

## EDUCATION AND RESEARCH FOUNDATION HONORS MARK A. MINTUN, MD, WITH 9TH ANNUAL TETALMAN MEMORIAL AWARD

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**M**ark A. Mintun, MD, assistant professor of radiology and assistant professor of neurology at Washington University School of Medicine, received the Ninth Annual Tetalman Memorial Award at a presentation last month during the Society of Nuclear Medicine Annual Meeting.

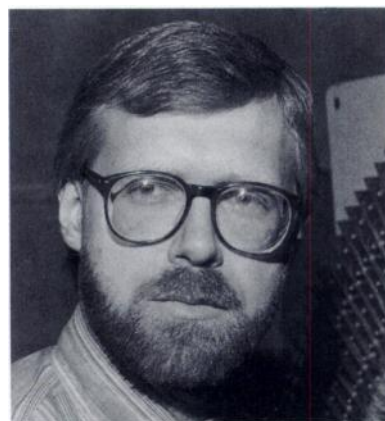
Dr. Mintun was “chosen by a committee of four senior level researchers from a pool of seven investigators, each noteworthy in credentials and accomplishments... and was selected as the outstanding young investigator in the field of nuclear medicine... He has made impressive contributions to many areas of PET technology including the development of methods to quantitate brain blood flow and techniques to evaluate receptor binding and lung physiology,” said Andrew T. Taylor, Jr, MD, chairman of the Tetalman Award Selection Committee. Praising Dr. Mintun for his deep commitment to nuclear medicine research, Dr. Taylor added, “He has been very active and committed to the field of nuclear medicine. Based on his past achievements, we expect that this will continue into the future.”

In a letter supporting Dr. Mintun's application for the award, Michael J. Welch, PhD, professor of radiation chemistry in radiology at Washington University, wrote, “... Mark Mintun is one of the brightest individuals ever to select nuclear medicine as a

career... His work in PET modeling, PET receptor modeling, the development of methods for the functional mapping of the human brain by PET as well as the studies of receptors in breast cancer and the quantitative measurement of lung function with PET are all pieces of work which individually qualify Dr. Mintun as a strong candidate for the Tetalman Award.”

Each year the Education and Research Foundation selects the most promising nuclear medicine investigator under the age of 36 for the Tetalman Memorial Award. The Award honors the memory of Marc Tetalman, MD, a highly respected and productive clinician and researcher who was killed during a robbery at the SNM Annual Meeting in 1979. At this year's Award's presentation, Susan Weiss, CNMT, president of the E&R Foundation presented Dr. Mintun with a plaque and \$2500.

Dr. Mintun, who was born in Lake Forest, Illinois in 1956, earned a Bachelor of Science in Chemical Engineering from the Massachusetts Institute of Technology in 1977. Later that year, he embarked on his medical studies at the University of Kansas Medical School, but transferred to Washington University Medical School in 1979 to pursue his research interests. After receiving his medical degree from Washington University, Dr. Mintun stayed in the area to intern at the Jewish Hospital of St.



*Mark A. Mintun, MD*

Louis. He then returned to Washington University to receive research fellowship training in neurology followed by residency training in nuclear medicine.

### **Began Cerebral Blood Flow Studies in Medical School**

Dr. Mintun began to study various applications of PET technology as a medical student at Washington University in the laboratories of Michel M. Ter-Pogossian, PhD, and Marcus E. Raichle, MD. While learning the basic principles of PET, Dr. Mintun adapted the bolus autoradiographic model to yield parametric images of cerebral blood flow. This work earned him the Hugh M. Wilson Award for medical student research in radiology.

After his medical internship, Dr. Mintun continued to study PET ap-

plications, focusing initially on developing a quantitative model for the regional measurement of cerebral oxygen metabolism with PET and  $^{15}\text{O}$ . He developed a technique that estimates regional oxygen consumption from the  $^{15}\text{O}$  distribution, taking into account vascular distribution of  $^{15}\text{O}$  as well as the washout of  $^{15}\text{O}$ -labeled water of metabolism. The method has found many applications in the study of the human brain, particularly stroke research and studies of changes in regional brain metabolism that accompany sensory stimulation.

Dr. Mintun has also applied PET in efforts to characterize neuroreceptors with radiolabeled ligands, initially in a series of experiments with baboons using fluorine-18-spiroperidol. Through these studies, he demonstrated the region-specific uptake of this dopamine-receptor ligand in the striate cortex and developed a model for the regional quantification of the receptor population. This work led to the first report of in vivo visualization of neuroreceptor distribution as well as the first attempt to quantitate receptor kinetics with PET.

Both Dr. Ter-Pogossian and Dr. Raichle had high praise for the young investigator who has worked with them on and off since medical school. In support of Dr. Mintun's application, Dr. Raichle, professor of neurology and professor of radiology at Washington University, wrote, "using techniques developed by Mark, we have been able to take PET to new levels of sophistication in the study of the human brain exploring changes in neuronal activity as manifested by changes in blood flow with a precision of 1-2 millimeters. With his techniques, we have successfully tackled issues ranging from language to the expression of emotion [and] the study of diseases. . . ."

"Mark Mintun is deeply interested in research and strongly committed

to this field of endeavor. . . ." wrote Dr. Ter-Pogossian, professor of radiation sciences at Washington University, in his letter of support. "He is much interested in continuing his research efforts for which he is exceptionally well qualified through his engineering background."

R. Edward Coleman, MD, professor of radiology and director of nuclear medicine at Duke University Medical Center, who has followed Dr. Mintun's work since Dr. Mintun's neurology research fellowship at Washington University, also has praised Dr. Mintun's research accomplishments. "Dr. Mintun has been instrumental in validating the determination of brain blood flow with intravenous  $^{15}\text{O}$  water. He has played an important role in demonstrating its utility for mapping brain function, he has developed the quantitative model for the in vivo assessment of drug binding sites using PET, and he has participated in several animal model studies of various drugs in the brain. . . . His research efforts are going to pave the way for many of us who are beginning research and clinical efforts in PET."

