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| http://images.magnetmail.net/images/clients/ACS/022912Aspirin_thumb.jpgNew hybrid “NOSH aspirin” as possible anti-cancer drugCredit: iStock |

Scientists have combined two new “designer” forms of aspirin into a hybrid substance that appears more effective than either of its forebears in controlling the growth of several forms of cancer in laboratory tests. Their report on the new NOSH-aspirin, so named because it releases nitric oxide (NO) and hydrogen sulfide (H2S), appears in the journal ACS Medicinal Chemistry Letters.Khosrow Kashfi, Ravinder Kodela and Mitali Chattopadhyay point out that NO and H2S are signaling substances produced in the body that relax blood vessels, reduce inflammation and have a variety of other effects. Scientists previously developed designer aspirin that releases NO in an effort to reduce aspirin’s potential adverse effects in causing bleeding in the gastrointestinal tract. Another designer aspirin that releases H2S was developed which also has anti-inflammatory properties and appears safe to the stomach.Since NO and H2S are gases with physiological relevance, and Kashfi’s group had previously shown beneficial effects with both NO- and H2S-aspirins, they postulated that a new hybrid that incorporated both of these entities might be even more potent and effective than either one alone. Their hypothesis has proved to be correct.They found indications that the new hybrid inhibits the growth of breast, colon, pancreas, lung, prostate and some leukemia cancer cells in laboratory tests. Some of the NOSH-aspirins tested were more than 100,000 times more powerful against cancer cell growth than aspirin alone. Promisingly, the group reported that their hybrids did not damage normal cells.The authors acknowledge funding from the [National Cancer Institute](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767928&m=1805420&u=ACS&j=9241785&s=http://cancer.gov/).

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ARTICLE #1 **FOR IMMEDIATE RELEASE**“NOSH-Aspirin: A Novel Nitric Oxide–Hydrogen Sulfide-Releasing Hybrid: A New Class of Anti-inflammatory Pharmaceuticals”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767930&m=1805420&u=ACS&j=9241785&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/ml300002m) CONTACT:Khosrow Kashfi, Ph.D., FRSCSophie Davis School of Biomedical Education City College of New YorkCity University of New York Medical SchoolNew York, N.Y. 10031Phone: 212-650-6641Fax: 212-650-7692Email: kashfi@med.cuny.edu [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #2 **FOR IMMEDIATE RELEASE****Adapting personal glucose monitors to detect DNA**Analytical Chemistry

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| http://images.magnetmail.net/images/clients/ACS/022912BloodMeterIstock_thumb.jpgAdapting personal glucose monitors to detect DNACredit: iStock |

An inexpensive device used by millions of people with diabetes could be adapted into a home DNA detector that enables individuals to perform home tests for viruses and bacteria in human body fluids, in food and in other substances, scientists are reporting in a new study. The report on this adaptation of the ubiquitous personal glucose monitor, typically used to test blood sugar levels, appears in ACS’ journal Analytical Chemistry.Yi Lu and Yu Xiang point out that developing low-cost tests for the public to use for early diagnosis of diseases, checking the safety of food and other testing that now take days and sophisticated laboratory instruments is one of the greatest challenges in chemistry. Such tests could improve health and reduce costs, especially for people in developing countries or rural areas in developed countries with scant medical resources. Lu and Xiang have been responding to this challenge with adaptations to the home glucose monitor, an essential device for millions of people with diabetes that’s inexpensive and simple to use. In their latest research, the scientists describe how they adapted a glucose meter to monitor DNA. Their test takes place in a liquid containing sucrose (a sugar that isn’t detected by glucose meters). First, a bacterial or viral DNA fragment is captured and concentrated on beads. Then, the researchers add an enzyme that is stuck to a different DNA (which can bind to the bacterial or viral DNA). The enzyme, called invertase, turns the sucrose into glucose, which the glucose meter can measure. They detected a hepatitis B virus DNA fragment at concentrations comparable to or in some cases even better than many current DNA measurement systems, which are much more expensive and time-consuming.The authors acknowledge funding from the [U.S. Department of Energy](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767931&m=1805420&u=ACS&j=9241785&s=http://energy.gov/), the [National Institutes of Health](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767932&m=1805420&u=ACS&j=9241785&s=http://www.nih.gov/) and the [National Science Foundation](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767933&m=1805420&u=ACS&j=9241785&s=http://www.nsf.gov/).

