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| http://images.magnetmail.net/images/clients/ACS/041112DinoIstock_thumb.jpgCould “advanced” dinosaurs rule other planets?Credit: iStock |

New scientific research raises the possibility that advanced versions of T. rex and other dinosaurs — monstrous creatures with the intelligence and cunning of humans — may be the life forms that evolved on other planets in the universe. “We would be better off not meeting them,” concludes the study, which appears in the Journal of the American Chemical Society.In the report, noted scientist Ronald Breslow, Ph.D., discusses the century-old mystery of why the building blocks of terrestrial amino acids (which make up proteins), sugars, and the genetic materials DNA and RNA exist mainly in one orientation or shape. There are two possible orientations, left and right, which mirror each other in the same way as hands. This is known as "chirality." In order for life to arise, proteins, for instance, must contain only one chiral form of amino acids, left or right. With the exception of a few bacteria, amino acids in all life on Earth have the left-handed orientation. Most sugars have a right-handed orientation. How did that so-called homochirality, the predominance of one chiral form, happen?Breslow describes evidence supporting the idea that the unusual amino acids carried to a lifeless Earth by meteorites about 4 billion years ago set the pattern for normal amino acids with the L-geometry, the kind in terrestial proteins, and how those could lead to D-sugars of the kind in DNA.“Of course,” Breslow says, “showing that it could have happened this way is not the same as showing that it did.” He adds: “An implication from this work is that elsewhere in the universe there could be life forms based on D-amino acids and L-sugars. Such life forms could well be advanced versions of dinosaurs, if mammals did not have the good fortune to have the dinosaurs wiped out by an asteroidal collision, as on Earth. We would be better off not meeting them.”The author acknowledges funding from the [National Science Foundation](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362730&m=1858194&u=ACS&j=9798636&s=http://nsf.gov).

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| http://images.magnetmail.net/images/clients/ACS/041112JACS_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362731&m=1858194&u=ACS&j=9798636&s=http://web.1.c2.audiovideoweb.com/1c2web3536/041112jacs.jpg) for high-resolution image |

ARTICLE #1 **FOR IMMEDIATE RELEASE**“Evidence for the Likely Origin of Homochirality in Amino Acids, Sugars, and Nucleosides on Prebiotic Earth”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362732&m=1858194&u=ACS&j=9798636&s=http://pubs.acs.org/stoken/presspac/presspac/abs/10.1021/ja3012897) CONTACT:Ronald Breslow, Ph.D.Columbia UniversityNew York, NY, 10024Email: rb33@columbia.edu  [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #2 **FOR IMMEDIATE RELEASE****Real-life scientific tail of the first “electrified snail”**Journal of the American Chemical Society

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| http://images.magnetmail.net/images/clients/ACS/041112SnailACS_thumb.jpgReal-life scientific tail of the first “electrified snail”Credit: American Chemical Society[Click here to view high-resolution image.](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362733&m=1858194&u=ACS&j=9798636&s=http://web.1.c2.audiovideoweb.com/1c2web3536/041112snailacs.jpg) |

The world’s first “electrified snail” has joined the menagerie of cockroaches, rats, rabbits and other animals previously implanted with biofuel cells that generate electricity — perhaps for future spy cameras, eavesdropping microphones and other electronics — from natural sugar in their bodies. Scientists are describing how their new biofuel cell worked for months in a free-living snail in the Journal of the American Chemical Society.In the report, Evgeny Katz and colleagues point out that many previous studies have involved “potentially implantable” biofuel cells. So far, however, none has produced an implanted biofuel cell in a small live animal that could generate electricity for an extended period of time without harming the animal. “The snail with the implanted biofuel cell will be able to operate in a natural environment, producing sustainable electrical micropower for activating various bioelectronic devices,” the authors say.To turn a living snail into a power source, the researchers made two small holes in its shell and inserted high-tech electrodes made from compressed carbon nanotubes. They coated the highly conductive material with enzymes, which foster chemical reactions in animals’ bodies. Using a different enzyme on each electrode, one pulling electrons from glucose and another using those electrons to turn oxygen molecules into water, they induced an electric current. Importantly, the long-lasting enzymes could generate electricity again and again after the scientists fed and rested what they termed the “electrified” snail, which lived freely for several months with the implanted fuel cell.

