

Fowler Receives de Hevesy Nuclear Pioneer Award

Joanna S. Fowler, PhD, senior chemist emeritus at the U.S. Department of Energy (DOE) Brookhaven National Laboratory (BNL; Upton, NY); special volunteer at the National Institutes of Health (Bethesda, MD); emeritus professor in the Department of Chemistry, Stony Brook University (NY); and adjunct professor in the Psychiatry Department, Mount Sinai School of Medicine (New York, NY), was the recipient of the 2017 Georg Charles de Hevesy Nuclear Pioneer Award for her contributions to nuclear medicine. She was presented the award on June 11 at the SNMMI Annual Meeting in Denver, CO. “Dr. Fowler is a true pioneer of nuclear medicine and molecular imaging,” said 2016–2017 SNMMI President Sally W. Schwarz, MS, RPh, BCNP. “Her research on FDG PET has been foundational to advances in the field, and she has continued groundbreaking research throughout her career”.

Fowler received her PhD in chemistry from the University of Colorado (Boulder) and did her postdoctoral work at the University of East Anglia (Norwich, UK) and at BNL, where she worked with and led investigative teams for more than 4 decades. Beginning in the 1970s, together with other researchers, she developed ^{18}F -FDG to noninvasively measure brain glucose metabolism. Now the most widely used radiotracer in basic research and clinical settings, ^{18}F -FDG has facilitated extraordinary advances in the study of the human brain and in tumor and lesion detection. At the 2016 SNMMI Annual Meeting, she delivered the annual Henry N. Wagner, Jr., Lecture, titled “Working against time: Designing and synthesizing FDG for the first human studies in 1976,” in which she provided a personal perspective on the development and first clinical use of the tracer.

Fowler’s research interests center on radiotracer chemistry, focusing on using PET to image drug pharmacokinetics and the brain circuits that are disrupted in drug addiction. Her early studies included imaging to elucidate the pharmacokinetics of cocaine in the human brain, with resulting data that powered a new generation of studies on the drug’s addictive and reinforcing properties. Her group also focused on neurotransmitters, particularly monoamine oxidase, and their role in mediating rewards in smoking. Her most recent work is on developing methods to understand relationships among genes, brain chemistry, and behavior and on using PET to facilitate the introduction of new drugs into clinical practice.

She has authored more than 350 peer-reviewed publications and received numerous awards, including the Paul

Aebersold Award from SNMMI (1997), the E. O. Lawrence Award in Life Sciences from the DOE (1999), and the Francis P. Garvan–John M. Olin Medal (1999) and Glenn T. Seaborg Award for Nuclear Chemistry (2002) from the American Chemical Society (ACS). She was elected to the National Academy of Sciences in 2004 and is a recipient of the National Academy of Sciences Award in Chemical Sci-



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ences. In 2009 she was presented the National Medal of Science by President Barack Obama in a White House ceremony, where she was cited “For her pioneering work in chemistry involving the synthesis of medical imaging compounds and her innovative applications of these compounds to human neuroscience, which have significantly advanced our understanding of the human brain and brain diseases including drug addiction.” Fowler also received the International Union of Pure and Applied Chemistry Distinguished Women in Chemistry Award (2011) and the Carothers Award from the Delaware Section of the ACS (2016). She holds 8 patents for radiolabeling procedures.

SNMMI presents the Georg Charles de Hevesy Nuclear Medicine Pioneer Award to an individual for outstanding contributions to the field of nuclear medicine. De Hevesy received the 1943 Nobel Prize in chemistry for his work in determining the absorption, distribution, metabolism, and elimination of radioactive compounds in the human body. SNMMI has presented the de Hevesy Award every year since 1960 to honor groundbreaking discoveries and inventions in the field of nuclear medicine. The list of previous recipients of this award features numerous Nobel laureates—including Ernest Lawrence, PhD, who introduced the world’s first cyclotron for production of radionuclides, and Glenn Seaborg, PhD, who discovered more than half a dozen new elements.

“The de Hevesy award means a lot to me personally, because it highlights the key role that radiotracer chemistry has played in developing tools that make a difference to human beings,” said Fowler. “I am pleased that research efforts from the nuclear medicine/molecular imaging community have played such an important role in understanding mechanisms underlying many brain diseases and that they are beginning to change the stigma associated with addiction and other brain disorders.”