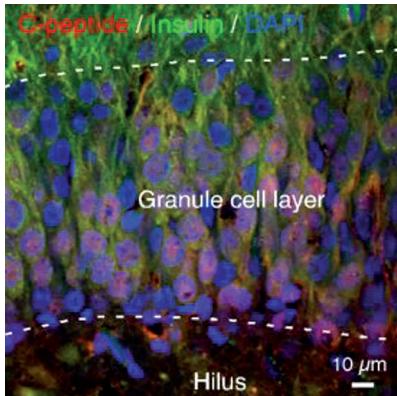


News

Neural stem cell transplant may tackle diabetes



Researchers in Japan have discovered how a patient's neural stem cells could be used as an alternative source of the beta cells needed for a regenerative treatment for diabetes. The hippocampus and olfactory bulb, at the front of the brain provide an easily accessible tissue source for cells that could be transplanted directly into the pancreas. Once these cells are transplanted into diabetic rats they express not only several key characteristics of pancreatic beta cells, but more importantly, also produce insulin that effectively reduces blood glucose levels. The removal of the transplant increases levels of blood glucose. "Our findings demonstrate the potential value of neural stem cells for treating diabetes without gene transfer," concluded Kuwabara. "This presents an original strategy to overcome the donor shortage that has hindered cell replacement therapy." /vki /bn

Kuwabara et al., *EMBO Mol. Med.* 2011, in press.

<http://dx.doi.org/10.1002/emmm.201100177>

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Sleeping beauty: The essence of yeast quiescence

Around 1800, a sailing barge carrying a consignment of bottled champagne and beer, possibly bound for the Russian Imperial Court, sinks in the Baltic Sea. This marks the beginning of a 200-year-long period during which the "sleeping beauty", a member of the *Saccharomyces cerevisiae* family, rests quiescently in a beer bottle in a dark and gloomy spot of the seabed. In 2010, a diving expedition brings this 'beauty' back to daylight, where, after gentle awakening, she may unveil some secrets of 18th-century beer brewing. As this modern fairy tale exemplifies, yeast cells, like all microorganisms, spend most of their natural lifetime in a reversible, quiescent state that is primarily induced by limitation for essential nutrients. Although substantial progress has been made in defining the features of quiescent cells and the nutrient-signaling pathways that shape these features, many questions remain on how cells decide and subsequently



proceed to enter into quiescence. This review presents an overview of our current understanding of the architecture of these pathways, focusing on how the corresponding core signalling protein kinases (i.e., PKA, TORC1, Snf1, and Pho85) are wired to ensure an adequate response to nutrient starvation, which enables cells to tide over decades, if not centuries, of famine. /gzb

De Virgilio, *FEMS Microbiol. Rev.* 2011, in press.

<http://dx.doi.org/10.1111/j.1574-6976.2011.00287.x>

♪ O Christmas Tree! O Christmas Tree! ♪

Did you know that your Christmas tree has at least seven times more genetic material than you? On my recent visit to Stockholm as part of Wiley's Author Workshop hosted by the Karolinska Institutet Library, I took the opportunity to visit biotechnologists at the *Science for Life Laboratory* (SciLifeLab) and learnt a lot more about the innocuous Christmas tree than all my years of training in biotechnology together.

Conifers, the most famous of which is perhaps the distinctive Christmas tree, have been around for donkey's years. They hail back to the days before the dinosaurs, were around when the dinosaurs ruled the earth (being a favorite dish for the vegetarian part of the population), and obviously survived whatever killed off the dinosaurs and are still hanging around strong today. It is clear that genetically, they are a tough breed, but to delve into the genetic secret of their success is a challenge that has yet been undertaken, until recently, when a consortium of scientists, including those from the SciLifeLab, were entrusted with the task through the support of a 75 million Swedish Krona grant from the Knut and Alice Wallenberg Foundation. This endeavor is of course not a purely scientific pursuit, the spruce is after all, vital to both the ecology and the economy of Sweden.

Scientists at the SciLifeLab are hard at work sequencing the spruce genome, a task made no less challenging by the fact that it has one of the largest and most complicated genome ever to be sequenced. The project started in 2010 and the next milestone is expected to be reached this Christmas with freezing of the data and its final assembly. According to one of the Principle Investigators, Prof. Joakim Lundeberg, the next steps will be focused on answering functional questions such as which genes are involved in wood synthesis and whether one could modify the fiber to obtain new functionality.