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| http://images.magnetmail.net/images/clients/ACS/022912AnaChem_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767934&m=1805420&u=ACS&j=9241785&s=http://web.1.c2.audiovideoweb.com/1c2web3536/022912anachem.jpg) for high-resolution image |

ARTICLE #2 **FOR IMMEDIATE RELEASE**“Using Commercially Available Personal Glucose Meters for Portable Quantification of DNA”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767935&m=1805420&u=ACS&j=9241785&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/ac203014s)CONTACT:Yi Lu, Ph.D.Department of Chemistry and Beckman InstituteUniversity of Illinois at Urbana-ChampaignUrbana, Ill. 61801Phone: 217-333-2619Fax: 217-244-3186Email: yi-lu@illinois.edu[To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #3 **FOR IMMEDIATE RELEASEMeeting biofuel production targets could change agricultural landscape** Environmental Science & Technology

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| http://images.magnetmail.net/images/clients/ACS/022912Corn_thumb.jpgMeeting biofuel production targets could change agricultural landscapeCredit: iStock |

Almost 80 percent of current farmland in the U.S. would have to be devoted to raising corn for ethanol production in order to meet current biofuel production targets with existing technology, a new study has found. An alternative, according to a study in ACS’ journal Environmental Science & Technology, would be to convert 60 percent of existing rangeland to biofuels.W. Kolby Smith and colleagues explain that the 2007 Energy Independence and Security Act (EISA) set a goal of increasing U.S. biofuel production from 40 to 136 billion gallons of ethanol per year by 2022. They point out, however, that gaps exist in the ability to establish realistic targets for biofuel production, which the law fills with assumptions about technological developments and the availability and productivity of farmland. In an effort to establish more accurate estimates, they used satellite data about climate, plant cover and usable land to determine how much biofuel the U.S. could produce.The satellite analysis found that to meet the EISA goals under current technology, farmers would either need to plant biofuel crops on 80 percent of their farmed land or plant biofuel crops on 60 percent of the land currently used to raise livestock. The authors reported that both options would significantly reduce the amount of food U.S. farmers produce. They also noted that research shows that increased farming could lead to more polluted freshwater and accelerate global climate change.The authors acknowledge funding from the [Energy Biosciences Institute](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767936&m=1805420&u=ACS&j=9241785&s=http://www.energybiosciencesinstitute.org/) and the [National Aeronautics and Space Administration](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767937&m=1805420&u=ACS&j=9241785&s=http://www.nasa.gov/).

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| http://images.magnetmail.net/images/clients/ACS/022912EST_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767938&m=1805420&u=ACS&j=9241785&s=http://web.1.c2.audiovideoweb.com/1c2web3536/022912est.jpg) for high-resolution image |

ARTICLE #3 **FOR IMMEDIATE RELEASE**“Bioenergy Potential of the United States Constrained by Satellite Observations of Existing Productivity”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767939&m=1805420&u=ACS&j=9241785&s=http://pubs.acs.org/stoken/presspac/presspac/abs/10.1021/es203935d)CONTACT:W. Kolby Smith, Ph.D.University of MontanaMissoula, Mont., 59812Email: bill.smith@ntsg.umt.edu [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gif ARTICLE #4 **FOR IMMEDIATE RELEASE: A PressPac Instant Replay\*New materials remove CO2 from smokestacks, tailpipes and even the air**Journal of the American Chemical Society

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| http://images.magnetmail.net/images/clients/ACS/010412SmokestackIstock_thumb.jpgNew materials remove CO2 from smokestacks, tailpipes and even the airCredit: iStock |

