

Charles Stark Draper Prize for Frances H. Arnold

The National Academy of Engineering has awarded its 2011 Charles Stark Draper Prize to Frances Arnold (California Institute of Technology, USA). This award recognizes her contribution to the field of directed evolution, a process which allows researchers to guide the creation of certain properties in proteins and cells. She shares this year's prize with Willem P. C. Stemmer (CEO of Amunix), who published a Review on directed evolution and biocatalysis in *Angewandte Chemie*.^[1a] Each winner receives US\$500,000.

After studying mechanical and aerospace engineering at Princeton University, Arnold worked at the Solar Energy Research Institute in Golden, Colorado. In 1980, she continued her studies focusing on biotechnology, and received her PhD in 1985 under the guidance of H. Blanch at the University of California, Berkeley. She then did postdoctoral research with I. Tinoco (UC Berkeley) and J. Richards (Caltech). In 1987, she took up a position of assistant professor at Caltech, where she is now professor of chemical engineering and biochemistry. Her group applies evolutionary processes to the engineering of biological systems (enzymes, metabolic pathways, genetic circuits, and ecosystems), and the results of laboratory experiments are used to elucidate biological design principles. She recently reported in *Chemistry—A European Journal* on variants of cytochrome P450 in drug development,^[1b] and in *ChemBioChem* on its use in selective hydroxylation.^[1c] Arnold is a member of the Editorial Advisory Board of *ChemBioChem*.

Heinz Maier-Leibnitz Prize for Christian P. R. Hackenberger

The German Research Foundation (DFG) has named the bioorganic chemist Christian Hackenberger (Free University of Berlin) among the winners of this year's Heinz Maier-Leibnitz Prize. The prize is valued at €16,000 and is awarded to young researchers for outstanding achievement.

Hackenberger studied chemistry at the University of Freiburg and at the University of Wisconsin/Madison (MSc in 1999 with S. H. Gellman). In 2003, he completed his PhD with C. Bolm at the RWTH Aachen. After postdoctoral research with B. Imperiali (2003–2005) at the Massachusetts Institute of Technology he moved to the FU Berlin as part of the DFG's Emmy Noether Program. This year Hackenberger was promoted to professor of bioorganic chemistry. His research interests focus on the development of chemoselective ligation strategies and the synthesis of modified peptides and proteins.^[2] Other recent honors

include the ADUC Prize of the GDCh for junior investigators and the Karl Winnacker Scholarship.

Benjamin Franklin Medal in Chemistry for Kyriacos C. Nicolaou

In April of this year, K. C. Nicolaou (University of California, San Diego and Scripps Research Institute, USA) received the 2011 Benjamin Franklin Medal in Chemistry for his "achievements in synthetic organic chemistry, particularly for the development of methods for preparing complex substances found in nature". The Franklin Institute Awards are among the oldest (established in 1824) and most prestigious science awards in the world and they honor "preeminent trailblazers" in science, engineering, and technology. The Committee members "evaluate the work of nominated individuals for its uncommon insight, skill, or creativity, as well as its impact on future research or application to benefit the public". Other eminent recipients of the Franklin Medal in Chemistry include G. M. Whitesides (2009), A. Eschenmoser (2008), and S. J. Danishefsky (2006).

Nicolaou studied chemistry in London and obtained his PhD in 1972 under the guidance of F. Sondheimer and P. J. Garratt. He then moved to the USA where he carried out postdoctoral research with T. J. Katz (Columbia University, New York) and E. J. Corey (Harvard University in Cambridge, MA). In 1976, he joined the University of Pennsylvania as professor, and in 1989 he accepted joint appointments at the University of California in San Diego and of The Scripps Research Institute. Furthermore, he has directed the synthetic laboratory at Biopolis (Singapore) since 2005. He is the co-author of numerous Communications and Reviews in *Angewandte Chemie* on topics that cover the chemistry, biology, and medicine of natural and designed molecules.^[3a] He is also the senior co-author of several popular books, including *Classics in Total Synthesis*, of which volume three appeared this year.^[3b] Nicolaou is a member of the International Advisory Board of *Angewandte Chemie*.

Frontiers of Knowledge Award for Gabor A. Somorjai

The 2010 BBVA Frontiers of Knowledge Award in Basic Sciences was presented to Gabor Somorjai (University of California, Berkeley) for his contributions to surface chemistry and catalysis. The award includes US\$550,000 in prize money.