So, when you put up your tree this Christmas, take a second look, there is a lot more to the eye to this wonderful tree – Merry Christmas to all!

For more information on the SciLifeLab and developments from Stockholm, stay tuned to the forthcoming issue of *Biotechnology Journal*. /jp

SciLifeLab

www.scilifelab.se

From the Wiley world

The Wiley Life Sciences Blog



Probiotics and Health Claims investigates the food, feed, and pharmaceutical applications and assessment procedures of probiotics around the world. We sat down with the book's two editors, Wolfgang Kneifel and Seppo Salminen, to pick their brains about what, exactly, the term "probiotics" means, and how they predict probiotics will be used in the future. /da

Read their answers at [WiSciblog.com!](http://wisciblog.com)

<http://wisciblog.com/2011/02/16/probiotics-and-health-claims>

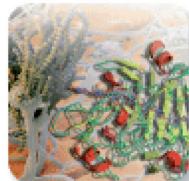
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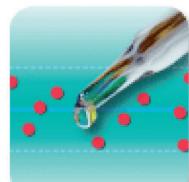
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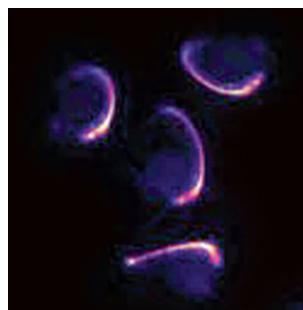
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Wormometry-on-a-chip



Invertebrate models, such as the nematode *Caenorhabditis elegans* and the fruit fly *Drosophila melanogaster*, are gaining considerable interest in drug discovery and toxicology. They offer substantial advantages, providing analysis of cells in the context of cell-cell and cell-extracellular matrix interactions and under normal physiological milieu of the whole organism. High-throughput and high-content analysis is, however, still a challenging task and not easily susceptible to laboratory automation. Wlodkowich and coworkers outline the cutting-edge developments of innovative microfluidic chip-based devices for the in-situ analysis of small model organisms. Rapid progress in physics, electronics as well as material sciences has recently facilitated the development of miniaturized bioanalytical systems collectively known as Lab-on-a-Chip (LOC). For the first time, the term "wormometry" is introduced to collectively distinguish these up-and-coming chip-based technologies that go far beyond the conventional meaning of the term "cytometry". /sv

Wlodkowic et al., Cytometry A 2011, 79A, 799–813.

<http://dx.doi.org/10.1002/cyto.a.21070>

Prolong and sustain

MicroRNA (miRNA) efficiently regulates gene expression and becomes a potent therapeutic agent. However, effective delivery and processing of miRNA with minimal side effects remains a major hurdle to its applications. Baculovirus, a natural virus that

infects insects, is a promising gene delivery tool but only mediates transient expression. In this study, Chen and coworkers have constructed recombinant baculoviruses harboring artificial *egfp*-targeting miRNA sequences within the miR155 backbone, which after expression could knockdown the transgene expression. By swapping the mature miRNA sequences, the baculovirus miRNA shuttle effectively represses the overexpression of endogenous TNF- α in arthritic synoviocytes. Furthermore, a hybrid baculovirus vector that exploits the *Sleeping Beauty* (SB) transposon for gene integration and extended miRNA expression is presented. The hybrid baculovirus vector effectively represses the transgene expression for a



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prolonged period of time, hence rendering baculovirus a novel miRNA expression vector for sustained gene suppression. /sv

Chen et al., Biotechnol. Bioeng. 2011, 108, 2958–2967.

<http://dx.doi.org/10.1002/bit.23250>

View the video abstract

[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1097-0290/homepage/media.htm](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1097-0290/homepage/media.htm)

Biosensors: Combining bio and nano

A biosensor is defined as a sensing device that is composed of a non-biological sensor element and a biological recognition element, e.g. enzymes, antibodies, aptamers or receptor molecules. The specific biomolecule interaction or biochemical reaction of the target molecule is then measured by the sensor el-

Getting published

Insight into the Editorial Office



In a previous column of *Getting Published*, we mentioned the importance of choosing the right journal.

It may pay to understand the role of the Editorial Office when it comes to making a good decision on this.

There are several types of editorial offices; *Biotechnology Journal* (BTJ) can be characterized as a "hybrid" editorial office because our full-time in-house dedicated professional editors work closely with our external Editors-in-Chief who are also full-time active scientists. This is perhaps the ideal combination as it provides author-friendly services and speed while maintaining a high standard of scientific publication.