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| http://images.magnetmail.net/images/clients/ACS/041112JACS_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362734&m=1858194&u=ACS&j=9798636&s=http://web.1.c2.audiovideoweb.com/1c2web3536/041112jacs.jpg) for high-resolution image |

ARTICLE #2 **FOR IMMEDIATE RELEASE**“Implanted Biofuel Cell Operating in a Living Snail”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362735&m=1858194&u=ACS&j=9798636&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/ja211714w)CONTACT:Evgeny Katz, Ph.D.Clarkson UniversityPotsdam, N.Y., 13699Email: ekatz@clarkson.edu[To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #3 **FOR IMMEDIATE RELEASENew insights into when beach sand may become unsafe for digging and other contact**Environmental Science & Technology

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| http://images.magnetmail.net/images/clients/ACS/041112SandACS_thumb(1).jpgNew insights into when beach sand may become unsafe for digging and other contactCredit: American Chemical Society[Click here to view high-resolution image.](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362737&m=1858194&u=ACS&j=9798636&s=http://web.1.c2.audiovideoweb.com/1c2web3536/041112sandacs.jpg) |

With summer days at the beach on the minds of millions of winter-weary people, a new study provides health departments with information needed to determine when levels of disease-causing bacteria in beach sand could pose a risk to children and others who dig or play in the sand. The report appears in ACS’ journal Environmental Science & Technology.Tomoyuki Shibata and Helena M. Solo-Gabriele explain that disease-causing bacteria from sewage can cause skin infections and gastrointestinal (GI) disorders in people who come into contact with contaminated water. The U.S. Environmental Protection Agency (EPA) has guidelines to determine when microbe levels in water are high enough to pose an unacceptable risk of GI illness for contact with both ocean water and freshwater. Microbes, however, tend to concentrate in higher levels in beach sand — to the point where one previous study found that the sand on one fingertip, placed in the mouth, had enough germs to cause GI illness. No guidelines exist to determine when contact with beach sand might be too risky for children and others who play in beach sand, digging in it or being buried in the sand. The scientists set out to fill that knowledge gap.The scientists used millions of computer simulations and measurements of disease-causing microbes at beaches in California and Florida to determine how many bacteria would have to be present in beach sand to exceed the EPA’s guideline for water. In doing so, they established “reference levels” for beach sand that correspond to the EPA risk guidelines for water. The focus of children at the beach environment is especially important, due to play behavior at beach sites that would increase a child’s exposure, the scientists noted.The authors acknowledge funding from the [National Science Foundation](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362738&m=1858194&u=ACS&j=9798636&s=http://nsf.gov) and the [National Institute of Environmental Health Sciences](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362739&m=1858194&u=ACS&j=9798636&s=http://www.niehs.nih.gov/).

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| http://images.magnetmail.net/images/clients/ACS/041112EST_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362740&m=1858194&u=ACS&j=9798636&s=http://web.1.c2.audiovideoweb.com/1c2web3536/041112est.jpg) for high-resolution image |

ARTICLE #3 **FOR IMMEDIATE RELEASE**“Quantitative Microbial Risk Assessment of Human Illness from Exposure to Marine Beach Sand”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362741&m=1858194&u=ACS&j=9798636&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/es203638x)CONTACT:Tomoyuki Shibata, Ph.D.Northern Illinois UniversityDeKalb, Ill. 60115Phone: 815-753-5696Fax: 815-753-5406Email: tshibata@niu.edu [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gif ARTICLE #4 **FOR IMMEDIATE RELEASE: A PressPac Instant Replay\*****Handheld device for doing blood tests moves closer to medical use**Analytical Chemistry

