep-07

Critics say that advertising such a complex screening test to the general population might create unnecessary anxiety among women and lead to overuse of the test, which costs \$3,120. Company says it is raising public awareness.

http://www.nytimes.com/2007/09/11/business/media/11genetics.html?_r=2&ref=health&oref=slogin&oref=slogin

Subcategory: Patent/Intellectual Property Issues

IP Briefs: The Shifting Landscape of Patent Licensing

Jennifer Carter

BioPharm International

01-Sep-07

A Supreme Court ruling allows a patent licensee to challenge the validity of a patent without having to breach the license first, making it easier for companies to protect themselves against patent infringement suits but harder for patent holders.

<http://www.biopharminternational.com/biopharm/IP+Briefs/IP-Briefs-The-Shifting-Landscape-of-Patent-Licensi/ArticleStandard/Article/detail/451506>

U.S. House Moves to Reform Patent Laws

MSNBC News

06-Sep-07

Big US technology companies won an important patent reform victory in September, but opposition to the bill is widespread, ranging from pharmaceutical companies to big manufacturers like General Electric, Johnson & Johnson and the White House.

<http://www.msnbc.msn.com/id/20648921/>

DIAGNOSTIC TOOLS

Subcategory: Oncology

Forging a New Model for Cancer Monitoring: The Predictive Biosciences Plan

Malorye Allison

Biomarker Breakthroughs

05-Sep-07

Company aims to pioneer tests to greatly augment standard procedures, such as mammograms, cystoscopies, colonoscopies, and biopsies. The mechanism links how tumors grow, how cancer expands, and how it becomes metastatic.

<http://www.biomarkerbts.com/articles/07/sept5/Strategy/bts.asp>

DRUG DELIVERY

Subcategory: Gene Therapy

Delivering Gene Therapy

Sarah Everts

Chemical & Engineering News

10-Sep-07

Reports a new route for delivering nucleic acid-based therapies into cells without potentially problematic viruses as carriers: lipids with an anionic nucleotide headgroup that can form hydrogen bonds with uridine, adenine, or thymine nucleotide bases.

<http://pubs.acs.org/cen/news/85/i37/8537notw9.html>

Gene Therapy without Viruses

Katherine Bourzac

Technology Review

12-Sep-07

Researchers have developed a new polymer for gene therapy that is as

effective as viruses, but it seems to have none of the risks of viral treatments. Resaerchers believe they can further modify the polymer to target virtually any cell in the body.

<http://www.technologyreview.com/Biotech/19367/>

Subcategory: Nanotechnology

MU Engineers Develop Micro Device and Nano-Engineered Materials to Treat Cancer and HIV

University of Missouri-Columbia 18-Sep-07

By incorporating microchip-based technology with nanotechnology, researchers fuse both technologies to trigger a reaction resulting in supersonic shockwaves that propagate into the body's pores to make infected cells permeable for drug interaction.

<http://www.nanowerk.com/news/newsid=2627.php>

Subcategory: Topical

Painless Drug Injections

Jennifer Chu Technology Review 11-Sep-07

Researchers have engineered a drug patch that painlessly delivers medications through the skin via tiny micro-needles. The technology is modeled after Hewlett-Packard's inkjet-printer technology.

<http://www.technologyreview.com/Biotech/19365/>

INDUSTRY

Subcategory: Drug Discovery

Systems Biology's Awkward Adolescence

John Russell Bio-IT World 13-Sep-07

Reviews benefits of systems biology, which emphasizes specifying entire biological networks in mechanistic detail, allowing researchers to identify the best intervention points, the optimum agent(s), definitive biomarkers, and sidestep toxic side effects.

<http://www.bio-itworld.com/issues/2007/sept/cover-story/>

INVESTMENTS/ GOV. SUPPORT

Subcategory: Geographic focus

NIH Doles Out \$7M for Genomics Studies

MassHigh Tech 07-Sep-07

Lists 6 Massachusetts institutes receiving grants and the focus of the research being supported.

