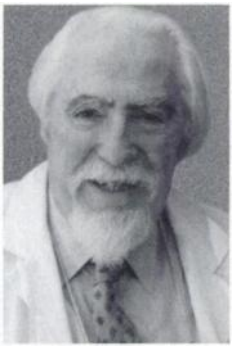
Prestigious Awards Presented to SNM Members

U.S. Energy Secretary Bill Richardson chats with Fermi Award-winners Maurice Goldhaber, PhD, and Michael Phelps, PhD.



Walter Wolf, PhD, winner of the Paul C. Aebersold Award.

Fermi Award Presented to Inventor of PET

On April 16, Michael Phelps, PhD, was presented with the Enrico Fermi Award, citing his "invention of Positron Emission Tomography (PET), and his seminal contributions in its use in research and patient care in neurological disorders, cardiovascular disease and cancer." Energy Secretary Bill Richardson presented the award to Phelps at a ceremony in the Diplomatic Reception Rooms at the U.S. Department of State. Maurice Goldhaber, PhD, was the other award recipient and was cited for "his lifetime of distinguished research in nuclear and particle physics, including his experiments providing key support for the standard model" and for his leadership and vision as a past director of Brookhaven National Laboratory.

In presenting the award to Phelps, Richardson said, "Your hard work and creativity have given us a powerful, new medical tool—positron emission tomography—that provides an important window on how the body functions. Like all science, your work was accomplished in research settings that were both competitive and collegial in nature, in which you built upon the work of others and they, in turn, shared your knowledge."

In accepting the $100,000 honorarium and gold medallion, Phelps, who is chairman of the Department of Molecular and Medical Pharmacology at the University of California at Los Angeles (UCLA) School of Medicine, expressed his appreciation for the research funding that he received from the Department of Energy (DOE) over the decades. "What little funding I had in the beginning was all from the DOE," he said. He recalled that in the early 1970s, he and his two colleagues, Ed Hoffman, PhD, who works with Phelps at UCLA, and Ed Coleman, MD, now at Duke University, drove in a tiny Volkswagen from Washington University in St. Louis up to Oak Ridge National Lab in Illinois to convince the lab directors to let them use their cyclotron to produce positron-emitting radionuclides. By 1973, Phelps was able to noninvasively image certain biological processes in the body using the first PET scanner.

Phelps is now working on imaging gene expression using PET and has completed mouse trials. "We are trying to look at the genetic code instructions that are the basis for all cancers to see how the virus resets the code in each cell telling it to replicate or migrate."

Aebersold Award Recognizes Pharmacokinetic Imaging Research

In recognition of his pioneering work with radionuclides in biochemical research, Walter Wolf, PhD, is being awarded the 1999 Paul C. Aebersold Award, which will be presented this month at the SNM Annual Meeting in Los Angeles. Wolf's recent work has focused on the establishment of a Pharmacokinetic Imaging Program at the University of Southern California (USC), where he is a distinguished professor of pharmaceutical sciences. Pharmacokinetic (PKI) imaging (originally called radiopharmacokinetics) entails the noninvasive study of drugs (either by radiolabeling them or by using the ability of selected nuclei, such as ^{19}F or ^{1}H, to be detected by NMR methods) in order to determine their effectiveness in patients. This can help physicians understand the drug's mechanism of action to help tailor therapy for individual patients. It can be especially useful for cancer therapies which often involve a complex array of multiple treatments.

Through his research, Wolf discovered that the amount and the rate at which the drug is absorbed by the tumor site will be key in determining the response of that site to therapy. He also found that these determinations cannot be done using blood measurements, the basis of classical pharmacokinetics, but that direct measurements of the drug at the tumor site were essential.

When Wolf started the radiopharmacy program

at USC, "the question he asked was: what unique and novel studies, of both scientific and clinical interests, needed to be done with radiolabeled agents?" said William Blahd, MD, a colleague of Wolf's who is director of nuclear medicine at the VA Greater Los Angeles Health Care System. "He concluded in the late 1960s that noninvasive studies of drug biodistribution, targeting and metabolism were one of the new frontiers to be conquered. And the work he has been doing ever since has all focused on achieving that goal."

