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BioTechCircle News®

September 2010

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In this articles section: links to 53 free Web articles in 12 major categories covering 25 subcategories from biomanufacturing to proteomics.

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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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

Gene Discovery Holds Key to Growing Crops in Cold Climates

BBSRC

09-Sep-10

The gene "Spatula" limits the growth of plants in cool temperatures. Scientists believe that by manipulating the gene, they could produce the opposite effect: enabling development of crops that grow well in cold climates.

<http://www.bbsrc.ac.uk/media/releases/2010/100909-pr-gene-discovery-holds-key.aspx>

Subcategory: Energy/ Fuel

Biofuel from Inedible Plant Material Easier to Produce Following Enzyme Discovery

BBSRC

13-Sep-10

Releasing the energy from lignocellulose is an important challenge to tackle as it will allow the production of fuels from plants in a sustainable way that does not affect the food chain.

<http://www.bbsrc.ac.uk/media/releases/2010/100913-pr-biofuel-enzyme-discovery.aspx>

Subcategory: Environment

Putting Carbon Dioxide to Good Use

Anne Trafton

MIT News

22-Sep-10

Biological engineers convert carbon-dioxide emissions to useful building materials, using genetically altered yeast. Lab process produces about 2 lbs of carbonate for every pound of carbon dioxide captured. Next step is to scale up.

<http://web.mit.edu/newsoffice/2010/belcher-carbon-0922.html>

Subcategory: Food

Are Genetically Modified Salmon Headed to the Supermarket?

Emily Singer

Technology Review

07-Sep-10

The FDA will decide not only whether to allow the fish, but also whether it would require it to be labeled as genetically modified. Genetically modified plants, such as the soybeans used in tofu, do not carry special labeling.

<http://www.technologyreview.com/biomedicine/26182/>

Subcategory: Immunology/ Infectious Diseases

Ants Found to Use Multiple Antibiotics as Weed Killers

BBSRC

08-Sep-10

Ants use antibiotics, produced by actinomycete bacteria that live on the ants in a mutual symbiosis, to inhibit the growth of unwanted fungi and bacteria in their fungus cultures which they use to feed their larvae and queen.

INDUSTRY

Subcategory: Computing Systems

Mapping New Paths for a Stressed-Out Internet

Jan Zverina

UC San Diego

09-Sep-10

Describes the first geometric "atlas" of the Internet as part of a project to prevent our most ubiquitous form of communication from collapsing within the next decade or so. "It is very complicated, inefficient, and difficult to scale..."

<http://ucsdnews.ucsd.edu/newsrel/science/09-09NewPaths.asp>

Subcategory: Environment

The Majestic Plastic Bag

IMPO Magazine

15-Sep-10

From the open plains of the asphalt jungle, the clever and illustrious plastic bag faces numerous challenges on its migration to the Pacific Ocean. An excellent "Mockumentary" video.

<http://www.impomag.com/scripts/ShowPR.asp?RID=15336>

Subcategory: Miscellaneous

Why "Scientific Consensus" Fails to Persuade

National Science Foundation

13-Sep-10

Whether a scientist is seen as knowledgeable and trustworthy depends on a person's cultural values. The American public is culturally divided on what "scientific consensus" is on climate change, nuclear waste disposal, and concealed-handgun laws.

http://www.nsf.gov/news/news_summ.jsp?cntn_id=117697&org=NSF&from=news

INVESTMENTS/ GOV. SUPPORT

Subcategory: Food

Nestle Looks To Grow Medicinal Foods Unit

Frank Jordans

Manufacturing.net

27-Sep-10

Swiss company is investing \$500 million over the next 10 years to develop markets for foods to help treat chronic conditions such as diabetes and obesity. It wants to "pioneer a new industry between food and pharma."

<http://www.manufacturing.net/News/2010/09/Food-Beverage-Nestle-Looks-To-Grow-Medicinal-Foods-Unit/>

Subcategory: Genome Sequence

Scripps Research Team Wins \$5.1 Million to Develop DNA Sequencing

and plasmids.

<http://newscenter.lbl.gov/news-releases/2010/09/09/crispr-critters/>

Subcategory: Gene Sequences

Next-Generation Sequencing Will Fuel Toxicogenomics Engines

Dr. Jens Hoefkens Drug Discovery & Development 15-Sep-10

Toxicogenomics uses genomics technologies to predict toxicity early in drug development, dramatically reducing drug development costs. Identifies biomarkers, classifies types of toxicities, and characterizes the mode of action of unknown compounds.