The key to a successful editorial office (and hence a successful journal) is the quantity and quality of its dedicated staff. We can be seen as the administrators, facilitators and overall champion of the journal. Our involvement in the publication process can be summarized as follows:

Peer review: many scientific experts are involved to ensure a high standard and fair peer review, such as the editors-in-chief, senior editors, editorial board and reviewers. The editorial office ensures that all manuscripts are examined by relevant persons within a reasonable time frame.

Post-acceptance production: the difference between an accepted manuscript and a published paper can be tremendous. The editorial office team checks that all manuscripts conform to the standards of the journal and also provides input to authors on how to improve the final version for enhanced discoverability.

Showing your research to the world: how does your paper stand above the crowd and be recognized by your peers? The editorial office staff is dedicated to promoting your research, either through presence at conferences, e-mail campaigns, press releases, or through various news media such as this particular magazine.

Keep this in mind when deciding where to submit your next article! /jp

Judy Peng is Managing Editor of *Biotechnology Journal*. When Judy is not on duty as a dedicated editor, Judy enjoys travelling and cooking, and reading books/magazines on the two topics.

Biotechnology Journal

See previous article:

<http://onlinelibrary.wiley.com/doi/10.1002/biot.20100371/full>



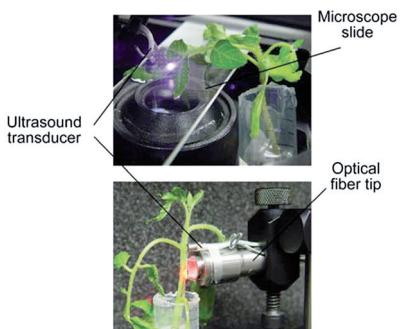
ement, which elicits an electrical signal. Recent advances in nanotechnology have generated many new opportunities for the development of improved sensing devices, which can be applied in the food and beverage industry, clinical diagnosis, anti-terrorism applications and environmental monitoring. Hyun Seok Song and Tai Hyun Park from Seoul, Korea, discuss recent advances and remaining challenges in the development of biosensors through the integration of biomolecules with nanotechnology. /ug

Song and Park, Biotechnol. J. 2011, 6, 1310–1316.

<http://dx.doi.org/10.1002/biot.201100006>

Nanoparticles in live plants

Researchers have developed the first flow cytometer for prediction of the nanotechnology impact on the environment. The authors demonstrate real-time non-invasive detection of nanoparticles in live plants. Ultrasound transducers gently attached to plants are used to detect laser-induced acoustic waves from nanomaterials deposited deep in plant tissues. Combination of flow and scanning cytometry modes make it possible to track kinetics of nanoparticle penetration through roots in plant vasculature and finally to the leaves. Uptake and accumulation of



nanomaterials by plants can be very fast. The hybrid quantum dots-carbon nanotube nanoparticles are transported from solution to roots and leaves through natural nutrients routes in a tomato in just 5 minutes. The portable cytometer can be developed for applications in agriculture fields or green houses to track transportation of nutrients, soil compounds, viruses and pathogens targeted by functionalized nanoparticles directly in live plants. /sv
Nedosekin et al., Cytometry A 2011, 79A, 855–865.

<http://dx.doi.org/10.1002/cyto.a.21128>

Global regulators of *E. coli* metabolism



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The ultimate goal of systems biology is the programming of a virtual cell for the prediction of metabolic changes in response to changes in the culture environment and/or inactivation of a specific gene. This will help designing cells that have a more efficient production of specific metabolites without the need for many experiments. Quantitative modeling for regulatory mechanisms is critical for efficient metabolic engineering. To achieve this, it is important to properly understand the metabolic regulation mechanism and to develop a robust model by incorporating gene-level regulation into the enzymatic reaction model. The metabolic regulation in response to the change in culture environment however, is not well understood. Yu Matsuo and Kazuyuki Shimizu review how culture environment affects cell metabolism via global regulators. /ug

Matsuo and Shimizu, Biotechnol. J. 2011, 6, 1130–1341.

