

**MEMORIAL RESOLUTION OF THE FACULTY
OF THE UNIVERSITY OF WISCONSIN-MADISON**

ON THE DEATH OF PROFESSOR EMERITUS MUTTAIYA SUNDARALINGAM

Professor Emeritus of Biochemistry Muttaiya Sundaralingam and his wife Indrani perished on December 26, 2004 in the tsunami while vacationing in Trincomalee, Sri Lanka.

Muttaiya Sundaralingam was born in Taiping, Malaysia, on September 21, 1931, and was educated at the University of Ceylon-Colombo, graduating with a BSc in 1956. He immigrated to the United States in 1958 and received his Ph.D. degree at the University of Pittsburgh in 1961. He did postdoctoral work at the School of Medicine of the University of Washington from 1962 until 1965. He was a postdoctoral research associate at the Children's Cancer Research Foundation and Harvard Medical School in Boston in 1965-66. He was an associate professor of chemistry at Case Western Reserve University from 1966 to 1969. Professor Sundaralingam moved to the University of Wisconsin-Madison in 1969 where he served as professor of biochemistry and Steenbock professor of biomolecular structure. After retiring in 1989, he accepted a position as Ohio regents eminent scholar and professor of chemistry and biochemistry at The Ohio State University. He retired from that position in 2002.

Professor Sundaralingam put his colleagues at ease with his friendly disposition and his insistence that they address him as "Sunda". He was educated in chemistry, with x-ray crystallography as his principal experimental method. He retained a deep interest in and appreciation for chemistry as his research led him into x-ray diffraction analysis of biologically important molecules and ultimately biological macromolecules. Sunda made vital contributions to the detailed structures of nucleosides and nucleotides; to the conformational analysis of nucleic acids, including the DNA duplex, 5sRNA, and transfer RNA. He elucidated the stereochemical principles that govern the structures of nucleic acids and determined three-dimensional structures of nucleic acid-drug complexes, protein-nucleic acid complexes, and RNA-DNA hybrid duplexes. He made contributions to the structures of proteins, including troponin C, phospholipase A2, flavodoxin, calmodulin, α -lactalbumin, and high potential iron protein,

Sunda's main interest was nucleic acid structure. In early work, he characterized the two principal conformers of the ribosyl ring in nucleosides and nucleic acids, the 2'-endo-3'-exo and 3'-endo-2'-exo conformations, in a paper published in the Journal of the American Chemical Society in 1972. This paper became a classic in nucleic acid chemistry and has been cited hundreds of times in scientific articles. The conformational transition between these structures has become part of the core of nucleoside, nucleotide and nucleic acid chemistry, and is invoked in explaining many aspects of the biological functions of these molecules. Sunda solved the structures of numerous nucleotides and nucleotide analogs. He and his associates chemically synthesized the oligonucleotides needed for producing and crystallizing models for his detailed studies of sequence effects on nucleic acid structure. He deposited more than 80 structures of nucleic acids and oligonucleotides, including many duplexes, in the Protein Data Bank.

Sunda brought protein crystallography to the University of Wisconsin-Madison. In collaboration with Professor Marion Greaser, he determined the structure of troponin C. This discovery contributed significantly to muscle research. Sunda subsequently determined the three-dimensional structures of several additional proteins. But his true calling was nucleic acid research, and the vast majority of the more than 350 scientific articles he published dealt with the structures of nucleosides, nucleotides, and nucleic acids, with special attention to interactions within double helical oligonucleotides.

Sunda was an interactive scholar who collaborated widely with colleagues. His collaborators on this campus included Robert M. Bock, W.W. Beeman, W. Wallace Cleland, John L. Markley, and Marion L. Greaser. He also collaborated with research associates in the Cleland lab on the structures of metal-nucleotides.

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Sunda made important contributions to education at this university. He re-instituted the Graduate Program in Biophysics. He trained a number of graduate students here, several of whom became prominent scholars in their own right as macromolecular crystallographers at leading institutions, including the University of Texas, The Scripps Institute, the University of Michigan, and Harvard University.

Sunda's life and that of his wife ended in tragedy. Sunda overcame a much earlier tragedy, childhood polio, which left him with a disability. He was not by nature simply a survivor: he triumphed over polio and moved forward with vigor. We choose to remember him for his vitality, for his friendliness, for his infectious laugh, and for the ease with which he got around this campus, with his cane, his Cadillac, and his special parking permit. He made a positive statement about living and working by the way he lived his own life.

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