Scientists are reporting discovery of an improved way to remove carbon dioxide — the major greenhouse gas that contributes to global warming — from smokestacks and other sources, including the atmosphere. Their report on the process, which achieves some of the highest carbon dioxide removal capacity ever reported for real-world conditions where the air contains moisture, appears in the Journal of the American Chemical Society.Alain Goeppert, G. K. Surya Prakash, chemistry Nobel Laureate George A. Olah and colleagues explain that controlling emissions of carbon dioxide (CO2) is one of the biggest challenges facing humanity in the 21st century. They point out that existing methods for removing carbon dioxide from smokestacks and other sources, including the atmosphere, are energy intensive, don't work well and have other drawbacks. In an effort to overcome such obstacles, the group turned to solid materials based on polyethylenimine, a readily available and inexpensive polymeric material.Their tests showed that these inexpensive materials achieved some of the highest carbon dioxide removal rates ever reported for humid air, under conditions that stymie other related materials. After capturing carbon dioxide, the materials give it up easily so that the CO2 can be used in making other substances, or permanently isolated from the environment. The capture material then can be recycled and reused many times over without losing efficiency. The researchers suggest the materials may be useful on submarines, in smokestacks or out in the open atmosphere, where they could clean up carbon dioxide pollution that comes from small point sources like cars or home heaters, representing about half of the total CO2 emissions related to human activity.The authors acknowledge the [Loker Hydrocarbon Research Institute](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767940&m=1805420&u=ACS&j=9241785&s=http://www.usc.edu/dept/chemistry/loker/) and the [U.S. Department of Energy](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767941&m=1805420&u=ACS&j=9241785&s=http://energy.gov/).

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ARTICLE #4 **FOR IMMEDIATE RELEASE**"Carbon Dioxide Capture from the Air Using a Polyamine Based Regenerable Solid Adsorbent"[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767943&m=1805420&u=ACS&j=9241785&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/ja2100005)CONTACT:G. K. Surya Prakash, Ph.D.University of Southern CaliforniaLos Angeles, Calif. 90089Phone: 213-740-5984Fax: 213-740-5087Email: gprakash@usc.eduorAlain Goeppert, Ph.D.University of Southern CaliforniaLos Angeles, Calif. 90089Phone: 213-740-5978Email: goeppert@usc.eduorGeorge A. Olah, Ph.D.Loker Hydrocarbon Research InstituteUniversity of Southern CaliforniaLos Angeles, Calif. 90089Phone: 213-740-5976Email: olah@usc.edu**\* 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****Three scientific expeditions seek treasure under the ice in the Frozen Continent**Chemical & Engineering News

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| http://images.magnetmail.net/images/clients/ACS/022912CEN_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767944&m=1805420&u=ACS&j=9241785&s=http://web.1.c2.audiovideoweb.com/1c2web3536/022912CEN.jpg) for high-resolution image. |

