



BioTechCircle News®

June 2010

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In this articles section: links to 66 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.

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For a brief explanation of how we categorize the articles, please see "Express Guide to Monthly Web Articles at: http://www.techmanage.net/expressguide_articles

AGRI-BIOTECH

Subcategory: Crops

Scientists Decipher Structure of Nature's 'Light Switch'

Brookhaven National Laboratory 31-May-10

Researchers decipher the structure of a molecular "switch" phytochrome from a common bacterium; the phytochrome is much like the one plants use to sense light, but easier to isolate. Could be used to design new ways to modify plant growth.

http://www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=1143&template=Today

Subcategory: Energy/Fuel

Biofuels: Greener than Ever

James Netterwald, PhD Bioscience Technology 01-Jun-10

More biofuel companies are looking to become players as biofuel development is becoming more profitable and more efficient. Describes microalgae and Jatropha, a subtropical plant indigenous of Central America, that are used for producing biofuels.

<http://www.biosciencetechnology.com/Articles/2010/05/Biofuels-Greener-than-Ever/>

Growing Chemicals

Melody Voith Chemical & Engineering News 07-Jun-10

Making today's biobased fuels and materials involves growing crops, then using physical and chemical means to extract sugars for fermenting into the desired product. Goal of companies such as Agrivida is to make plants do more of the manufacturing work.

<http://pubs.acs.org/cen/business/88/8823bus2.html>

New Microbial Genetic System Dissects Biomass To Biofuel Conversion

Margaret Broeren University of Wisconsin 14-Jun-10

Through vector integration, scientists develop a method to generate a mutation in any gene within *Cellvibrio japonicus*, a bacterium that is known to convert biomass to sugars, a step in the development of cost-effective cellulosic biofuels.

<http://www.news.wisc.edu/18164>

Subcategory: Environmental

U.S. Paper Industry Testing Genetically Altered Trees

Mitch Stacy Manufacturing.net 07-Jun-10

Plantations of hearty, faster-growing eucalyptus could produce more timber in a smaller area and allow conservation of natural forests. Critics say that the planned large introduction of a bioengineered nonnative plant could endanger natural ecosystems.

<http://www.manufacturing.net/article.aspx?id=260476>

Fern's Evolution Gives Arsenic Tolerance That May Clean Toxic Land

Bob Grant

The Scientist

01-Jun-10

Discusses research projects funded by earmarks, which comes directly from appropriations bills (outside of the competitive, peer-reviewed granting system that marks most government research awards), voted by legislators to fund their constituents.

<http://www.the-scientist.com/2010/6/1/32/1/>

NOVEL APPLICATIONS

Subcategory: Energy/ Fuel

Device Makes Clean Water Through Sunlight and Fuel Cells

R & D Magazine

25-May-10

Describes the HYDRA, a fuel cell-based device that uses the sun to break water into hydrogen and oxygen, saving the oxygen for medical uses and using the hydrogen to power the fuel cell, which provides the energy to run a water purification system.

<http://www.rdmag.com/New-To-Market/2010/05/Environment-Green-Technology-Device-makes-produces-clean-water-through-sunlight-and-fuel-cells/>

An Energy-Saving Air Conditioner

Neil Savage

Technology Review

17-Jun-10

Describes efforts to design an air conditioning system that manages to merge evaporative cooling and desiccant (calcium chloride) drying to be cost effective for commercial and residential processes for cooling. Aim is to replace chlorofluorocarbons.

<http://www.technologyreview.com/energy/25623/page1/>

PEOPLE PROFILES

Subcategory: Biomarker

Carolyn Bertozzi Wins Lemelson-MIT Prize

Mitch Jacoby

Chemical & Engineering News

02-Jun-10

One of the main thrusts of Bertozzi's work is developing tools for early detection of cancer. Her aim is to take advantage of clinical imaging technologies to recognize diseased tissue, helping sidestep the need to do surgery in search of cancerous cells.

<http://pubs.acs.org/cen/news/88/i23/8823news2.html>

PERSONALIZED MEDICINE

Subcategory: Genomics

Genomic Medicine Debate

BBC News

08-Jun-10

Chair of U.K.'s Science and Technology Committee calls for introduction of validated tests to ensure that effective treatments are used. Competing priorities and cost savings challenge how the advances in genetics will be translated in clinical practice.

http://news.bbc.co.uk/democracylive/hi/house_of_lords/newsid_8728000/8728163.stm

Subcategory: Hospitals/ Health Care

10,000 NHS Patients 'To Have Genes Mapped'

Fergus Walsh

BBC News

21-Jun-10

U.K. hospital specializing in the treatment of heart and lung conditions will sequence the genes of 10,000 patients over 10 years. Aim is for someone to come in, have a full scan and genetic analysis, leading to a personalized therapy for their disease.