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| http://images.magnetmail.net/images/clients/ACS/020112BloodCellsIstock_thumb.jpgHandheld device for doing blood tests moves closer to medical useCredit: iStock |

Scientists are reporting a key advance in efforts to develop a handheld device that could revolutionize the complete blood cell count (CBC), one of the most frequently performed blood tests used to diagnose and treat disease. In a report in ACS’ journal Analytical Chemistry, they describe adding a key feature to their “blood lab-on-a-chip” that allows it to count white blood cells more accurately.Hywel Morgan, Cees van Berkel and colleagues explain that current CBC technology requires expensive equipment housed in central laboratories, which can take several days to process tests. The CBC test measures levels of the different components of human blood, including red and white blood cells. High or low levels of certain components can indicate a variety of conditions, ranging from infections and anemia to certain forms of cancer. Hoping to make those diagnoses faster and easier, Morgan and van Berkel have been working on a handheld device similar to the blood sugar tests used by people with diabetes. In their latest advance, the scientists describe successfully adding a new feature to the chip, which sends a blood sample through channels only a few times as wide as a human hair to an electrode that counts blood cells as they pass. The feature breaks down red blood cells in a way that allows the chip to count white blood cells more accurately. Tests on blood samples from patients produced results comparable to those from tests performed on the same samples by a full-scale hematology lab.The authors acknowledge funding from the [Technology Strategy Board](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362742&m=1858194&u=ACS&j=9798636&s=http://www.innovateuk.org/) and the [Engineering and Physical Sciences Research Council](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362743&m=1858194&u=ACS&j=9798636&s=http://www.epsrc.ac.uk/Pages/default.aspx).

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| http://images.magnetmail.net/images/clients/ACS/041112AnaChem_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362744&m=1858194&u=ACS&j=9798636&s=http://web.1.c2.audiovideoweb.com/1c2web3536/041112anachem.jpg) for high-resolution image |

ARTICLE #4 **FOR IMMEDIATE RELEASE**“Microfluidic Lysis of Human Blood for Leukocyte Analysis Using Single Cell Impedance Cytometry”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362745&m=1858194&u=ACS&j=9798636&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/ac202700x)CONTACT:Hywel Morgan, Ph.D.University of SouthamptonSouthampton, United KingdomPhone: +44-23-8059-3330Fax: +44-2380-593029Email: hm@ecs.soton.ac.uk**\* A previous PressPac item that you may have missed**   [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #5 **FOR IMMEDIATE RELEASE****A sea of challenges for the Mediterranean Sea**Chemical & Engineering News

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| http://images.magnetmail.net/images/clients/ACS/041112CEN_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362746&m=1858194&u=ACS&j=9798636&s=http://web.1.c2.audiovideoweb.com/1c2web3536/041112CEN.jpg) for high-resolution image. |

