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scientist, but through my collaborations with clinicians, I had to transform myself into a molecular pathologist,” he explains. He says that pathologists have to make a certain number of diagnoses every day, so adding even five new things to their schedules for a proteomics discovery study is a burden. Therefore, he and his team narrow down the candidate biomarker list, generate antibodies, and then perform additional immunohistochemistry validation steps themselves. To avoid wasting pathologists’ time, only the best candidates are given to them for assessment. Once a pathologist is interested in some promising candidates, he or she will likely bring more clinical colleagues to the study.

Many clinicians who conduct research were formally trained in medicine and basic science, so they are interested in developing research collaborations. Dennis Sgroi, who is at Massachusetts General Hospital, earned M.D. and Ph.D. degrees and performed postdoctoral research in a genomics laboratory. As a translational scientist who works with patients, he says that he can identify clinical problems that could be solved with basic-science techniques. According to Omenn, NIH is revamping the clinical research training scheme for the U.S. “It’s a time of high expectations and what NIH Director [Elias] Zerhouni calls ‘transformation’ for clinical translational research,” he says. “NIH has invested billions and billions in basic science for medicine, and people want to see results.”

Omenn predicts that in the future, even more collaborations between clinicians and basic researchers will develop. “The emergence of validated biomarkers will probably be what will bring clinicians, basic scientists, and informaticians closer together,” he says. “Talking about things in the abstract is much less capable of attracting people’s detailed attention than having a useful application that can actually make a difference.” ▼

—Katie Cottingham

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## 2008 ACS national award winners



(Top, left to right) Daniel Chiu, Catherine Fenselau, Jack Freed, Adam Heller, Rustem Ismagilov. (Bottom, left to right) Susan Olesik, Susan Richardson, Frantisek Svec, Mark Wightman, Richard Zare.

Among the honors to be presented on April 8 at the 235th American Chemical Society (ACS) National Meeting and Exposition in New Orleans are:

**Daniel Chiu**, a professor at the University of Washington, won the National Fresenius Award for his pioneering methods that probe complex biological processes at the single-molecule level with applications that advance the understanding of cellular biology and neuronal systems. Chiu’s contributions include counting the number of a particular type of protein on a single vesicle, trapping and combining aqueous droplets, removing and reinstalling organelles, and NIR uncaging.

**Catherine Fenselau**, *Analytical Chemistry*’s associate editor for MS and professor at the University of Maryland College Park, won the Field and Franklin Award for Outstanding Achievement in Mass Spectrometry for her sustained excellence in the application of MS to fundamental biomedical problems and for service to her profession. Fenselau’s work has encompassed bacterial characterization, the “middle molecules” concept, isotopic distributions in larger molecules, and enzymatic proteolysis to

incorporate  $^{18}\text{O}$  labels into peptides.

**Jack Freed**, a professor at Cornell University, won the E. Bright Wilson Award in Spectroscopy for his development of electron spin resonance (ESR) spectroscopy into a powerful methodology and his applications to problems of dynamics and structure in condensed phases. Freed’s body of work includes ESR fundamentals, the theory of slow-motion ESR and NMR spectra, 2D FTESR, the multifrequency approach, and double quantum coherence.

**Adam Heller**, professor emeritus at the University of Texas, received the Award for Creative Invention for fundamental contributions to the development of technological products that improved the quality of life for millions across the globe. In addition to being a faculty member, Heller cofounded a company that designed and manufactured a blood glucose monitoring device that uses such a small quantity of blood that the assay is painless.

**Rustem Ismagilov**, an assistant professor at the University of Chicago, earned the Award in Pure Chemistry for using chemical principles and developing new tools to elucidate mecha-

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nisms by which biological functions arise from a complex network of interacting reactions. His research includes laminar flow in microchannels, rapid mixing and fast kinetics in microfluidic devices, and characterization of blood clotting by using an abiological system.

**Susan Olesik**, a professor at Ohio State University, received the Award for Encouraging Disadvantaged Students into Careers in the Chemical Sciences. Olesik developed an outreach program for disadvantaged elementary school children that teaches the basics of physical and biological sciences. She also developed unique carbon materials that were used to create a GC column used on the Cassini–Huygens spacecraft.

**Susan Richardson**, a research chemist for the U.S. Environmental Protection Agency, earned the Award for

Creative Advances in Environmental Science and Technology for her pioneering work in applying MS to drinking-water disinfection byproduct analysis for the protection of human health. Richardson used multidisciplinary approaches to identify chemicals in industrial and municipal wastes.

**Frantisek Svec**, a researcher at the University of California, won the Award in Chromatography for his outstanding seminal contribution to the design and development of novel monolithic columns based on rigid porous polymers and their major impact on modern chromatography. His recent work concerns capillary and microfluidic formats for micro- and nanoLC.

**Mark Wightman**, a professor at the University of North Carolina Chapel Hill, received the Award in Analytical

Chemistry for developing microscopic electrodes that profoundly diminished the time and length scales in electrochemistry and revolutionized the analysis of neurotransmitter concentrations near single neurons and in living brain. Wightman's group detected for the first time the exocytotic release of dopamine from single vesicles with subsecond temporal resolution.

**Richard Zare**, a professor at Stanford University, won the George C. Pimental Award in Chemical Education for inspiring countless students through his passion for chemistry, his high expectations of accomplishment, and his unbounded commitment to opening pathways to the scientific and educational enterprise at all levels. Zare is a skilled communicator of science to researchers and general audiences.