

## NUCLEAR CHEMISTRY'S 'TWO ALANS' SHARE BASIC SCIENCE AWARD

Researchers helped change technetium compounding from alchemy to chemistry.

**T**WO CHEMISTS WHOSE work together advanced the application of technetium chemistry to the design of useful radiopharmaceuticals are the recipients of the 1993 Paul C. Aegersold Award for Outstanding Achievement in Basic Science Applied to Nuclear Medicine.

Alun Jones, PhD, associate professor of radiology at Harvard Medical School and Alan Davison, PhD, professor of chemistry at Massachusetts Institute of Technology, have worked for more than a decade on the design and characterization technetium complexes and share credit for some of the most important strides in the annals of the science of nuclear medicine.

"Their results have been a significant part of the knowledge that has turned the compounding of technetium agents from alchemy to chemistry," says S. James Adelstein, MD, PhD, Paul C. Cabot Professor of Medical Biophysics at Harvard Medical School.

"It's quite unique that two people are receiving the Aegersold Award but I'm not surprised it's these two," says Jim Kronauge, PhD, assistant professor of radiology at Brigham and Women's Hospital. "They have had a unique and very successful collaboration. Their work has become so intertwined that people often refer to Drs. Jones and Davison as 'the two Alans.'"

"They are both terrific scientists and very gifted teachers," says Mike Abrams, PhD, manager of biomedical research worldwide with Johnson-Matthey, Inc. who did his graduate work at MIT under Dr. Davison from 1979 to 1983. "They provided a terrific environment for doing research and developing

the talents of graduate students." Dr. Abrams says that seminal experiments by his former teachers made way for the development of now indispensable <sup>99m</sup>Tc labeled radiopharmaceuticals like MAG<sub>3</sub> and sestamibi (<sup>99m</sup>Tc-methoxy isobutyl isonitrile).

Dr. Kronauge says the two scientists complement each other, coming from different backgrounds. Dr. Davison is a coordination chemist whose early work probing the structure of bio-organic complexes earned him a professorship at MIT. The nuclear chemist Dr. Jones entered the field of radiopharmaceutical development shortly after earning his doctoral degree and began working on technetium-labeled bone scanning agents.

"These chemists have made fundamental contributions to the science and practice of nuclear medicine," says B. Leonard Holman, MD, chairman of the department of radiology and Cook Professor of Medicine at Brigham and Women's Hospital. Dr. Holman, who has worked with both chemists for two decades, gives equal weight to Davison's and Jones's contributions to the synthesis of technetium-based radiopharmaceuticals.

"Davison brings to the partnership an amazing knowledge of metalo-chemistry and a highly creative intellect which has resulted in truly creative approaches to our understanding of technetium chemistry and the application of this understanding to practical and useful radiopharmaceuticals." he says. "Jones has been equally creative in shaping the nature of the basic investigations to produce structures which have had enormous functional utility in cardiac,

oncologic and renal physiology."

The development of the isonitrile family, Dr. Holman says, led to the "single most exciting radiopharmaceutical" for the evaluation of myocardial perfusion (sestamibi). "This agent may well have additional applications as a biochemical probe allowing us to look at mitochondrial membrane viability," he says.

Both chemists are natives of the United Kingdom. Dr. Davison was born in Ealing, England and Dr. Jones hails from Rhyl, Clwyd, Wales. Dr. Davison received his PhD and DIC in chemistry from Imperial College of Science and Technology, in 1962. His first academic appointment was in 1962 at Harvard where he was a chemistry instructor. In 1964, he went to MIT where he served as an assistant and associate professor of chemistry before becoming a full professor in 1974.

From 1967 to 1969, Dr. Jones was a research associate at the Institute for Nuclear Physics Research in Amsterdam. He served as an associate and principal associate in radiology at Harvard Medical School from 1971 to 1979 before becoming an assistant professor in 1979. Dr. Jones became associate professor of radiology in 1982.

The Society of Nuclear Medicine honors with the Paul C. Aegersold Award the researcher or, as in this year's case, researchers who demonstrate outstanding achievement in basic science applied to nuclear medicine. This award is named in honor of Dr. Paul Clarence Aegersold who contributed greatly to the application of nuclear physics to medicine and biology.

*Mark A. Newman*