<http://www.bizjournals.com/masshightech/stories/2007/09/03/daily29.html>

NOVEL APPLICATIONS

Subcategory: Gene Sequences

Name, Rank and Serial Number

Economist

20-Sep-07

DNA barcoding has dramatically reduced the time (to less than an hour) and expense (to less than \$2) of using DNA to identify species. Biologists want to barcode half a million species in the next 5 years. Attracting interest of governments.

http://www.economist.com/science/displaystory.cfm?story_id=9828729

PERSONALIZED MEDICINE

Subcategory: Cardiology/ Vascular Diseases

Predicting Dose Response

Kevin Davies

Bio-IT World

13-Sep-07

The FDA issued an important ruling on the labeling of warfarin (Coumadin), a powerful anti-coagulant. The drug's label will be revised to note the value of genetic testing in assessing patient dosage, which typically ranges from 1 to 10 mg/day.

<http://www.bio-itworld.com/issues/2007/sept/first-base/>

PHARMACEUTICALS

Subcategory: Biomanufacturing

Researchers Genetically Engineer Microorganisms into Tiny Factories

University of Buffalo

19-Sep-07

Microorganisms may soon be efficiently and inexpensively producing novel pharmaceutical compounds, such as flavonoids, that fight aging, cancer or obesity, as well as high-value chemicals.

<http://www.buffalo.edu/news/8843>

PLATFORM TECHNOLOGIES

Subcategory: Biomanufacturing

Natural Products Made in a Test Tube

Corinna Wu

Technology Review

28-Sep-07

Researchers have synthesized a complex natural product by mixing enzymes used by a cell with simple starting materials in a single flask. The 1-step process offers a simple, potentially quicker way to manufacture drugs based on molecules found in nature.

<http://www.technologyreview.com/Biotech/19437/>

Subcategory: Cell Therapy

U.K. Gives 'Human-Animal' Embryo Green Light

BBC News

05-Sep-07

Scientists want to create hybrid embryos by merging human cells with animal eggs in a bid to extract stem cells. The embryos would then be destroyed within 14 days. Scientists wanting to use hybrids will still need to make individual applications.

<http://news.bbc.co.uk/2/hi/health/6978384.stm>

Subcategory: Data Integration

System Biology: an Innovative Agenda for Combating Disease; a New Biotechnology

European Science

10-Sep-07

Most human diseases, such as diabetes and obesity, are multifactorial: they are not simply the result of one mutation in one gene, producing one rogue protein that can no longer carry out its job. The network of interactions must be addressed.

<http://www.esf.org/research-areas/medical-sciences/news/ext-news-singleview/article/system-biology-an-innovative-agenda-for-combating-disease-a-new-biotechnology-314.html>

Subcategory: Genome Sequence

Mom's Genes or Dad's? Map Can Tell.

Rick Weiss

Washington Post

04-Sep-07

Scientists have for the first time determined the order of virtually every letter of DNA code in an individual, indicating that there are 5 times as many differences between individuals' DNA as was previously thought.

<http://www.washingtonpost.com/wp-dyn/content/article/2007/09/03/AR2007090301106.html> thought.

Subcategory: Genomics

Genes and Disease? It's What You Do with What You Have

Bio.com

17-Sep-07

Researchers found that activity of more than 1300 genes was affected

by DNA sequence changes in regions predicted to be involved in regulating gene activity, which often lie close to, but outside, the protein-coding regions.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=33700010>

A 'Scientific Revolution' Is Taking Place, as Researchers Explore the Genomic Jungle

Colin Nickerson

Boston Globe

24-Sep-07

Scientists are discovering that cellular processes long assumed to be "genetic" appear quite often to be the result of highly complex interactions occurring in regions of DNA void of genes, requiring rethinking what genes are, what they do and don't do.

http://www.boston.com/news/globe/health_science/articles/2007/09/24/dna_unraveled/

Scientists Synthesize Memory in Yeast Cells

Harvard University Gazette

19-Sep-07

Researchers have successfully synthesized a DNA-based memory loop in yeast cells, an experiment that marks a significant step forward in the emerging field of synthetic biology, and created a mathematical model of how a memory "device" might work.