<http://news.bbc.co.uk/2/hi/health/10367883.stm>

Subcategory: Nephrology/ Urology

Researchers Predict Response to Hepatitis C Treatment

European Biotechnology

14-Jun-10

People often respond differently to the same treatment because a genetic variation in the non-responders is inhibiting the effects of therapy. A small genetic change is shown to predict how people infected with hepatitis C react to treatment.

<http://www.dddmag.com/news-Gene-Variant-Predicts-Response-To-Hepatitis-Treatment-61410.aspx>

PLATFORM TECHNOLOGIES

Subcategory: Diagnostic Test Systems

Cysts Hold Clues to Pancreatic Cancer

Van Andel Institute

03-Jun-10

Using fluid from a variety of pancreatic cyst types, researchers find several biomarker candidates by looking at patterns in the variations of carbohydrate structures called glycans for differentiating between pre-cancerous and benign cysts.

http://www.vai.org/News/News/2010/06_03_Pancreatic-Cysts.aspx

Subcategory: Drug Discovery

Scripps Research Scientists Break Barrier to Creating Potential Therapeutic Molecules

Scripps Research Institute

24-May-10

A novel technique for the first time allows efficient production of a molecular structure called "skipped polyenes" that is common to a vast

array of natural molecules. Creates a chemical shortcut that will aid in drug discovery.

<http://www.scripps.edu/news/press/20100524.html>

Subcategory: Environmental

New Type of Study Ties Pollutants, Vitamin E Variant to Diabetes Prevalence

Howard Hughes Medical Institute 21-May-10

A unique analysis of 266 potential environmental contributors to type 2 diabetes has confirmed a link between several pollutants and the disease, while also pointing researchers for the first time toward a form of vitamin E as a possible risk factor.

<http://www.hhmi.org/news/butte20100521.html>

Subcategory: Genomics

Life Technologies Founds Cancer Organization

Drug Discovery & Development 07-Jun-10

Genomic Cancer Care Alliance helps people battling cancer gain access to treatment options through analysis of their genomic information. Studies if whole-genome sequencing can better guide treatment decisions across difficult-to-treat cancers.

<http://www.dddmag.com/news-Life-Technologies-Founds-Cancer-Organization-6710.aspx>

Subcategory: Geriatrics

Building Better Proteins

Bob Grant The Scientist 01-Jun-10

The accumulation of misfolded protein marks the accrual of years as the body ages. Could heat shock proteins be used to reduce the effects of aging, diminish the risk of motor neuron disease by untangling improperly folded proteins?

<http://www.the-scientist.com/2010/6/1/68/1/>

Subcategory: Hematology

MicroRNAs Ensure Proper RBC Production

Drug Discovery & Development 01-Jun-10

Scientists identify 2 small RNA molecules, MiR144 and MiR451, which ensure that enough red blood cells are produced efficiently; the molecules do this by fine-tuning a number of different genes involved in red blood cell formation.

<http://www.dddmag.com/news-MicroRNAs-Ensure-Proper-RBC-Production-6110.aspx>

Subcategory: Immunology/ Infectious Diseases

Space Biotech: Growing Industry or Space Shot?

Paul Livingstone R & D Magazine 12-May-10

Critical genes related to growth and stress in bacteria express themselves in a different way in space, with higher virulence. Phenomenon helps production of medically valuable proteins like immuno-reactive molecules, hormones, enzymes, and vaccines.

<http://www.rdmag.com/Community/Blogs/RDBlog/Life-Sciences-Biotechnology-Space-biotech-growing-industry-or-space-shot/>

Rutgers Cell Biologist Pinpoints How RNA Viruses Copy Themselves

Rutgers University

28-May-10

For a virus's replication machines to work, it needs to create an ideal lipid environment. It does this by hijacking a key enzyme from its host cell. Potential for drug therapies that block activity of hijacked enzyme or prevent the hijacking itself.

<http://news.rutgers.edu/medrel/news-releases/2010/05/rutgers-cell-biologi-20100526>

Biosensors Reveal How Single Bacterium Gets the Message to Split Into a Swimming and a Stay-Put Cell

Science Daily

04-Jun-10

The signaling chemical c-di-GMP is implicated in several bacterial survival strategies. In disease-causing bacteria, c-di-GMP is thought to regulate antibiotic resistance, adhesiveness, biofilm formation, and cell motility.