Barry A. Siegel, MD, director of nuclear medicine at Washington University, called Dr. Mintun an "innovative investigator, who has remarkable insight into scientific and technical problems." Dr. Siegel highlighted Dr. Mintun's work in developing "approaches to evaluate PET data for mapping the brain and for measuring lung permeability" as among his most significant accomplishments.

### Lung Physiology Research With PET

More recently, Dr. Mintun has collaborated with Daniel P. Schuster, MD, associate professor of internal medicine, in the development of methods to investigate lung disease, concentrating on methods to enable quantitative PET measurements of

regional blood flow, blood volume, extravascular density, and endothelial protein permeability. The researchers have developed a method to measure regional pulmonary blood flow with  $^{15}\text{O}$  water.

In addition, Dr. Mintun has been working with Drs. Welch and Siegel on research to evaluate the usefulness of a labeled estrogen compound for the identification of estrogen receptors in human breast cancer. The investigators "hope that this method for receptor-specific visualization of breast tumors can lead to a technique allowing better management of these patients, particularly in regards to choice of hormonal therapies, such as tamoxifen," said Dr. Mintun.

Dr. Mintun continues to work with Dr. Raichle in the development of methods for the functional mapping of the human brain by PET. Dr. Mintun said that identifying areas of the brain involved in processing a task requires two PET scans, both measuring cerebral blood flow — one at rest and one taken during a task. He has developed a method of objectively searching "subtraction" images (rest scan subtracted from task scan) that detects and localizes the areas of neuronal activation with an accuracy up to a few millimeters, depending on the magnitude of the blood flow change. He has also developed a technique to improve the sensitivity of the overall approach by summing the image subtraction data from different subjects in a standard brain stereotactic coordinate system.

"An important part of this future work will hopefully be the application of functional brain mapping in the clinical arena. This powerful tool, currently used to gain insights into the organization of the human mind, should also be able to give important clinical information about the functioning of an individual brain." To achieve this, added Dr. Mintun, "the

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act with DOE and continues to support Cintichem very strongly on this issue." Regarding the timetable DOE has set forth for the assessment, he added, "If Cintichem can live with this, then it's not an immediate problem. But we've got to follow this very closely. . . . We may have to go to the White House."

Whether DOE sticks to the schedule or not, the suspension could continue for months if the results of the assessment, positive or negative, must be circulated for public comment or even over a year if the assessment is negative and a full impact statement must be carried out. However, according to Mr. Smith, DOE is not about to let that happen. "We recognize the importance [of Cintichem's operations] to the radioisotope community, since they are the sole domestic source [of these radioisotopes]," he said. If DOE must do the impact statement, he added, "we would maybe pursue making the distinction" between spent reactor fuel and target material. "We are looking at the overall Atomic Energy Act to see if there are any provisions that would allow us to receive the shipments. . . . If Cintichem and the medical community demonstrated a negative impact, the department would be obligated to try to solve that problem."

Sarah M. Tilyou

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scanning and data analysis techniques need to be optimized to increase sensitivity and specificity of detecting areas of functional activation in a single patient." He recently received the Radiological Society of North America Research Scholars Award for a proposal related to this goal.

In a relatively short time, Dr. Mintun has established himself as a dedicated researcher in the field of nuclear medicine. In addition to his academic and research responsibilities, Dr. Mintun holds a consulting position with Mallinckrodt, Inc., for which he provides clinical problem solving support services; he is a reviewer for the *Journal of Nuclear Medicine*, *Radiology*, and the *Journal of Cerebral Blood Flow and Metabolism*; and he has recently served as a site visit review member for the National Institutes of Health. His Society memberships include The Society of Nuclear Medicine, the American College of Nuclear Physicians, the American Medical Association, and the Radiologic Society of North America.

His efforts have earned him the respect of his colleagues and peers. Dr. Ter-Pogossian concluded in his letter of support, "Mark Mintun will produce lasting contributions to the field of nuclear medicine."

Sarah M. Tilyou

## Board Elects JNM Editor

The Board of Trustees elected H. William Strauss, MD, as the Editor of *The Journal of Nuclear Medicine*, for a five-year term to commence January 1, 1990. In electing Dr. Strauss, director of the division of nuclear medicine at Massachusetts General Hospital and professor of radiology at Harvard Medical School, the Board accepted the unanimous choice of a subcommittee of the Publications Committee that was formed to recommend a candidate for editor.

Thomas P. Haynie, MD, chairman of the department of nuclear medicine, James E. Anderson Professor of Nuclear Medicine, and professor of medicine at the University of Texas M.D. Anderson Cancer Center, will continue his editorship through the December, 1989 issue, but as of July 1, 1989, all manuscripts submissions should be sent to Dr. Strauss at *The Journal of Nuclear Medicine*, Room 5406 Massachusetts General Hospital East, Building 149, 13th St., Charlestown, MA 02129. ■

- The 125% is to be decreased to 120% in 1990, and 115% in 1991 and thereafter.

### Medicare/Patient Cost Share— 80/20 Percent

The Medicare amount paid is not

the allowed amount by Medicare, but only 80%, with 20% copay by the patient. Similarly, the new Medicare fee schedule represents the same ratio; that is, 80% will be paid by Medicare, with 20% copay for participating physicians.

Also remember that if, for example, the practice bills Medicare \$60 for a procedure, the allowed may be \$40, of which the carrier pays \$32 (or 80 percent), if the radiologist participates. Don't confuse billing amounts, allowed amounts, and paid amounts.