



BioTechCircle News®

June 2008

Featured June articles:

Everything You Know About Water Conservation Is Wrong

Virtual water is a calculation of the water needed for the production of any product from start to finish. For example, It takes about 155 gallons of water on average to grow a pound of wheat and 4,400 gallons for a pair of leather shoes.

<http://discovermagazine.com/2008/jun/28-everything-you-know-about-water-conservation-is-wrong>

A Professor's Food Revolution Starts with Rice

Harvests typically double if farmers plant early, give seedlings more room to grow and stop flooding fields. Norman Uphoff's method, called the System of Rice Intensification (SRI) cuts water and seed costs while promoting root and leaf growth.

<http://www.iht.com/articles/2008/06/18/healthscience/17rice.php?page=1>

Is it All in Our Genes?

Research shows that good nutrition in combination with stress management and exercise can turn off disease-promoting genes linked to cancer, heart disease, and inflammation and can turn on protective disease-preventing genes.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~1400000100~ISSUE~0806~RELTYPE~PR~ORIGRELTYPE~EDNT~PRODCODE~00000000~PRODLETT~JJ.html>

In this articles section: links to 68 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:

- Agri-Biotech (12 articles) – Page 2
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AGRI-BIOTECH

Subcategory: Biomanufacturing

I Have Just One Word for You: Bioplastics

Mara Der Hovanesian Business Week 19-Jun-08

The scourge of indestructible garbage and sky-high oil are fueling interest in plastics from plants. Discusses business outlook of Metabolix, a biotech company with hundreds of patents on process for manufacturing bioplastics in large vats of microbes.

http://www.businessweek.com/magazine/content/08_26/b4090044437763.htm

Subcategory: Crops

Monsanto on the Menu

Brian Hindo Business Week 11-Jun-08

The leading producer of genetically modified seeds, Monsanto, announced ambitious goals to boost global food production and pledged to double yields on corn and soy by 2030. "Satisfying the demand curve is a great business opportunity."

http://www.businessweek.com/magazine/content/08_25/b4089032620970.htm

Subcategory: Energy/ Fuel

Algae May Be Biofuel Source

Greg Wiles Honolulu Adviser 15-Jun-08

Where the highest producing oil palm farmers get 600 gallons an acre per year, algae can produce 5,000 to 8,000 gallons per acre annually, according to research. Algae also absorb carbon dioxide waste from industrial facilities such as power plants.

<http://www.honoluluadvertiser.com/apps/pbcs.dll/article?AID=/20080615/NEWS09/8061503>

Are Biofuels The Right Choice?

R & D Magazine

01-Jun-08

Reports results of survey of more than 1,300 respondents on renewable energy sources. Multiple charts and graphs relating to environmental concerns, costs, R&D focus and other issues.

<http://www.rdmag.com/pdf/RD84COS.pdf>

Biofuel Backlash Hits Consumers

redOrbit

12-Jun-08

Prices of biodiesel have almost doubled to about \$6 per gallon, and many experts blame biofuel production for driving up food prices worldwide, questioning whether growing crops for biofuels produces more greenhouse gases than it prevents.

http://www.redorbit.com/news/science/1429262/biofuel_backlash_hits_consumers/index.html

Cellulosic Ethanol Plant Opens

Kevin Bullis

Technology Review

28-May-08

A new biorefinery is scheduled to produce 1.4 million gallons of ethanol a year from cellulosic biomass left over from processing sugarcane.

<http://www.technologyreview.com/Energy/20828/>

Subcategory: Environment

Everything You Know About Water Conservation Is Wrong

Thomas M. Kostigen

Discover

28-May-08

Virtual water is a calculation of the water needed for the production of any product from start to finish. For example, It takes about 155 gallons of water on average to grow a pound of wheat and 4,400 gallons for a pair of leather shoes.