In a modern iteration of the great age of Antarctic exploration of the 19th and 20th centuries, three teams of scientists are rushing to reach not the South Pole like Roald Amundsen, Robert Falcon Scott and Ernest Shackleton, but lakes deep below the surface of the Frozen Continent believed to hold scientific treasures. That quest by Russian, British and American scientific teams for water samples is the topic of an article in the current edition of Chemical & Engineering News, the weekly newsmagazine of the American Chemical Society (ACS), the world’s largest scientific society.C&EN European Correspondent Sarah Everts explains that the Russian mission to Lake Vostok captured global headlines recently when the team bored 2.5 miles through Antarctic ice to reach the lake’s ancient water, undisturbed for 15 million years. They want to analyze the lake for signs of life and clues about how life might survive in Earth’s most inhospitable places – or on other planets. But that step must wait until late in 2012 when the Antarctic winter ends, allowing travel into the Frozen Continent.But the Russians are only one team of several trying to understand what kind of life can survive in water beneath the Antarctic ice sheet and how these organisms might do it. The other two may yield even greater scientific treasures. One is an American team that plans to drill with hot water – rather than mechanically, as the Russians did – into a river of ice one half mile below the surface that carries water from several underground lakes to the ocean. Using the same method, British scientists will try to reach Lake Ellsworth, almost two miles below the surface, which may have been isolated for a million years. They hope to make a complete survey of life and nutrient sources in Ellsworth, which is not yet possible for the deeper, colder and more ancient Lake Vostok. ARTICLE #5 **FOR IMMEDIATE RELEASE**“Scientists Scope Out Frigid Lakes”This story is available at: [http://cenm.ag/antarctic](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767946&m=1805420&u=ACS&j=9241785&s=http://cenm.ag/antarctic)  [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gif **Journalists’ Resources** **News media registration for ACS’ 243rd National Meeting & Exposition in San Diego**News media [registration](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767947&m=1805420&u=ACS&j=9241785&s=https://www.xpressreg.net/register/acsa032/media/start.asp) is now open for the American Chemical Society’s (ACS) 243rd National Meeting & Exposition in San Diego, March 25-29, 2012. The event will include more than 11,500 reports on new discoveries in medicine and health, food and nutrition, energy, the environment and other fields where chemistry plays a central role. One of the largest scientific conferences of 2012, the meeting will take place at the San Diego Convention Center and area hotels. To view full news release about meeting registration, click [here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767948&m=1805420&u=ACS&j=9241785&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=222&content_id=CNBP_028895&use_sec=true&sec_url_var=region1&__uuid=077ccb29-4a64-4924-98b7-ed219e050a6d). **Press releases, briefings, and more from ACS’ 242nd National Meeting**[www.eurekalert.org/acsmeet.php](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767949&m=1805420&u=ACS&j=9241785&s=http://www.eurekalert.org/acsmeet.php) [http://www.ustream.tv/channel/acslive](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767950&m=1805420&u=ACS&j=9241785&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=17767951&m=1805420&u=ACS&j=9241785&s=http://www.insidescience.org/) to visit the Inside Science News website.**C&EN Video Spotlight: Exclusive Chinese Drug Firm Tour**C&EN business reporter Jean-Francois Tremblay got insider access to the Chinese drug R&D firm HEC Pharm, which is rapidly building new labs and company housing facilities in a bid to become a major innovator in both drug and energy research. The [video](http://www.mmsend88.com/link.cfm?r=800557068&sid=17790354&m=1805420&u=ACS&j=9241785&s=http://www.youtube.com/watch?v=UWX5caBrqFg&feature=youtu.be) includes a tour of the labs and a peek at a team-building exercise for the company’s sales force—military-style drills.This video pairs with a story in the Feb. 27 print issue of C&EN: R&D Shapes Up at HEC Pharm.[http://cenm.ag/hec](http://www.mmsend88.com/link.cfm?r=800557068&sid=17790355&m=1805420&u=ACS&j=9241785&s=http://cenm.ag/hec)**Must-reads from C&EN: Vulnerability to Infections May Increase During Sleep**That’s just one of a trove of new research discoveries showcased on C&EN’s Science & Technology Concentrates pages. For this week’s story about a key immune system gene that slows down during sleep — and much more, 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=17767952&m=1805420&u=ACS&j=9241785&s=http://www.acspressblog.com) highlights research from ACS’ 41 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=17767953&m=1805420&u=ACS&j=9241785&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=17767954&m=1805420&u=ACS&j=9241785&s=https://twitter.com/signup). Then visit [http://twitter.com/ACSpressroom](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767955&m=1805420&u=ACS&j=9241785&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=17767956&m=1805420&u=ACS&j=9241785&s=http://twitter.com/cenmag)> for the latest news in chemistry and dispatches from our blog, C&ENtral Science <[http://centralscience.org](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767957&m=1805420&u=ACS&j=9241785&s=http://centralscience.org)>.**ACS Press Releases** [Press releases](http://www.mmsend88.com/link.cfm?r=800557068&sid=17767958&m=1805420&u=ACS&j=9241785&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=17767959&m=1805420&u=ACS&j=9241785&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=17767960&m=1805420&u=ACS&j=9241785&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=17767961&m=1805420&u=ACS&j=9241785&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's 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=17767962&m=1805420&u=ACS&j=9241785&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=17767963&m=1805420&u=ACS&j=9241785&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=17767964&m=1805420&u=ACS&j=9241785&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=17767965&m=1805420&u=ACS&j=9241785&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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