Wolf was also active in developing the first formal training program in the U.S. for radiopharmacists, which was established at USC in 1969. He worked with the state boards of pharmacy in an effort to gain national recognition for the first pharmacy specialty and was instrumental in establishing the Board of Pharmaceutical Specialties.

Over the past ten years, Wolf has focused his research on documenting the clinical relevance of the PKI studies, both in the management of cancer patients and in the development of new treatments for cancer. He and his colleagues have performed studies with 5-fluorouracil to illustrate the potential of ^{19}F-MRS in allowing the determination of intratumoral pharmacokinetics of that drug (*Lancet* 1994 [343]; 1184-1187). He used 195mPt-cisplatin to develop new approaches to pharmacokinetic studies with radiolabeled drugs (*Proc. Am. Assoc. Canc. Res.* 1994; 2142).

While earning his PhD at the University of Paris in 1956, Wolf elucidated the mechanism of biosynthesis of the thyroid hormones by synthesizing and identifying two of the four hormones produced by the thyroid gland, 3,3'5' triiodothyronine (reverse T3) and 3,3'-diiodothyronine. He also developed a method to microsynthesize high-specific-activity radioiodinated compounds at the microgram level and participated in inventing the first automated paper chromatogram scanner. "These themes on integrating chemistry, kinetics and instrumentation have remained as a recurring theme in Walter's work," said Blahd.

De Hevesy Award Given to Cancer Therapy Researcher

S. James Adelstein, MD, PhD, a professor of radiology at Harvard Medical School, will be honored with the Georg de Hevesy Award for his pioneering use of radionuclides for cancer therapy at the SNM Annual Meeting this month in Los Angeles. "In the mid-1970s, Jim [Adelstein] was the first to examine and establish the therapeutic potential of Auger electron-emitting radionuclides, such as iodine-125, in tumor-bearing animals," said Amin Kassis, PhD, associate professor of radiology and director of radiation biology at Harvard Medical School. "A few years later, he was the first to show that the alpha-particle emitter astatine-211 could cure mice of ovarian cancer."

Adelstein continued his animal studies on alpha emitters in the 1980s and discovered that a monoclonal antibody radiolabeled with bismuth-212 was effective as a cancer therapy in mice. Based on Adelstein's earlier work, several groups of researchers are currently testing alpha-particle emitters to see if they can eradicate tumors in cancer patients. Continuing to pursue his goal of developing new cancer therapeutics, Adelstein is conducting animal studies on iodo-deoxyuridine labeled with iodine-125.

Beyond his research on cancer therapeutics, Adelstein has been concerned with understanding the health and safety implications of low-level radiation emitted by diagnostic radiopharmaceuticals used in nuclear medicine. Through his research, he has demonstrated the limitations of conventional MIRD [Medical Internal Radiation Dose], which has led to an accurate delineation of the radiation risks to nuclear medicine patients who are injected with Auger-electron-emitting radiopharmaceuticals. He currently serves as vice president of the National Council on Radiation Protection and Measurements.

Adelstein graduated from the Massachusetts Institute of Technology with a B.S. and M.S. in 1949 and completed his M.D. at Harvard Medical School. He then received a Ph.D. in biophysics from MIT. In 1960, Adelstein began his research on radiation biophysics at Harvard Medical School. His research was focused on radiation-induced changes in biological macromolecules, enzymes and nucleoproteins. After being appointed as associate professor of radiology at Harvard, Adelstein began to build a nuclear medicine department that brought together education, research and service. The program began at Peter Bent Brigham Hospital (Brigham and Women's Hospital) and then grew to include Children's Hospital, Beth Israel Hospital and the Dana-Farber Cancer Institute. He has served as the director of the Joint Program in Nuclear Medicine at all the hospitals for nearly 30 years.

S. James Adelstein, MD, will receive the 1999 Georg de Hevesy Award at the Society's Annual Meeting.