<http://discovermagazine.com/2008/jun/28-everything-you-know-about-water-conservation-is-wrong>

Teen Discovers Method To Dispose of Plastic Bags

Red Orbit

06-Jun-08

A high school student successfully isolated microorganisms from soil, and used them to facilitate the degradation of 43 percent of his polyethylene sample. The first-prize winner of the Canada-Wide Science Fair won \$9800 for his research.

http://www.redorbit.com/news/science/1420469/teen_discovers_method_to_dispose_of_plastic_bags/index.html

Subcategory: Food

Devising Healthier Foods

Rachel Petkewich Chemical & Engineering News 19-Jun-08

Researchers are working on ways to enhance the good components and remove the unhealthy ones from fruits and vegetables may prevent disease. Reviews advances resulting in maroon carrots, grapefruits with enhanced bioactive compounds, corn and others.

<http://pubs.acs.org/cen/coverstory/86/8625cover.html>

Japanese Brewery to Make Beer from Space Barley

International Herald Tribune 29-May-08

The project is part of biological studies of the adaptability of plants to environmental changes and the impact from stresses such as space travel. "We're really looking forward to tasting it when it's ready," says Sapporo Breweries spokeswoman.

<http://www.ihf.com/articles/ap/2008/05/29/news/Japan-Space-Beer.php>

Subcategory: Microorganisms

Communal Living

Lisa M. Jarvis Chemical & Engineering News 09-Jun-08

Bacteria congregate and chemically communicate, often exist in complex communities called biofilms, which create a protective matrix through which nutrients are distributed. See companion article on BASF's biofilm activities under Novel Applications.

<http://pubs.acs.org/cen/coverstory/86/8623cover.html>

Subcategory: Reproduction

Love Potion

Sarah Everts Chemical & Engineering News 02-Jun-08

European orchids exploit the male bees' predilection for foreign females to their advantage, releasing odors very similar but not identical to the sexual hormones of the female bee. This sexual deception is shown to facilitate their own pollination.

<http://pubs.acs.org/cen/news/86/i22/8622notw6.html>

BIOBUSINESS MANAGEMENT

Subcategory: Bioethics

Fraud Busters

Sophie L. Rovner Chemical & Engineering News 16-Jun-08

Rovner reports on emerging new tools for detecting and weeding out plagiarism and data falsification in journal articles, ethical guidelines published by various journals.

http://www.fda.gov/ora/compliance_ref/bimo/disqlist.htm
<http://www.bloomberg.com/apps/news?pid=newsarchive&sid=agWbmNWCYwIY>

DIAGNOSTIC TOOLS

Subcategory: Genotyping

The Genome Out of the Bottle

Kevin Davies

Bio-IT World

10-Jun-08

Industry pioneers discuss the pros and cons of personal genomics testing, citing the need to maximize individual wellness and focus on prevention but also the need for consumer privacy, data security, and the “commercial personal interface.”

<http://www.bio-itworld.com/issues/2008/june/genomics-plenary-panel.html>

California Orders Stop To Gene Testing

Robert Langreth

Forbes.com

14-Jun-08

California is cracking down on companies that offer gene tests to consumers via the Web. Some gene testing Web sites take orders directly from patients without a doctor's involvement, against state law. New York has sent warning letters to several firms.

http://www.forbes.com/2008/06/14/stop-gene-testing-biz-healthcare-cz_rl_0614genetest.html

DRUG DELIVERY

Subcategory: Miscellaneous

Delivering RNAi Therapeutics

John F. Reidhaar-Olson,

Drug Discovery & Development

01-Jun-08

PhD, Roche Hans-Peter Vornlocher, PhD

Describes different RNAi delivery mechanisms under active investigation, remaining challenges. Multiple tables listing delivery vehicle, route of administration, target tissue/cell type, target and reference.