<http://dx.doi.org/10.1002/biot.201000447>

Current Protocols

Derivatization of free natural glycans

Nature possesses an unlimited number and source of biologically relevant natural glycans, many of which are too complicated to synthesize in the laboratory. To capitalize on the naturally occurring plethora of glycans, researchers from Emory University present a method to fluorescently tag isolated free glycans while maintaining the closed-ring structure. After purification of the labeled glycans, they can be printed on a glass surface to create a natural glycan microarray, suitable for interrogation with potential glycan-binding proteins. The derivatization of these natural glycans has vastly expanded the number of glycans available for functional studies, and, since they are natural products made by complex genetic/biochemical pathways, they may be presumed to be biologically relevant. /bm

Song et al., *Curr. Protoc. Chem. Biol.* 3, 53–63.

<http://www.currentprotocols.com/protocol/ch100194>



Status update of modified oligonucleotides for chemotherapeutics

During the past decade, the number of therapeutic oligonucleotides in clinical trials has nearly tripled. This is primarily due to advances in the synthesis protocols, better understanding of the biology, improved delivery, and improved formulation technologies. Currently, over 100 clinical trials with oligonucleotide-based drugs are ongoing in the United States for potential treatment of a variety of life-threatening diseases. Among the various oligonucleotides, antisense technology has been at the forefront, with one product on the market. Antisense technologies represent about half of the ongoing clinical trials. Similarly, siRNA, aptamers, spiegelmers microRNA, shRNA, IMO, and CpG constitute other oligonucleotides that are also undergoing clinical trials. This review attempts to summarize the current status of synthesis, chemical modifications, purification, and analysis in light of the rapid progress with multitude of oligonucleotides pursued as therapeutic modality.

Sanghvi, *Curr. Protoc. Nucleic Acid Chem.* 46, 4.1.1–4.1.22.

<http://www.currentprotocols.com/protocol/nco401>

<http://www.currentprotocols.com>

Rhizobacteria improve canola

Plant growth promoting rhizobacteria (PGPR) are bacteria that colonize plant roots and promote plant growth, directly or indirectly. The direct effects include fertilization or root stimulation, but indirect effects such as antibiosis or influence on the competition for nutrients are also possible. We can speculate that certain indirect mechanisms are responsible for the effects observed by Nosheen et al. The researchers show that inoculation of canola (*Brassica napus*) with PGPR *Azospirillum brasiliense* and *Azotobacter vinelandii* Khsr1 improve the yield and nutritive value of canola oil. In contrast to chemical fertilizers, inoculation with rhizobacteria in-



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creased the leaf and seed protein content and seed size, a significant increase in seed oil content was observed, and the oil composition differed from untreated plants. Importantly, the levels of the undesirable erucic acid and glucosinolates were lower in the oil from the inoculated plants. /lk

Nosheen et al., *Eur. J. Lipid Sci. Technol.* 2011, 113, 1342–1346.

<http://doi.wiley.com/10.1002/ejlt.201000549>

Blue agave: Food, energy and tequila

Blue agave is not a basic food crop, and does not require irrigation, making this plant and its close relatives excellent candidates for biofuel research and development. Agave has been used in the production of distilled alcoholic beverages in Mexico since the 17th century.



© Berit Myrekrok/Digital Vision/Getty Images

The most popular of these beverages are tequila and mezcal. Recently, agave plants have been proposed as a bioenergy feedstock to mitigate negative effects of climate change, and the first generation of bioethanol production from blue agave in Jalisco (western Mexico) is beginning to emerge as a byproduct of tequila production. At a time when the biofuel industry is undergoing unprecedented changes, with diversified demand and predictions of increased competitiveness, this paper presents a review of agave landraces that have been affected by tequila production but may be beneficial for a biofuel industry. /sg

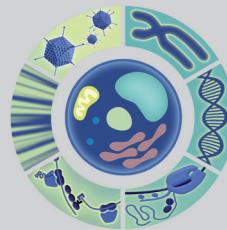
Don't forget you can follow @GCB_Bioenergy on Twitter for the latest bioenergy news and research!

Valenzuela, *GCB Bioenergy* 2011, 3, 15–24.

<http://dx.doi.org/10.1111/j.1757-1707.2010.01082.x>

Yeast diversity from city tree hollows

Due to the increasing number of fungal infections, along with rising morbidity and mortality rates, especially among the immunocompromised, understanding the diversity and distribution of yeasts in natural environments close to human habitations has become increasingly relevant. In this study, researchers analyze 1110 samples obtained from the hollows of trees, shrubs and avian droppings at 8 geographical sites in and around Hamilton, Ontario,



From Alzheimer's disease to the Zebrafish Genome, the *Encyclopedia of Molecular Cell Biology and Molecular Medicine* is already among the most detailed peer-reviewed reference work available covering the molecular and cellular basis of life.