Cradle of great ancient civilizations, superhighway for trade and transport, treasure-trove of biodiversity, the Mediterranean — the world’s best known sea — faces a sea of challenges in the 21st century, including climate change, pollution, tourism and overfishing. That’s the topic of the cover story in the current edition of Chemical & Engineering News (C&EN), weekly newsmagazine of the American Chemical Society, the world’s largest scientific society.In the article, Sarah Everts, C&EN senior editor, points out that the Mediterranean is not only historically important, but it is also environmentally unique. For example, though it contains only 1 percent of the Earth’s ocean water, the Mediterranean Sea hosts 8 percent of the world’s biodiversity. But those biological treasures are now under threat from human pressures, including overfishing, unregulated tourism, shipping traffic and oil-drilling platforms. Environmental groups have been reporting massive die-offs of marine creatures such as monk seals, which have been called “living fossils” because they were swimming the Mediterranean’s waters as long as 15 million years ago. Stakeholders in the region have been meeting for several decades to discuss shared environmental problems, but getting concerted action to solve these problems is a challenge, given the 22 nations’ political, economic, linguistic and cultural differences. But some progress is being made. For example, an $8 million project called MedSeA is studying the impacts of climate change and acidification on the Mediterranean Sea. And in some regions, sewage is now treated so it is safe to swim at some city beaches along the coast — an unthinkable activity back in the 1970s because of widespread pollution. ARTICLE #5 **FOR IMMEDIATE RELEASE**"Meditating on the Mediterranean"This story is available at: [http://cenm.ag/mediterranean](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362748&m=1858194&u=ACS&j=9798636&s=http://cenm.ag/mediterranean)  [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gif **Journalists’ Resources****Press releases, briefings and more from ACS’ 243rd National Meeting**[www.eurekalert.org/acsmeet.php](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362749&m=1858194&u=ACS&j=9798636&s=http://www.eurekalert.org/acsmeet.php) [http://www.ustream.tv/channel/acslive](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362750&m=1858194&u=ACS&j=9798636&s=http://www.ustream.tv/channel/acslive%20) **Inside Science News Service**For thoroughly enjoyable multimedia coverage of the science behind the news — a valuable resource for journalists and news media organizations everywhere. [Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362751&m=1858194&u=ACS&j=9798636&s=http://www.insidescience.org/) to visit the Inside Science News website.**C&EN Video Spotlight: 3-D printing goes viral**Sriram Subramaniam, Ph.D., keeps a curio collection of sorts on top of a file cabinet in his office. It's packed with three-dimensional replicas of viruses and proteins implicated in diseases, including influenza and HIV. They're made with a technology called 3-D printing, which makes 3-D objects from a digital image in a way that's akin to printing images on a piece of paper. The technology is already used in the medical and dental, footwear and jewelry industries. Subramaniam, a biophysicist, and his colleagues learn more about how diseases are transmitted with these "touchable science" tools at the newly-created Living Lab, a collaboration between the National Institutes of Health and instrument maker FEI.[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362752&m=1858194&u=ACS&j=9798636&s=http://www.youtube.com/watch?v=wStbqKU9Dmc&feature=youtu.be) to watch Dr. Subramaniam show off some of the proteins and viruses his group has made.**Must-reads from C&EN: Updating the clothing that shields soldiers**New textiles promise to make the protective suit for men and women in uniform — the joint service integrated suit technology (JSLIST) — more comfortable in hot, humid weather and more protective. For the full story, contact Michael Bernstein at m\_bernstein@acs.org.**ACS Pressroom Blog** The ACS Office of Public Affairs' [pressroom blog](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362753&m=1858194&u=ACS&j=9798636&s=http://www.acspressblog.com) highlights research from ACS’ more than 40 peer-reviewed journals and National Meetings. **Bytesize Science Blog** Educators and kids, put on your thinking caps: The American Chemical Society has [a blog for Bytesize Science](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362754&m=1858194&u=ACS&j=9798636&s=http://www.bytesizescience.com), a science podcast for kids of all ages.  **ACS Satellite Pressroom: Daily news blasts on Twitter** The satellite press room has become one of the most popular science news sites on Twitter. To get our news blasts and updates, create a free account at [https://twitter.com/signup](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362755&m=1858194&u=ACS&j=9798636&s=https://twitter.com/signup). Then visit [http://twitter.com/ACSpressroom](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362756&m=1858194&u=ACS&j=9798636&s=http://twitter.com/ACSpressroom) and click the ‘join’ button beneath the press room logo. **C&EN on Twitter**Follow @cenmag <[http://twitter.com/cenmag](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362757&m=1858194&u=ACS&j=9798636&s=http://twitter.com/cenmag)> for the latest news in chemistry and dispatches from C&EN's blog, CENtral Science <[http://centralscience.org](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362758&m=1858194&u=ACS&j=9798636&s=http://centralscience.org)>.**ACS Press Releases** [Press releases](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362759&m=1858194&u=ACS&j=9798636&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_NEWSRELEASES&node_id=222&use_sec=false&sec_url_var=region1&__uuid=50b5ab93-801d-4d0d-868f-b9507ff9d709) on a variety of chemistry-related topics.[To Top](#top)http://images.magnetmail.net/images/clients/acs/goldline.gif**ACS Videos**The American Chemical Society encourages news organizations, museums, educational organizations and other web sites to embed links to these videos.**Spellbound: How Kids Became Scientists**