<http://www.dddmag.com/Article-Delivering-RNAi-Therapeutics.aspx>

INDUSTRY

Subcategory: M&A Activities

Bulking Up: Japan's Drugmakers

Kenji Hall

Business Week

19-Jun-08

The top 7 Japanese pharmaceutical companies have billions of dollars

in reserve. Rather than holding on to the cash and becoming takeover targets, Hall suggests they could use it to purchase generic drugmakers or buy their way into diagnostics or biotech.

http://www.businessweek.com/magazine/content/08_26/b4090032424587.htm

MEDICAL DEVICES

Subcategory: Microorganisms

Pillowy Antibacterial Polymers

Katherine Bourzac

Technology Review

30-May-08

Preventing bacteria from adhering to medical devices is critical to combatting biofilms. Researchers have discovered that if the films coating medical devices are soft enough, bacteria won't stick to them.

<http://www.technologyreview.com/Biotech/20841/>

NOVEL APPLICATIONS

Subcategory: Energy/Fuel

Sweden Turning Sewage Into a Gasoline Substitute

James Kanter

International Herald Tribune

27-May-08

Goteborg is among dozens of municipalities in Sweden with facilities that transform sewage waste into enough biogas to run thousands of cars and buses. The idea of recovering energy from toilet waste appealed to green-minded Swedes, says Kanter.

<http://www.iht.com/articles/2008/05/27/business/greencol28.php>

Subcategory: Microorganisms

Exploiting Biofilms

Lisa Jarvis

Chemical & Engineering News

09-Jun-08

The world's largest chemical company is attempting to exploit biofilms to make key compounds via biocatalytic means. Scientists hope to replace conventional fermentation processes and suspension-based cultures with reactors containing biofilms.

http://pubs.acs.org/cen/coverstory/86/8623cover_box.html

PEOPLE PROFILES

Subcategory: Crops

A Professor's Food Revolution Starts with Rice

William J. Broad

International Herald Tribune

18-Jun-08

Harvests typically double if farmers plant early, give seedlings more room to grow and stop flooding fields. Norman Uphoff's method, called the System of Rice Intensification (SRI) cuts water and seed costs while promoting root and leaf growth.

<http://www.iht.com/articles/2008/06/18/healthscience/17rice.php?page=1>

PLATFORM TECHNOLOGIES

Subcategory: Epigenetics

Nature Mixes, Matches Genes To Keep Nerve Cells Straight

Bioscience Technology

10-Jun-08

Researchers have found that both promotion of one pathway and inhibition of another are required to keep the cells on the right road to cell fate determination. "(F)inding should have implications for the entire stem cell field."

<http://www.biosciencetechnology.com/ShowPR~PUBCODE~090~ACCT~9000000100~ISSUE~0806~RELTYPE~RLSN~PRODCODE~00000000~PRODLETT~I.html>

Subcategory: Evolution Research

Membranes By Design

Carmen Drahl

Chemical & Engineering News

09-Jun-08

Scientists have designed a fatty acid container that takes in building blocks from outside to supply a spontaneous DNA-copying reaction on the inside. Suggests a way by which primitive cells could have obtained nutrients.

<http://pubs.acs.org/cen/news/86/i23/8623notw4.html>

Subcategory: Genomics

Overcoming Poor Quality DNA

Steve S. Michalik

Drug Discovery & Development

01-Mar-08

Michalik provides an overview of the problems inherent with formalin-fixed, paraffin-embedded (FFPE) tissues, and reviews some of the current methodologies available for characterizing genomic DNA from disease archival samples.

<http://www.dddmag.com/Article-DNA-Amplification-Improves-Gene-Expression-analysis.aspx>

Subcategory: Materials

More-Powerful Fuel Cells

Katherine Bourzac

Technology Review

22-May-08

Researchers have developed a cheap membrane material that increases

the power output of methanol fuel cells by 50%. The energy density of a methanol fuel cell "compares to the best high-energy-density batteries."