Robert A. Meyers and Wiley are now delighted to announce the Encyclopedia's continuing expansion online. October 2011 signalled the start of a new update schedule with 21 new and updated articles added, to be followed with additional content four times per year. Each peer-reviewed article covers a specific topic in depth, with usually over 100 references, making it an authoritative source of information for undergraduate and graduate students, faculty, librarians, and researchers in industry and academia.

Alongside many leaders in the field, the Encyclopedia boasts an editorial board that includes 11 Nobel Prize Awardees, including Nobel Prize Awardees Christiane Nüsslein-Volhard, Werner Arber, Robert Huber, Stanley Prusiner and Aaron Ciechanover. The approach of the online expansion of the Encyclopedia is to focus on newly emerging, cutting edge topics, beginning with *Epigenetic Regulation and Epigenomics* and *Systems Biology*. Chapters covering these subjects are now available, integrated into the online Encyclopedia. The first update includes articles covering *Synthetic Biology*, *Epigenetic Medicine* and *Genetic Variation and Molecular Darwinism*.

A collection of highly significant articles on these two topics will also be published as print volumes in 2012. Upcoming topics for the online expansion and additional topical print volumes are *Stem Cells* and *RNA Regulation*; additional topics which will help to further establish the Encyclopedia as the largest peer-reviewed, single source of high class topical information on molecular cell biology and molecular medicine are on its way and will be released soon. /sm

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Synthetic Biology: Implications and Uses

Sanjay Vashee, Mikkel A. Algire, Michael G. Montague and Michele S. Garfinkel, J. Craig Venter Institute, La Jolla, CA, USA

<http://onlinelibrary.wiley.com/doi/10.1002/3527600906.mcb.200300154.pub2/abstract>

Epigenetic Medicine

Randy Jirtle, Autumn Bernal and David Skaar, Duke University, Durham, NC, USA

<http://onlinelibrary.wiley.com/doi/10.1002/3527600906.mcb.20100010/abstract>

Genetic Variation and Molecular Darwinism

Werner Arber, University of Zurich, Zurich, Switzerland

<http://onlinelibrary.wiley.com/doi/10.1002/3527600906.mcb.200300093.pub2/abstract>



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Canada. 88 positive yeast strains were isolated and identified belonging to 20 yeast species. Despite the relative proximity of the sampling sites and the availability of vectors (e.g. birds, rodents and humans) to shuttle these yeasts between the areas, the yeast populations are highly heterogeneous. Among the 14 tree species sampled, cedar, cottonwood and basswood hollows have relatively high yeast colonization rates. Interestingly, *Candida parapsilosis* was isolated almost exclusively from pine trees only. These results are consistent with microgeographic and ecological differentiation of yeast species in and around an urban environment. /lb

Maganti et al., FEMS Yeast Res., in press.

<http://dx.doi.org/10.1111/j.1567-1364.2011.00756.x>

Cyanobacterial diversity in Antarctica

The evolutionary history and geographical isolation of the Antarctic continent have produced a unique environ-



© Corbis Images

ment rich in endemic organisms. In many regions of Antarctica, cyanobacteria are the dominant phototrophs in both aquatic and terrestrial ecosystems. In this article, the authors use a microscopic and molecular approaches to examine the cyanobacterial diversity of biotopes at two inland continental Antarctic sites (80–82°S). These are among the most southerly locations where freshwater-related ecosystems are present. The results showed a low cyanobacterial diversity, with only 3–7 operational taxonomic units (OTUs) per sample obtained by a combination of strain isolations, clone libraries and denaturing gradient gel electrophoresis based on 16S rRNA genes. Future research in inland continental Antarctica will shed more light on the geographical distribution and evolutionary isolation of cyanobacteria in these extreme habitats. /ln

Fernandez-Carazo et al., FEMS Microbiol. Ecol. 2011, 77, 503–517.