<http://www.sciencedaily.com/releases/2010/06/100603140957.htm>

New Weapon Against Highly Resistant Microbes Within Grasp

University of Bonn

28-May-10

Plectasin, a small protein molecule found in fungi and lower animals may well be suitable as an effective weapon against dangerous bacteria. Researchers have shed light on how the substance can even destroy highly resistant bacteria.

<http://www.ddmag.com/news-New-Weapon-Against-Highly-Resistant-Microbes-52810.aspx>

Subcategory: Materials

The Elegant, Complex Way Bubbles Burst

Harvard University

09-Jun-10

The physics behind bubbles bursting appears to be independent of the material of the bubble: ring effect is seen with fairly viscous liquids like oil, even in solutions up to 5,000 X more viscous than water. Potential application for therapeutic aerosols?

<http://www.seas.harvard.edu/news-events/press-releases/discovery-in-2010pop2010-d-science-reveals-the-elegant-complex-way-bubbles-burst>

Printing and Testing Chemical Sensors on Elastic Waistbands of Underwear

R & D Magazine

08-Jun-10

Chemical sensors printed directly on elastic underwear waistbands retained their sensing abilities even after engineers stretched, folded and pulled at

the chemical-sensing printable electrodes. May be used for “hospital-on-a-chip” systems.
<http://www.rdmag.com/News/2010/06/Life-Sciences-Nanotechnology-Printing-And-Testing-Chemical-Sensors-On-Underwear-Elastic-Waistbands/>

Subcategory: Microorganisms

Understanding How the Human Microbiome Becomes a Supraorganism

Lynn Yarris

R & D Magazine

10-Jun-10

At birth, your body was 100% human in terms of cells. At death, about 10% of the cells in your body will be human, 90% microorganisms. The interactions between your human and microbial cells determine your health, resistance to infectious diseases.

<http://www.rdmag.com/News/2009/06/Life-Science-Genomics-Understanding-how-the-human-microbiome-becomes-a-supraorganism/>

Subcategory: Oncology

Chromatin May Explain How Few Genetic Changes Lead to Pediatric Kidney Cancer

Howard Hughes Medical Institute

03-Jun-10

Wilms tumor usually shows up only between the ages of 1 and 5; scientists think it arises from a population of stem cells that don't need many mutations to become tumors. Chromatin profiling indicates the tumor was mimicking the behavior of a stem cell.

<http://www.hhmi.org/news/bernsteinrivera20100603.html>

Study Finds New Pattern in DNA Methylation, with Implications for Cancer, Stem Cell Lines

Kim Irwin

University of California Los Angeles

02-Jun-10

As stem cells differentiate, the DNA methylation tends to change. DNA methylation patterns go awry in cancer, often causing tumor-suppressor genes to switch off. Knowledge of process could lead to ways to correct defects in stem cells lines in the future.

http://newsroom.ucla.edu/portal/ucla/ucla-stem-cell-researcher-uncover-159400.aspx?link_page_rss=159400

Subcategory: Reproduction

Following the Sugar Right From the Start: Berkeley Researchers Image Glycans on Embryonic Cells Hours After Fertilization

Lynn Yarris

Lawrence Berkeley Laboratory

28-May-10

New technique, attaching imaging probes to glycans in the embryos of zebrafish less than 7 hours after fertilization, enables scientists to study physiological changes cells undergo during embryogenesis without

<http://www.sciencedaily.com/releases/2010/06/100614160239.htm>

The Argument over Aging

Karen Weintraub

Technology Review

01-Jul-10

While some are confident that a "youth pill" is possible, others say aging is "incredibly complex" and making antiaging claims is irresponsible. Reviews expert views on sirtuin compounds (found in red wine) and the lesser-known rapamycin anti-aging drug.

<http://www.technologyreview.com/biomedicine/25576/page1/>

Subcategory: Immunology/ Infectious Diseases

Insulin Peptide May Solve Type 1 Diabetes

Drug Discovery & Development

17-Jun-10

Researchers identify the precise protein fragment, or peptide, that can trigger diabetes in mice. Supports an emerging theory about the origins of autoimmunity, and may lead to new diagnostic and therapeutic strategies in humans.

<http://www.ddmag.com/news-Insulin-Peptide-May-Solve-Type-1-Diabetes-61710.aspx>

Army Scientists Find Ebola Treatment

Drug Discovery & Development

01-Jun-10

Using small interfering RNAs (siRNAs), tiny particles of genetic material, to interfere in the replication process of the deadly Ebola virus, scientists have successfully prevented monkeys exposed to that virus from dying of hemorrhagic fever.