<http://www.technologyreview.com/Energy/20813/>

Subcategory: Microorganisms

Unraveling Bacteria's Communication Pathways

redOrbit

12-Jun-08

Researchers have figured out how bacteria ensure that they respond correctly to hundreds of incoming signals from their environment and successfully rewired the cellular communications pathways controlling those responses. Biosensor implications.

http://www.redorbit.com/news/science/1429737/unraveling_bacterias_communication_pathways/index.html

Retuning Bacteria

Katherine Bourzac

Technology Review

12-Jun-08

Researchers are hoping to develop methods to reversibly turn off harmful or unwanted genes in bacteria. Gene silencing could be used to treat persistent infections and in environmental and industrial applications, including water filtration.

<http://www.technologyreview.com/Biotech/20891/>

Subcategory: Musculoskeletal

Stem Cell Pathway Adjustments Let Muscles Flex Anew

R & D Magazine

19-Jun-08

Researchers identified 2 key regulatory pathways that control how well adult stem cells repair and replace damaged tissue, then revived the ability of muscle tissue in old mice to repair itself nearly as well as the muscle in much younger mice.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~1400000100~ISSUE~0806~RELTYPE~LST~PRODCODE~0000000~PRODLETT~IZ.html>

Subcategory: Nanotechnology

A Tiny Sensor Simply Made

Brittany Sauser

Technology Review

05-Jun-08

Researchers have developed a nanotechnology-based biosensor that can detect trace amounts of as many as 25 different microorganisms simultaneously, within minutes. Can be used to monitor biohazards.

<http://www.technologyreview.com/Biotech/20860/>

Subcategory: Proteomics

Researchers Observe Spontaneous 'Ratcheting' Of Single Ribosome

Bioscience Technology

10-Jun-08

Subcategory: Miscellaneous

Evidence Grows that We Are Indeed Made of Stars

R & D Magazine

17-Jun-08

Scientists confirmed that uracil and xanthine, early genetic material found in meteorite fragments, is extraterrestrial in origin. So, it seems that parts of the raw materials to make the first molecules of DNA and RNA have come from the stars.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~1400000100~ISSUE~0806~RELTYPE~PSC~PRODCODE~0000000~PRODLETT~HH.html>

Subcategory: Nanotechnology

Carbon Nanotubes Interfere with Protozoan Function

R & D Magazine

19-Jun-08

Study hints that carbon nanotubes may be toxic to microorganisms. When cultures of the *Tetrahymena thermophila* protozoan, a single-cell organism, were exposed to the nanotubes their ability to ingest and digest bacteria was hindered.

<http://www.rdmag.com/ShowPR.aspx?PUBCODE=014&ACCT=1400000100&ISSUE=0806&RELTYPE=MS&PRODCODE=0000000&PRODLETT=IX>

Subcategory: Oncology

Cancer Stem Cells on the Move

Economist

05-Jun-08

Organ-transplant data from transplant registries provide more evidence that stem cells cause cancer. It is not clear whether the stem cells mutate in the new site or if they mutated first.

http://www.economist.com/science/displaystory.cfm?story_id=11487414

Subcategory: Reproduction

Instant Insight: Chemical Developments

Ilya Shestopalov and James Chen Chemistry World

16-Jun-08

How does the human newborn-composed of approximately one trillion cells and over 200 cell types-arise from a single, fertilized egg? Reviews how chemistry can be used to probe the earliest processes of life.

http://www.rsc.org/Publishing/Journals/cb/Volume/2008/7/chemical_developments.asp

RESEARCH TOOLS

Subcategory: Computing Systems

GTA4: Enabler of Life Sciences Research?