<http://dx.doi.org/10.1111/j.1574-6941.2011.01132.x>

Chicken vaccine strains against *Salmonella*

Salmonella enterica serovar Enteritidis (S. Enteritidis) is a major food-borne pathogen, with poultry and eggs being the most common sources of human *Salmonella* infections. The best long-term solution to combat *Salmonella* spp. in the food chain before it reaches humans can be achieved through vaccination of poultry. Most of the present knowledge on *S. enteritidis* pathogenesis and host immunity originates from investigations in mice or adult chickens with limited knowledge on the systematic infection of young chicks and whether other genes additional to known virulence genes are required for virulence. This study provides a better understanding of the pathogenesis of S. Enteritidis in young chicks being the first comprehensive study of the *aceE* gene of *S. enteritidis*, examining

Industry news

Biotechnica 2011

618 exhibitors from 28 countries (up 24% over the previous year) have taken part in Hannover from 11 to 13 October to showcase a rich array of biotech innovations and their uses in medical, food manufacturing and industrial applications as well as environmentally-friendly production techniques. Laboratory equipment, bioreactors and a wide variety of services and IT solutions for the biotech and pharmaceutical industries were featured prominently among the show's displays.

The event was as great success as judged by participant numbers. The three-day event attracted a total of 11 000 visitors – up about 15% over 2010, with around a quarter of the show's visitors being from abroad. /ag

<http://www.biotechnica.de>

Eppendorf Ideas

Eppendorf presents the winners of the idea competition "pipette stand of the future". The company is looking for new ideas for this instrument via crowdsourcing. Take a look at the winners and their concepts. /ag

<http://www.laboratory-journal.com/news/company-news/eppendorf-and-pipette-stand-future>

The “alarm clock” gene

Ever wondered why you wake up in the morning – even when the alarm clock isn't making jarring noises? Wonder no more. Satchidananda Panda, Associate Professor in Salk's Regulatory Biology Laboratory, together with Luciano DiTacchio, a post-doctoral research associate and their colleagues report a new component of the biological clock, a gene -KDM5A- responsible for starting the clock from its restful state every morning. Read more on this topic at

<http://www.laboratory-journal.com/news/scientific-news/alarm-clock-gene-kdm5a-explains-wake-function-biological-clock>

Read the latest R&D and business specific news at G.I.T. Laboratory Journal Europe

<http://www.laboratory-journal.com>



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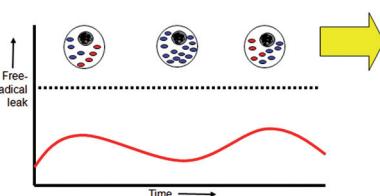
the virulence characteristics of the *DaceE::kan* mutant *in vitro*, persistence of the mutant in a live challenge of young chicks and protection against wild-type *S.Enteritidis*, as well as investigating eggshell contamination of the vaccinated chickens. /gvb

Pang et al., *FEMS Immunol. Med. Microbiol.* 2011, 63, 108–118.

<http://dx.doi.org/10.1111/j.1574-695X.2011.00834.x>

Advantageous over generations but costly for the individual

Respiratory chains in mitochondria constitute a mosaic of proteins, either derived from the nuclear or mitochondrial genome. There are different speeds and modes of evolution between these two genomes, but it is es-



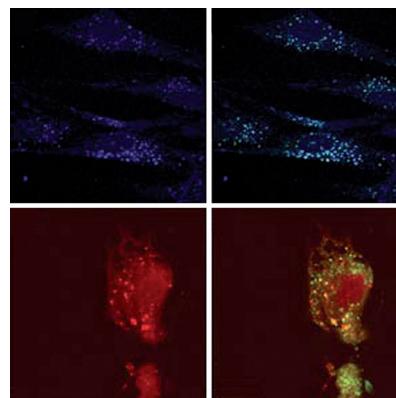
sential that they adapt to one another for respiration to work correctly. In the November issue of *BioEssays*, Nick Lane proposes that selection for this genomic match has played a defining role in the evolution of eukaryotes, potentially explaining not only the evolution of two sexes but also playing an ongoing and critical role in fitness, fertility, adaptability, speciation, ageing and age-related disease. /kb

Lane, *Bioessays* 2011, 33, 860–869.