Somorjai studied chemical engineering at the Technical University in Budapest (Hungary) before moving to the USA to do his PhD at UC Berkeley. He was awarded his doctorate in 1960 and then worked at IBM for a few years before returning to

Awarded ...



F. H. Arnold



C. P. R. Hackenberger



K. C. Nicolaou



G. A. Somorjai

UC Berkeley in 1964. He has a joint appointment as a Faculty Senior Scientist in the Materials Sciences Division, and Group Leader of the Surface Science and Catalysis Program at the Center for Advanced Materials, at the Lawrence Berkeley National Laboratory. Somorjai is a pioneer in the field of surface science and related analytical techniques. Look out for his forthcoming Minireview in *Angewandte Chemie* on molecular surface structure, composition, and dynamics at high pressures and at the solid-liquid interface.^[4] Other honors include the Priestly Medal awarded by the American Chemical Society (2008).



H. Waldmann

Wilhelm Manchot Prize for Herbert Waldmann

The recipient of the Wilhelm Manchot Prize for 2011 is Herbert Waldmann (Technical University of Dortmund and the Max Planck Institute of Molecular Physiology). This prize is given annually to an outstanding chemist and was presented this year for Waldmann's work on the analysis of the structure and function of proteins.

Waldmann completed his chemistry studies at the University of Mainz in 1985 with a doctorate under H. Kunz. He then worked as a postdoctoral fellow with G. M. Whitesides at Harvard University. He completed his habilitation in 1991 in Mainz and took up a position shortly thereafter at the University of Bonn; in 1993, he moved to the University of Karlsruhe. Since 1999, he has led the chemical biology group at the Max Planck Institute of Molecular Physiology along with a joint appointment as professor of biochemistry at the Technical University of Dortmund. Waldmann's group is involved in developing new synthetic methods and synthesizing compounds that can be used as

probes to study biological phenomena. Look out for his forthcoming Reviews in *Angewandte Chemie* on the Pictet-Spengler reaction in nature^[5a] and his discussion on biology-orientated synthesis.^[5b] Waldmann is a member of the International Advisory Board of *ChemBioChem* and the Editorial Board of *Angewandte Chemie*.

- [1] a) K. A. Powell, S. W. Ramer, S. B. del Cardayré, W. P. C. Stemmer, M. B. Tobin, P. F. Longchamp, G. W. Huisman, *Angew. Chem.* **2001**, *113*, 4068; *Angew. Chem. Int. Ed.* **2001**, *40*, 3948; b) A. M. Sawayama, M. M. Y. Chen, P. Kulanthaivel, M.-S. Kuo, H. Hemmerle, F. H. Arnold, *Chem. Eur. J.* **2009**, *15*, 11723; c) J. C. Lewis, S. M. Mantovani, Y. Fu, C. D. Snow, R. S. Komor, C.-H. Wong, F. H. Arnold, *ChemBioChem* **2010**, *11*, 2502.
- [2] a) R. Serwa, I. Wilkening, G. Del Signore, M. Mühlberg, I. Claußnitzer, C. Weise, M. Gerrits, C. P. R. Hackenberger, *Angew. Chem.* **2009**, *121*, 8382; *Angew. Chem. Int. Ed.* **2009**, *48*, 8234; b) D. M. M. Jaradat, H. Hamouda, C. P. R. Hackenberger, *Eur. J. Org. Chem.* **2010**, 5004.
- [3] a) K. C. Nicolaou, S. P. Ellery, J. S. Chen, *Angew. Chem.* **2009**, *121*, 7276; *Angew. Chem. Int. Ed.* **2009**, *48*, 7140; b) K. C. Nicolaou, J. S. Chen, *Classics in Total Synthesis III: Further Targets, Strategies, Methods*, Wiley-VCH, Weinheim, **2011**.
- [4] a) G. A. Somorjai, S. K. Beaumont, S. Alayoglu, *Angew. Chem.* **2011**, DOI: 10.1002/ange.201008214; *Angew. Chem. Int. Ed.* **2011**, DOI: 10.1002/anie.201008214.
- [5] a) J. Stöckigt, A. P. Antonchick, F. Wu, H. Waldmann, *Angew. Chem.* **2011**, DOI: 10.1002/ange.201008071; *Angew. Chem. Int. Ed.* **2011**, DOI: 10.1002/anie.201008071; b) S. Wetzel, R. Bon. K. Kumar, H. Waldmann, *Angew. Chem.* **2011**, DOI: 10.1002/ange.201007004; *Angew. Chem. Int. Ed.* **2011**, DOI: 10.1002/anie.201007004.

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