Salvatore Salamone

Bio-IT World

29-May-08

What does the popularity of a new video game have to do with helping

life scientists? Salamone writes that the success of "Grand Theft Auto IV" (GTA4) will spur on the chip manufacturers and systems vendors to deliver better graphics used for R&D.

http://www.bio-itworld.com/BioIT_Article.aspx?id=76142

AI Improves Automated High-Throughput Screening

Salvatore Salamone

Bio-IT World

29-May-08

Scientists have applied an artificial intelligence (AI) technique to cellular image analysis that has the potential to significantly speed up critical steps in an automated method for analyzing cell cultures and other biological specimens.

<http://www.bio-itworld.com/inside-it/2008/05/ai-improves-screening.html>

Column: Bench Monkey

Dylan Stiles

Chemistry World

01-Jun-08

Stiles reports his observations on the workings of a computational chemistry software product, Spartan.

<http://www.rsc.org/chemistryworld/Issues/2008/June/ColumnBenchMonkey.asp>

Subcategory: Databases

Online Metabolomics Resource Center

Drug Discovery & Development

17-Jun-08

Laboratory personnel and scientists who conduct metabolomics studies face challenges staying up-to-date with developments in the industry.

The online Metabolomics Solutions Center provides tools and technical advice on small-molecule metabolite profiles.

<http://www.ddmag.com/news-Thermo-Fisher-Metabolomics-Website.aspx>

Subcategory: Drug Discovery

Exploring Chemical Space

Sophie Rovner

Chemical & Engineering News

16-Jun-08

Researchers found more than 800,000 different framework shapes among 24 million compounds studied, but half of the compounds can be described by only 143 framework shapes. Suggests that less well-represented frameworks may provide novel leads for drugs.

<http://pubs.acs.org/cen/news/86/i24/8624notw1.html>

Subcategory: Environment

Scientists Search For Clues To Climate Change In The Atmosphere

redOrbit

12-Jun-08

Scientists are deploying an advanced research aircraft in the tropopause because of both its importance in the global climate system and the buildup of greenhouse gases has altered this atmospheric region in ways that are not yet understood.

http://www.redorbit.com/news/science/1429739/scientists_search_for_clues_to_climate_change_in_the_atmosphere/index.html

Water Woes: 'Man-made' H₂O Has Different Chemistry

WRAL

13-Jun-08

Researchers found that that composition of the desalted water is totally different from those of natural waters. Will allow local governments and water utilities to zero in on the problem of valuable water loss and correct it more quickly and efficiently.

http://www.wral.com/business/local_tech_wire/venture/story/3041930/

Subcategory: Evolution Research

The Origins of Function in Biological Nucleic Acids, Proteins, and

Howard Hughes Medical Institute

04-Jun-08

Researcher explores the origins of functional biological macromolecules and membranes to increase understanding of the origin and early evolution of life.

<http://www.hhmi.org/research/investigators/szostak.html>

Subcategory: Gene Sequences

You've Had a Genetic Test. Now What?

Emily Singer

Technology Review

13-Jun-08

Singer reports on program to help both physicians and patients learn what to do with genetic information once they have it by figuring out how physicians can best incorporate genetic information into their practice to prevent and treat disease.

<http://www.technologyreview.com/Biotech/20900/>

Subcategory: Imaging

Argonne Scientists Develop Techniques for Creating Molecular Movies

Argonne National

15-Apr-08

Scientists using the high-intensity X-rays have measured images that are "blurred" by the constant moving and changing over time of biological and organic molecules, and have used them to create more accurate movies of molecular motions.

http://www.anl.gov/Media_Center/News/2008/news080415.html

Fireflies' Glow Helps UT Southwestern Researchers Track Cancer Drug's Effectiveness

Association of Cancer Online Resources 29-May-08

Bioluminescence imaging (BLI) is used to determine the effectiveness of cancer drugs that choke off a tumor's blood supply. Luciferin is added to the bloodstream, which carries it to cells throughout the body.

<http://www.acor.org/news/display.html?id=6840>

Pretty on the Inside

Katherine Bourzac

Technology Review

05-Jun-08

Using a new technique called 3-D structured-illumination microscopy, researchers have made some of the most detailed optical images yet of the interior workings of cells, revealing the inner beauty of cells.