<http://dx.doi.org/10.1002/bies.201100051>

Protein tracking

Recombinant enzymes are used to treat several disorders, and involve giving a naturally-occurring protein to a deficient patient by injection. Testing new therapeutic enzymes requires tracking their distribution in animals. Recombinant alpha-L-iduronidase is labeled using a small molecule that fluoresces in the near-infrared range. The labeled enzyme shows similar biochemical prop-



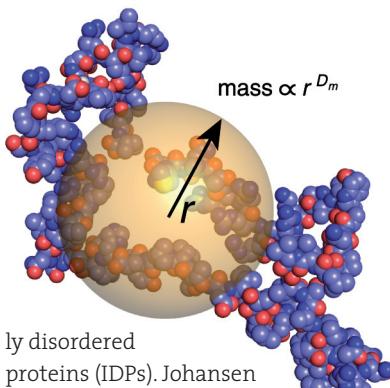
erties as unlabeled enzyme, which suggests that small, fluorescent labels may be useful in preclinical testing. Applications include the ability to detect delivery in a living mouse, using fluorescent small animal imaging. Also, while biochemical assays and immunodetection methods can be used to determine delivery in a knock-out mouse or other animal models, labeled enzyme can be detected even in a normal animal which produces its own background level of enzyme. /lg

Tippin et al., *Biotechnol. Appl. Biochem.* 2011, in press.

<http://dx.doi.org/10.1002/bab.52>

Internal density of an intrinsically disordered protein

With the recent recognition that the functional forms of many proteins may be partially or fully unfolded, there is now great interest in characterizing the physical properties of these intrinsical-



ly disordered proteins (IDPs). Johansen et al. report the use of small-angle X-ray scattering (SAXS) and computational modeling to characterize one such protein, a transcriptional antitermination factor encoded by the bacteriophage lambda. In addition to measuring the average radius of gyration, the authors determined the mass fractal dimension, which is a measure of the average internal density of the molecules and their propensity to interact with solvent. The use of SAXS to measure the fractal dimension is well established in the study of synthetic polymers, but has only recently been applied to unfolded proteins. In the present study, the analysis demonstrates that the lambda N protein behaves as an expanded and well-solvated random coil, properties that may facilitate its function in the dynamic transcription complex. /ec

Johansen et al., Prot. Sci. 2011, in press.

<http://dx.doi.org/10.1002/pro.739>

Toward toxicity testing of nanomaterials



This *Opinion Article* by David Y. Lai of the U.S. Environmental Protection Agency discusses how the diversity and complexity of engineered nanomaterials being introduced to market is a challenge in hazard identification and safety evaluation. He proposes a paradigm for toxicity testing and elucidation of the molecular mechanisms of nanomaterials using *in vivo* animal studies in conjunction with high-throughput

screenings and mechanism-based *in vitro* assays – an approach in line with the vision for ‘Toxicity Testing in the 21st Century’ of chemicals. /mh

Lai, WIREs Nanomed. Nanobiotechnol. 2011, DOI: 10.1002/wnan.162.

<http://wires.wiley.com/WileyCDA/WiresArticle/wisid-WNAN162.html>

Readers' choice: Microalgae



The most downloaded article in EJLST this year is a review “Developments in oil extraction from microalgae” which appeared in print in the May issue. The review is based on an oral presentation given at the 2010 FEBS workshop of microbial lipids in Vienna. /lk

Mercer and Armenta, Eur. J. Lipid Sci. Technol. 2011, 113, 539–547.

<http://doi.wiley.com/10.1002/ejlt.201000455>

Christmas Prize Draw



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The winner will be contacted by email and also announced in the January 2012 issue of *BiotecVisions*.

Voucher to be redeemed through book purchases on wiley.com only.

Good Luck!

Awards

2012 Gaden Award Recipient



Congratulations to **Gregory J. Cost**, Sangamo Biosciences Inc., winner of the 2012 Gaden Award for the article *Highly efficient deletion of FUT8 in CHO cell Lines using zinc-finger nucleases yields cells that produce completely nonfucosylated antibodies*.

The award presentation and address will be held at an American Chemical Society (ACS) Division of Biochemical Technology (BIOT) session at the March, 2012 ACS National Meeting & Exposition in San Diego, California.