<http://www.ddmag.com/news-Army-Scientists-Find-Ebola-Treatment-6110.aspx>

Seasonal Influenza: Made in the USA

Howard Hughes Medical Institute

27-May-10

A new genetic analysis suggests that the strains of influenza circulating in the U.S. can migrate to the rest of the world. Temperate regions can be a place where novel variants of the flu sometimes arise and then spread to the rest of the world.

<http://www.hhmi.org/news/pascual20100527.html>

How Bacteria Make Syringes

Dr. Michael Kolbe

Max Planck Institute for Biophysical Chem. 13-Jun-10

Bacteria secrete virulence factors through a transport channel located in the bacterial membrane. In some, a transport mechanism called the Type three secretion system is formed like a syringe, injecting virulence factors directly into the host cell.

<http://www.mpg.de/english/illustrationsDocumentation/documentation/pressReleases/2010/pressRelease20100608/index.html>

Can AIDS Be Cured?

John Cohen

Technology Review

01-Jul-10

Modified human stem cells are transplanted into mice bred to have no immune systems. A small % of the immune cells the cells give rise to will be highly resistant to HIV. Aim is for virus to run out of immune-cell targets.

<http://www.technologyreview.com/biomedicine/25563/>

Odd Mutation Pattern in Flu

Jef Akst

The Scientist

03-Jun-10

At least 2 "permissive" mutations in seasonal flu evolved before the mutation for resistance even occurred. Results point to a possible method for predicting which strains of flu are more likely to evolve such resistance in the future.

<http://www.the-scientist.com/blog/display/57487/>

Battle of the Bugs Leaves Humans as Collateral Damage

Wellcome Trust

18-Jun-10

Use of antibiotics and vaccines should consider the effects of microbes on one another, as competition for space between rival bacteria that live in our bodies can cause deadlier forms of bacteria to evolve.

<http://www.wellcome.ac.uk/News/Media-office/Press-releases/2010/WTX059896.htm>

Yale Team Discovers New Surprise in a Virus' Bag of Tricks

Yale University

17-Jun-10

Herpesvirus saimiri, a virus that infects monkeys and can cause cancers, seems to have copied other non-coding bits of RNA from the host cell, interfering with the ability of microRNAs made by the host cell to regulate its own genes.

<http://opa.yale.edu/news/article.aspx?id=7624>

Subcategory: Neurology

Mannitol Improves Cerebral Palsy Treatment

Drug Discovery & Development

02-Jun-10

Mannitol improves the therapeutic effectiveness of human umbilical cord blood cells injected into neonatal rats with cerebral palsy, opening the blood-brain barrier by temporarily shrinking the tight endothelial cells that make up the barrier.

<http://www.ddmag.com/news-Mannitol-Improves-Cerebral-Palsy-Treatment-62710.aspx>

Shock and Age

Richard Morimoto

The Scientist

01-Jun-10

The accumulation of misfolded protein marks the accrual of years as the body ages. Could heat shock proteins be used to reduce the effects of aging, diminish the risk of motor neuron disease by untangling improperly folded proteins?

<http://www.the-scientist.com/2010/6/1/48/1/>

Rare Genetic Variations of DNA Implicated in Autism

University of Munchester 10-Jun-10
Losses and duplications of whole chunks of DNA at sites across our genomes are likely to play a role in autism spectrum disorders; findings could lead to improved diagnosis, earlier intervention and development of new treatments for autism.
<http://www.manchester.ac.uk/aboutus/news/display/?id=5829>

Study Explains Why Healthy Individuals Don't Get Tremors

Wellcome Trust 01-Jun-10
Nerve signals in the spinal cord work to counteract signals from the brain that would otherwise lead to tremors in our movement, research finds. Signals in the spinal cord go out of phase with those in the brain, thus cancelling out each other.
<http://www.wellcome.ac.uk/News/2010/News/WTX059588.htm>

Subcategory: Oncology

Flash of Light Helps Fight Cancer

Mark Ward BBC News 14-Jun-10
While all cells strive to stay alive, tumor cells are particularly resilient towards attack by drugs and other attempts to kill them. Programmable proteins known as biophotonic nanoswitches could soon reveal how cancer cells survive such attempts.
http://news.bbc.co.uk/2/hi/science_and_environment/10297884.stm