<http://www.news.harvard.edu/gazette/2007/09.20/99-yeast.html>

Subcategory: Imaging

Red Radiance

Sarah Everts

Chemical & Engineering News

03-Sep-07

Peering deep into live animals may now be easier, thanks to a red sea anemone and some clever protein engineering. Russian researchers are reporting a new red fluorescent protein that is more than significantly brighter than any existing contender.

<http://pubs.acs.org/cen/news/85/i36/8536notw3.html>

Subcategory: Immunology/ Infectious Diseases

Structural Studies Reveal New Clues to Prion Infectivity

Howard Hughes Medical Institute

02-Sep-07

Researchers show that the same polypeptide can misfold into dramatically different conformations. These different conformations can lead to dramatic changes in the structure of the prion form, with each conformation having different disease properties.

<http://www.hhmi.org/news/weissman20070902.html>

Subcategory: Monofluidics

Mimicking Biological Systems

Celia Henry Arnaud

Chemical & Engineering News

10-Sep-07

Engineers and physical scientists, in collaboration with biologists, are

demonstrating that the channels and wells of microfluidic devices can mimic the chemistry and physics of biological systems in ways that reveal hitherto unknown biology.

<http://pubs.acs.org/cen/coverstory/85/8537cover.html>

Subcategory: Nanotechnology

Scientists Get First Look at Nanotubes Inside Living Animals

Rice University

24-Sep-07

Scientists confirm that near-infrared fluorescent imaging is capable of detecting DNA-sized nanotubes inside living fruit flies. They give off fluorescent light in a way that researchers hope to harness to detect diseases earlier than currently possible.

<http://www.media.rice.edu/media/NewsBot.asp?MODE=VIEW&ID=10023&SnID=648222842>

Subcategory: Proteomics

If You Think Cancer Genes Are Simple, You Don't Know JAK

University of Rochester

17-Sep-07

Scientists have shown that a gene named JAK, closely related to a common cancer-causing gene in people, disrupts the activity of an organism's DNA on a broad scale, thwarting a critical molecular event very early on in an embryo's development.

<http://www.urmc.rochester.edu/pr/news/story.cfm?id=1645>

UT-ORNL Governor's Chair Unlocks Secrets of Protein Folding

University of Tennessee

17-Sep-07

Using supercomputers, researchers revealed a driving force behind protein folding: the way water wets hydrophobic areas of the protein determines the ultimate shape and behavior of the peptide.

<http://www.utk.edu/news/article.php?id=4239>

RESEARCH ADVANCEMENTS

Subcategory: Geriatrics

A Fountain of Youth in Mitochondria?

Emily Singer

Technology Review

21-Sep-07

Mitochondrial energy stores allow cells to survive when stressed; suggests calorie restriction may increase lifespan. Cell survival is also linked to higher sirtuin enzyme levels which boost mitochondrial health but found outside the mitochondria.

<http://www.technologyreview.com/Biotech/19413/>

Subcategory: Immunology/ Infectious Diseases

Subcategory: Neurology

Hold That Thought

Sophie L. Rovner

Chemical & Engineering News

03-Sep-07

DNA methylation, a technique the body uses to permanently switch off unneeded genes, might also be used transiently during memory storage, say some researchers.