[http://www.dddmag.com/Dr. Jens Hoefkens, Head of Genedata Expressionist, Genedata.aspx](http://www.dddmag.com/Dr._Jens_Hoefkens_Head_of_Genedata_Expressionist_Genedata.aspx)

Subcategory: Materials

Findings by Chemical Engineer Could Lead to Improved DNA Analysis

Ryan A. Garcia Texas A&M Engineering 09-Sep-10

Scientists determine the specific type of conditions that result in the optimum gel pore structure for separation of a wide range of DNA fragment sizes. Researchers can now actually design gels to specifically harness certain effects.

<http://engineering.tamu.edu/news/2010/09/09/findings-by-texas-am-chemical-engineer-could-lead-to-improved-dna-analysis/>

Subcategory: Microorganisms

Rice Study Examines how Bacteria Acquire Immunity

EurekaAlert! 15-Sep-10

Scientists create equations, using computational biology, that reflect the way the bacterial and phage populations interact via the CRISPR (clustered regularly interspaced short palindromic repeats).

http://www.eurekaalert.org/pub_releases/2010-09/ru-rse091510.php

Squeezing More Production Out of Bacteria

Anne Trafton MIT News 21-Sep-10

By tinkering with the genes before inserting them into bacteria, scientists can manipulate each step of a synthetic reaction inside a cell. Lets researchers use bacteria to make new products, or to boost production of naturally occurring compounds.

<http://web.mit.edu/newsoffice/2010/bacteria-factories-0921.html>

Scripps Research Scientists Reveal Structure of Dangerous Bacteria's Powerful Multidrug Resistance Pump

Mika Ono Scripps Research Institute 20-Sep-10

Reveals details of the structure of a member of the remaining class of multidrug resistance transporters left to be described. Implications for combating dangerous antibiotic resistant strains of bacteria, developing hardy

strains of agricultural crops.

<http://www.scripps.edu/news/press/20100922>

Subcategory: Miscellaneous

Nanodiamonds Discovered in Greenland Ice Sheet

Gail Gallessich

University of California

09-Sep-10

Finding adds credence to the controversial hypothesis that fragments of a comet struck across North America and Europe approximately 12,900 years ago. Closely corresponds to the time of the disappearance of the Clovis culture, animal extinctions.

<http://www.universityofcalifornia.edu/news/article/24053>

Subcategory: Nanotechnology

Nanopore-Based Screening

Mitch Jacoby

Chemical & Engineering News

02-Sep-10

Novel analytical procedure to detect single DNA molecules based on nanopores in graphene membranes independently developed by 3 research groups.

<http://pubs.acs.org/cen/news/88/i36/8836notw7.html>

High-speed Filter Uses Electrified Nanostructures to Purify Water at Low Cost

Louis Bergeron

Stanford University

31-Aug-10

Process more than 80,000 times faster than existing filters. Uses very little power, has no moving parts and could be used throughout the developing world. Plain cotton cloth is dipped in a high-tech broth full of silver nanowires and carbon nanotubes.

<http://news.stanford.edu/pr/2010/pr-nano-pure-water-083110.html>

RESEARCH ADVANCEMENTS

Subcategory: Immunology/ Infectious Diseases

Production of Sticky Proteins May Explain How Malaria Evades the Immune System

Howard Hughes Medical Institute

07-Sep-10

Plasmodium falciparum—the deadliest of the handful of known malaria parasites—can simultaneously produce 2 different PfEMP1 proteins, making infected red blood cells stickier, complicating development of new malaria drugs, vaccines.

<http://www.hhmi.org/news/jensen20100907.html>

Researchers Discover Bacterial Charity Work

Howard Hughes Medical Institute

01-Sep-10

Rise of 'super bugs' such as MRSA (methicillin-resistant Staphylococcus

aureus) has had hospitals and medical professionals scrambling to fend off a public health disaster. New findings could help explain why resistance has been so difficult to curb.