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The road to a Nobel Prize began for one scientist in elementary school when his father placed a sign on his bedroom door proclaiming him to be a “doctor.” This is just one of the many experiences that helped launch the careers of scientists from diverse backgrounds who are featured in a new ACS video series called [Spellbound: How Kids Became Scientists](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362760&m=1858194&u=ACS&j=9798636&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=1355&content_id=CNBP_028033&use_sec=true&sec_url_var=region1&__uuid=e8e6ee76-0abe-4e78-84c4-3717c995c65e). **Prized Science video series**

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Prized Science: How the Science Behind ACS Awards Impacts Your Life video series is new for 2011! In the first episode, see how Ahmed Zewail, Ph.D., developed a technology that's paving the way for new medicines, new fuels and new materials that will give people longer, healthier, happier lives. Zewail is the winner of the 2011 Priestley Medal. The second episode features the work of David Craik, Ph.D., who made advances toward new drugs for treating health problems that affect millions of people around the world, including antibiotic-resistant bacteria and AIDS. Craik is the winner of the ACS 2011 Ralph F. Hirschmann Award in Peptide Chemistry, sponsored by Merck Research Laboratories. More episodes will appear later in the year. The series is available at the [Prized Science](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362761&m=1858194&u=ACS&j=9798636&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=446&content_id=CTD1_018821&use_sec=true&sec_url_var=region1&__uuid=594bce97-0b05-4df7-b759-1a0f9156c5d8) website and on DVD. **First Living, Dancing Periodic Table of the Elements**

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That famous chart displaying the chemical elements that make up everything on Earth — a fixture on the walls of classrooms and labs — literally comes alive in this new video from the American Chemical Society (ACS). [Chemists Can Dance!](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362762&m=1858194&u=ACS&j=9798636&s=http://bytesizescience.com/index.cfm/2011/3/29/The-Chemistry-Dance) features scores of chemists wearing symbols representing the elements, kicking up their heels to the tune of an original rap song. It's all part of ACS' celebration of the International Year of Chemistry. Check out the fun and share the link.**A Day Without Chemistry** Imagine a day without cars, electric lights, TV, telephones, safe food and water, medicine, clothing, your house and thousands of other familiar objects that make up modern society. Do it, and you are imagining a day in a world without chemistry. ACS explores that thought-provoking premise in a new high-definition video released as part of the celebration of the International Year of Chemistry. [A Day Without Chemistry](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362763&m=1858194&u=ACS&j=9798636&s=http://www.youtube.com/watch?v=AbfW_CMMe48) follows a person who sees more and more everyday necessities and conveniences disappear before his widening eyes.[The Chemistry of Sourdough Bread](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362764&m=1858194&u=ACS&j=9798636&s=http://www.bytesizescience.com/index.cfm/2010/9/27/Chemistry-of-Sourdough)[The Chemistry of Fireworks](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362765&m=1858194&u=ACS&j=9798636&s=http://www.bytesizescience.com/index.cfm/2010/6/25/Bytesize-Science-Presents-The-Chemistry-of-Fireworks)[The Chemistry of Grilling and Barbecuing](http://www.mmsend88.com/link.cfm?r=800557068&sid=18362766&m=1858194&u=ACS&j=9798636&s=http://www.bytesizescience.com/index.cfm/2010/6/15/Chemistry-of-Barbeque) [To Top](#top)  http://images.magnetmail.net/images/clients/ACS/goldline.gif**ACS Podcasts**

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