<http://pubs.acs.org/cen/coverstory/85/8536cover.html>

Trashing the Brain

Economist

13-Sep-07

Many diseases of the central nervous system - including Alzheimer's, Huntington's and Parkinson's diseases - share a mechanism whereby abnormally folded proteins are not collected and disposed of by ubiquitins and the proteasome.

http://www.economist.com/science/displaystory.cfm?story_id=9794864

Something in the Way He Moves

Economist

27-Sep-07

Depressed people have been shown to experience longer resting periods more frequently and shorter ones less frequently than healthy people do. Discovery may provide another way of diagnosing major depression.

http://www.economist.com/science/displaystory.cfm?story_id=9861412

Subcategory: Oncology

To Evade Chemotherapy, Some Cancer Cells Mimic Stem Cells

American Association for Cancer Research 19-Sep-07

Research may help explain why the expression of stem cell markers has been associated with resistance to chemotherapy and radiation treatments and poor outcome for patients with cancers including prostate, breast and lung cancers.

<http://www.aacr.org/home/about-us/news.aspx?d=822>

RESEARCH TOOLS

Subcategory: Cardiology/ Vascular Diseases

Researchers Provide Genetic Associations from a Genome-wide Scan for Cardiovascular Disease Traits

Boston University

19-Sep-07

Researchers hope results from the genome-wide association study will lead to a deeper understanding of the role of common genetic variation in the development of cardiovascular disease and its risk factors. Data accessible through website.

<http://www.bu.edu/phpbin/news/releases/display.php?id=1408>

Subcategory: Evolution Research

Team Probes History of Genes with New Tool

Massachusetts Institute of Technology

10-Sep-07

A new method termed "SYNERGY" reveals the ancestry of all genes across many different genomes, clues about why new genes pop up.

<http://web.mit.edu/newsoffice/2007/gene-history-0910.html>

Subcategory: Imaging

Scientists Reveal DNA-Enzyme Interaction with First Ever Real Time

BBSRC

14-Sep-07

For the first time scientists have been able to film, in real-time, the nanoscale interaction of an enzyme and a DNA strand from an attacking virus.

http://www.bbsrc.ac.uk/media/pressreleases/070914_enzyme_unravelling_dna.html

Viewing Microbial Metabolism

Celia Arnaud

Chemical & Engineering News

17-Sep-07

A new mass spectrometric imaging method allows researchers to get a close-up, quantitative look at nitrogen fixation by individual bacteria inside animal cells. Opens a new way to study the roles of microbes in their natural environments.

<http://pubs.acs.org/cen/news/85/i38/8538notw8.html>

The Best Scientific Images of the Nanoworld {Blog}

Nano Werk

06-Sep-07

The International Scanning Probe Microscope Image Contest (SPMImage07) has announced their five awarded images. The image entitled "Nano rings" was awarded first prize. Image and link to gallery of images.

<http://www.nanowerk.com/news/newsid=2488.php>

Speeding Up Diagnosis

Katherine Bourzac

Technology Review

06-Sep-07

A new kind of rapid diagnostic technology that relies on magnetic nanoparticles and a technique similar to magnetic resonance imaging (MRI) can use blood, saliva, or any other samples with no preparation.

<http://www.technologyreview.com/Biztech/19343/>

Subcategory: Test Systems - Chemistry/ Biochemistry

Brown Scientists Take the Petri Dish to New Dimensions

Brown University

19-Sep-07

Engineers have invented a 3-D Petri dish that can grow cells in three

dimensions, a method that promises to quickly and cheaply produce more realistic cells for drug development and tissue transplantation.
http://www.brown.edu/Administration/News_Bureau/2007-08/07-035.html

THERAPEUTIC CATEGORY

Subcategory: Dermatology

New Nanoemulsion Safely Treats Serious Skin Infections Without Systemic Side Effects

Nano Werk

12-Sep-07

A new topical lotion that penetrates the skin deeply enough to target and eliminate serious skin infections, but without being systemically absorbed, has shown a high degree of safety and tolerability in patients with onychomycosis, or toenail fungus.

<http://www.nanowerk.com/news/newsid=2564.php>

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