<http://www.hhmi.org/news/collins20100901.html>

Cockroach Brains, Coming to a pharmacy near You

Rachel Ehrenberg

Science News

10-Sep-10

The rudimentary brains of cockroaches and locusts teem with antimicrobial compounds that slay harmful E. coli and MRSA, the antibiotic-resistant staph bacterium. The work could lead to new compounds for fighting infectious diseases in humans.

http://www.sciencenews.org/view/generic/id/63286/title/Cockroach_brains,_coming_to_a_pharmacy_near_you

Scientists Identify Molecular Gatekeeper of Arthritis

Emily Boynton

University of Rochester

08-Sep-10

Newly discovered gatekeeper is a protein, part of a larger signaling pathway, that determines the fate – survival or death – of damaging cells that mistakenly attack the body’s own tissues and lead to autoimmune disorders such as arthritis.

<http://www.urmc.rochester.edu/news/story/index.cfm?id=2972>

Subcategory: Miscellaneous

10 Emerging Technologies 2010

Technology Review

01-Sep-10

Biotech-related: dual-action antibodies to fight cancer more effectively, engineered stem cells that mimic human disease in a dish and implantable electronics, dissolvable devices for medical implants.

<http://www.technologyreview.com/tr10/?p1=SR>

Subcategory: Musculoskeletal

Light Workout: Scientists Use Optogenetics to Effectively Stimulate Muscle Movement in Mice

Bruce Goldman

Stanford School of Medicine

26-Sep-10

Optogenetics involves the insertion of a specialized gene derived from algae into the genomes of experimental animals. Nerve cells’ firing patterns are modified by experimenter. Focus restoring optimal movement for people with physical disabilities.

<http://med.stanford.edu/ism/2010/september/opto.html>

Subcategory: Neurology

Genetic Finding Identifies Male-Linked Mutation Associated with Autism Spectrum Disorders

Autism Speaks

15-Sep-10

Researchers find PTCHD1 mutations or copy number variant (CNV) associated with about 1% of the individuals with ASD or intellectual disabilities – almost all of them male – but in none of the control subjects. May explain sex bias seen in autism.

http://www.autismspeaks.org/press/male_linked_mutation_autism.php

Team Led by Scripps Research Scientist Identifies New Gene for Memory

Mika Ono

Scripps Research Institute

08-Sep-10

Different alleles (mutant forms) of the gene known as gilgamesh (gish) are required for short-term memory formation in Drosophila olfactory associative learning. Implications for Alzheimer's disease or human learning disabilities.

http://www.scripps.edu/news/press/20100908_davis.html

Study Links Normal Function of Protein, Not Its Build up Inside Cells, to Death of Neurons

St. Jude Children's Research Hospital

22-Sep-10

Findings suggest the focus on protein aggregation inside cells may be misplaced, that developing therapies targeting normal protein function will likely be easier, more effective against nervous system disorders like Parkinson's, Alzheimer's diseases.

<http://www.stjude.org/stjude/v/index.jsp?vnextoid=2cbd8b9122a3b210VgnVCM1000001e0215acRCR>

Scripps Research Scientists Solve Long-Standing Mystery of Protein "Quality Control" Mechanism

Mika Ono

The Scripps Research Institute

09-Sep-10

Suggests how cells in eukaryotic organisms, like humans, sense and destroy "non-stop" proteins that remain stuck in the ribosome, the protein manufacturing plant of the cell. May lead to a better understanding of various neurodegenerative diseases.

<http://www.scripps.edu/news/press/20100912>

Subcategory: Oncology

DNA Trick May Be Clue to Cancer Cells' Eternal Life

Cancer Research UK

09-Sep-10

Describes a new strategy that could be used by cancer cells to side step the body's normal safety checks and become immortal by reactivating telomerase – an enzyme that can rebuild the telomeres by creating new DNA repeats.

<http://info.cancerresearchuk.org/news/archive/pressrelease/2010%20-09-09-DNA-trick-clue>

Researchers Create First Molecule Able to Block Key Component of Cancer Genes' On-Off Switch

Bill Schaller

Dana-Farber Cancer Institute

24-Sep-10

Proteins issuing stop and start commands to a cancer gene — known as epigenetic "reader" proteins — can be targeted for future cancer therapies, say researchers.