<http://doi.wiley.com/10.1002/bit.22751>

<http://acsbiotn.awhs.com/BIOT>

B&B Daniel I.C. Wang Award Winner



Congratulations to **Ali Khademhosseini**, Associate Professor of Medicine at Harvard Medical School and Brigham & Women's Hospital, the 2012 recipient of the B&B Daniel I.C. Wang Award. This annual award, initiated in 2008, honors a young investigator who has demonstrated a sustained commitment to *Biotechnology and Bioengineering* and to the growing interdisciplinary community it serves.

http://onlinelibrary.wiley.com/journal/10.1002/1097-0290/homepage/custom_copy.htm

Virtual issue

Electrofuels research: A virtual issue

Biotechnology Progress, the official journal of the Society for Biological Engineering (SBE), has compiled a virtual issue to coordinate with SBE’s recent Conference on Electrofuels Research. Articles on total carbon utilization, hydrogen production, microalgal technology, and optimal bioprocesses for fuel and fine chemical production are all highlighted.



electrofuels

SBE's Conference on Electrofuels Research

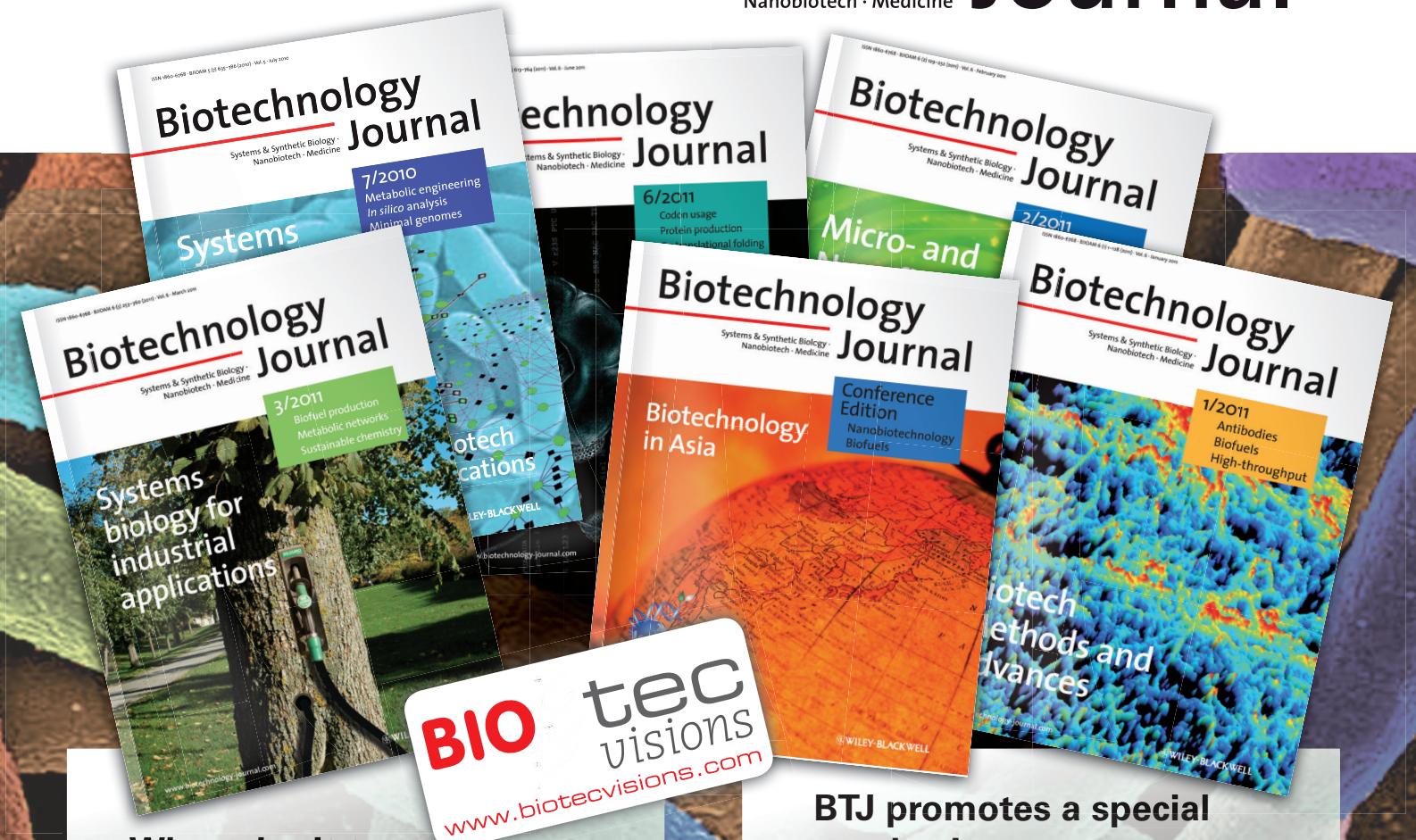
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