Gene Swaps May Make Cancers Vulnerable

Howard Hughes Medical Institute 06-Jun-10
Researchers identify a set of hybrid genes, created when chromosomes inappropriately swap pieces of genetic material, that may accelerate the growth of prostate cancer, gastric cancer, and melanoma. May be targets for new cancer therapies.
<http://www.hhmi.org/news/chinnaiyan20100606.html>

Subcategory: Ophthalmology

Cell Transplants for Macular Degeneration

Emily Singer Technology Review 23-Jun-10
Rats genetically engineered to lose their sight can be protected from blindness by injections of human neural stem cells, researchers say. May lead to therapies for treating macular degeneration and retinitis pigmentosa.
<http://www.technologyreview.com/biomedicine/25647/page1/>

Subcategory: Wound/Tissue Repair

Researchers Discover Mechanism that Limits Scar Formation

Jeanne Galatzer-Levy University of Illinois at Chicago 10-Jun-10
Unexpected cellular response plays an important role in breaking down and

inhibiting the formation of excess scar tissue in wound healing: fibroblasts recruited to the site of skin wounds enter reproductive dormancy, or cell-cycle arrest (senescence).

<http://tigger.uic.edu/htbin/cgiwrap/bin/newsbureau/cgi-bin/index.cgi?from=Releases&to=Release&id=2923&start=1268483711&end=1276259711&topic=0&dept=0>

RESEARCH TOOLS

Subcategory: Biomarker

MicroRNA Biomarkers

Drug Discovery & Development

07-Jun-10

MicroRNA assays yield convincing results that may ultimately enter routine diagnostics to replace established, but less reliable, markers for a broad range of diseases such as cancers, cardiovascular and infections.

<http://www.ddmag.com/product-febit-biomarkers-6710.aspx>

Subcategory: Evolution Research

Origins of Life: New Study Shows Adding Ultraviolet Light Helps Form “Missing G” of RNA Building Blocks

Abby Vogel Robinson

Georgia Institute of Technology

14-Jun-10

Describes "one-pot reactions" that occur due to the synergy of thermal and photochemical processes; research suggests that the chemical and environmental requirements to produce life are probably less restrictive than once thought.

<http://gtresearchnews.gatech.edu/origins-life-guanine/>

Cool Discovery Brings Mammoth Blood Back to Life

Candy Gibson

University of Adelaide

25-Jun-10

Using ancient DNA preserved in bones from Siberian mammoth specimens 25,000-43,000 years old, scientists recreate its hemoglobin. Reveals evolutionary adaptations that allowed the mammoth to cool its extremities to minimize heat loss in Arctic conditions.

<http://www.adelaide.edu.au/adelaidean/issues/39561/news39570.html>

Subcategory: Imaging

Giving Proteins a New Glow

Anne Trafton

MIT News

01-Jun-10

Using GFP as a fluorescent probe has one major drawback: the protein is so bulky that it can interfere with the proteins it's labeling, preventing them from doing their normal tasks or reaching their intended destinations.

Describes new, smaller probe.

<http://web.mit.edu/newsoffice/2010/cell-labeling-0601.html>

STRATEGIC RELATIONSHIPS

Subcategory: Collaboration

Wiki-annotating

Jeff Akst

The Scientist

01-Jun-10

Explains how scientist started an online database of microbial genes of unknown function, and seeded it with existing bioinformatics-based predictions for what those genes do from the National Center for Biotechnology Information and other sources.

<http://www.the-scientist.com/2010/6/1/21/1/>

Subcategory: Neurology

Drug Companies Share Data to Speed Brain Research

PharmaPro

11-Jun-10

Competing drug companies have agreed to share data on thousands of Alzheimer's patients in hopes that the extra information will spark new ideas for treatments. Database also will be available to brain researchers not affiliated with drug companies.

<http://www.pharmpro.com/News/FeedsAP/2010/06/drug-companies-share-data-to-speed-brain-research/>

Subcategory: Oncology

Cancer Prevention, Naturally

Carmen Drahl

Chemical & Engineering News

21-Jun-10

Describes research program dedicated to finding natural-product agents and new molecular targets for cancer prevention. Combines experts in natural-product isolation, organic synthesis, structural biology, mass spectrometry, and animal testing.

<http://pubs.acs.org/cen/science/88/8825sci1.html>

THERAPEUTIC CATEGORY

Subcategory: Oncology

Black Raspberries Show Multiple Defenses in Thwarting Cancer

Ohio State University

04-Jun-10

Study results suggest that a daily diet of about 1.4 to 2 cups of fresh berries may be ideal for staving off certain types of cancer. Amount may both prevent the onset of esophageal cancer as well as inhibit precancerous growth already underway.

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

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