<http://www.dana-farber.org/abo/news/press/2010/researchers-create-first-molecule-able-to-block-key-component-of-cancer-genes-on-off-switch.html>

Yeast Studies Hint at New Ways to Exploit Cancer Cells' Excess Genes

Howard Hughes Medical Institute 16-Sep-10

In about 90% of human cancers, individual tumor cells contain too many chromosomes, a condition called aneuploidy which seems to invigorate growth rather than impede it.

<http://www.hhmi.org/news/amon20100916.html>

An Unexpected Twist in Cancer Metabolism

Anne Trafton MIT News 17-Sep-10

Reports a previously unknown element of cancer cells' peculiar metabolism: cells can trigger an alternative biochemical pathway that speeds up their metabolism and diverts the byproducts to construct new cells. May help design drugs to starve cells.

<http://web.mit.edu/newsoffice/2010/cancer-metabolism-0917.html>

New Insights Provide Promise for Development of Tools to Protect Damaged Tissues

St. Jude Children's Research Hospital 13-Sep-10

Researchers identify a novel structure in cells that serves as a control switch in the body's system for eliminating damaged cells and also offers new therapeutic potential.

<http://www.stjude.org/stjude/v/index.jsp?vnextoid=8fe6400cb060b210VgnVCM1000001e0215acRCR>

Treating Cancer Based on Its Genome

Emily Singer Technology Review 13-Sep-10

Cancer cell DNA in a patient with a rare type of tumor sequenced after the cancer had spread, again after it developed resistance to a drug. Treatment with drug inhibiting specific pathway successful at first but cancer recurred. New pathway discovered.

<http://www.technologyreview.com/biomedicine/26264/?p1=Headlines>

Subcategory: Ophthalmology

St. Jude Children's Research Hospital Scientists Show Six3 Gene Essential for Retinal Development

St. Jude Children's Research Hospital 20-Sep-10

Results help build a foundation for the next generation of therapies using cell-replacement strategies to restore vision lost to the retinal degeneration associated with glaucoma, diabetic retinopathy and age-related macular degeneration.

<http://www.stjude.org/stjude/v/index.jsp?vnextoid=8c01392bf803b210VgnVCM1000001e0215acRCR>

RESEARCH TOOLS

Subcategory: Computing Systems

Designing Genes

Technology Review

01-Sep-10

Want a gene that can produce enzymes that efficiently turn organic materials into biofuels? New software (free!) makes it easy to design genes from scratch, and displays schematics. Gene Designer 2.0.

<http://www.technologyreview.com/biomedicine/26006/>

Subcategory: Genomics

Third Generation Map of Human Genetic Variation Published

Geoff Spencer

National Human Genome Research Inst.

01-Sep-10

The HapMap, includes data from 11 global populations. The improved resolution will help researchers interpret current genome studies aimed at finding common and rarer genetic variants associated with complex diseases.

<http://www.genome.gov/27541138>

Subcategory: Personalized Medicine

Personalized Medicine Research Program

Anthony Flynn

Drug Discovery & Development

15-Sep-10

The GenomeQuest Personalized Medicine Research (GQ-PMR) program is designed to enable pharmaceutical firms to implement a PMR methodology immediately, cost-effectively, and across their portfolio.

<http://www.ddmag.com/article-Personalized-Medicine-Research-Program-91510.aspx>

Subcategory: Proteomics

RNA Structure by Rapid Fire

Howard Hughes Medical Institute

02-Sep-10

New process for visualizing the structure of RNA in a cell uses a parallel-processing approach to provide—for the first time—a global view of a species' diverse RNA structures.

<http://www.hhmi.org/news/chang20100901.html>

New Paper Addresses Recombinant Protein Production

R & D Magazine

15-Sep-10

Describes “Speeding and Simplifying Recombinant Protein Production” whitepaper outlining common challenges of recombinant protein production, discusses how new expression systems simplify production process, reduce costs, speed time to market.

STRATEGIC RELATIONSHIPS

Subcategory: Proteomics

Share the Data: Making Large-Scale Proteomics Data Widely Available

Henry Rodriguez, Philip

Bio-IT World

25-Aug-10

Andrews and Chris Kinsinger

The proteomics community is beginning to implement policies and infrastructure analogous to that demonstrated during the Human Genome Project, where researchers collaborated to create an extensive data resource for the entire community.

<http://www.bio-itworld.com/2010/08/25/open-proteomics-comment.html>

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