<http://www.technologyreview.com/Biotech/20868/>

Tracking the Immune System

Jennifer Chu

Technology Review

09-Jun-08

Scientists have developed an imaging probe for positron emission tomography (PET) that tracks an immune response throughout the body as it fights off cancer and infection.

<http://www.technologyreview.com/Biotech/20876/page1/>

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

Sizing Up Proteins On-Chip

Chemistry World

13-Jun-08

Gels are being formed on-chip for easier and cheaper protein separation. For higher resolution protein sizing, particularly in proteomics, biologists can use gels with pore-size gradients.

http://www.rsc.org/Publishing/Journals/cb/Volume/2008/7/Sizing_up_proteins.asp

Tiling the Genome

James Netterwald, PhD, MT
(ASCP)

Drug Discovery & Development

01-Jun-08

Describes the uses of tiling microarrays, including finding the genomic location of specific DNA-binding proteins in living cells. These arrays cover a larger expanse of the genome than traditional microarrays, have multiple probes and other advantages.

<http://www.ddmag.com/Article-ChIP-and-Microarrays-Strengthen-Research.aspx>

Subcategory: Mouse/ Rat Models

Of Mice...and Humans

Drug Discovery & Development

01-Jun-08

Newer humanized rodent models, known as SCID-hu, increase applicability of animal testing data to the treatment of human disease, especially HIV therapy.

<http://www.ddmag.com/Article-Humanized-Rodent-Models-Increase-Applicability-of-Animal-Testing-Data.aspx>

Subcategory: Proteomics

Intact Membrane Proteins Analyzed

Celia Arnaud

Chemical & Engineering News

16-Jun-08

Researchers report that they have analyzed intact membrane protein

complexes with mass spectrometry, using using nonionic detergent micelles that protect the membrane protein complex, allowing all of its important components to reach the spectrometer.

<http://pubs.acs.org/cen/news/86/i24/8624notw4.html>

Subcategory: Virology

Virus Keeps Its Genes in an Exceptionally Tight Knot

R & D Magazine

17-Jun-08

Using electron microscopy and 3-D computer reconstruction by assembling more than 12,000 microscopic views, scientists have shown viral genes that are tightly wound within a capsule, waiting for ejection into a host.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~140000100~ISSUE~0806~RELTYPE~MIC~PRODCODE~0000000~PRODLETT~HD.html>

THERAPEUTIC CATEGORY

Subcategory: Disease Prevention

Is it All in Our Genes?

Martha Waltz

R & D Magazine

19-Jun-08

Research shows that good nutrition in combination with stress management and exercise can turn off disease-promoting genes linked to cancer, heart disease, and inflammation and can turn on protective disease-preventing genes.

<http://www.rdmag.com/ShowPR~PUBCODE~014~ACCT~140000100~ISSUE~0806~RELTYPE~PR~ORIGRELTYPE~EDNT~PRODCODE~00000000~PRODLETT~JJ.html>

Subcategory: Metabolism: Obesity, Diabetes

Drug Testing: Not So Sweet

Matthew Herper

Forbes.com

06-Jun-08

Two studies show using drugs to lower blood sugar to normal levels did not prevent heart attacks or deaths in diabetic patients. "It's important physicians in the community do not view this as a damning indictment of blood sugar control," say experts.

http://www.forbes.com/business/pharma/2008/06/06/diabetes-heart-attack-biz-healthcare-cx_mh_0606sugar.html

Subcategory: Neurology

Drugs to Grow Your Brain

Emily Singer

Technology Review

02-Jun-08

Drugs that encourage the growth of new neurons in the brain have shown success in alleviating symptoms of depression and boosting

memory in animal models and may also prove effective in treating cognitive disorders such as Alzheimer's.

<http://www.technologyreview.com/Biotech/20845/>

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