THE CHESAPEAKE CHEMIST

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THE MARYLAND CHEMIST OF THE YEAR

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PAUL O. P. TS'O

Dr. Paul O. P. Ts'o is Professor and Director of the Division of Biophysics, School of Hygiene and Public Health, The Johns Hopkins University since 1973. He was previously Professor (1967-1973) and Associate Professor (1962-1967) of Biophysical Chemistry at Johns Hopkins and a staff member (1955-1962) at the California Institute of Technology, where he received his Ph.D. His research interests include nucleic acids, nuclear magnetic resonance in biochemical research, chemical and viral carcinogenesis, interferon research, cellular research on aging and differentiation, and application of recombinant DNA techniques in cell biology. He has published about 230 scientific papers, and is the editor of the following books: *Basic Principles in Nucleic Acid Chemistry, Vol. I and II (1974); The Molecular Biology of the Mammalian Genetics Apparatus, Vol. I and II (1977);* and co-editor of the following books: *The Nucleohistones (1964); Chemical Carcinogenesis, Part A and Part B, (1974); Polycyclic Hydrocarbons and Cancer: Vol. 1 - Environment, Chemistry, Molecular and Cell Biology (1978); Vol. 2 - Molecular and Cellular Biology (1978); Vol. 3 (1981); and Carcinogenesis: Fundamental Mechanisms and Environmental Effects (1980).*

Dr. Ts'o has served on the editorial boards of *Biochemistry, Biophysical Journal,* and *Journal of Environmental Health Science,* and currently serves on the editorial boards of five scientific journals, including *Molecular Pharmacology, Cancer Review, Biochimica et Biophysica Acta, Biopolymers,* and *Cancer Research.* He has served on the N.I.H. Study Section A on Biophysics and Biophysical Chemistry (1976-1980), the Clearinghouse on Environmental Carcinogens, National Cancer Institute (1976-1980), and is currently a member of the European Expert Committee on Biophysics (UNESCO). Dr. Ts'o is a member of several societies: The American Society for Cell Biology; American Association for Cancer Research; The American Chemical Society (Senior Grade); American Society for Biological Chemists, where he serves on the membership committee; The Biophysical Society, where he served as Chairman, Public Science Policy Committee, 1972-1976, council member, 1975-1978, executive board, 1975, and nominee for President, 1976; and was Chairman, Organization Committee, Biology Alliance for Public Affairs from 1973-1976.

Dr. Ts'o has been the organizer or co-organizer of the following conferences and symposia: the first World Conference on Histone Biology and Chemistry (1963); the World Symposium on Model Studies in Chemical Carcinogenesis (1972); International Symposium on Molecular Biology of the Mammalian Genetic Apparatus-Its Relationship to Cancer, Aging, and Medical Genetics (1976); the 1977 U.S.-Japan Cooperative Cancer Research Program, entitled "Carcinogenesis and Mutagenesis of Polycyclic Aromatic Hydrocarbons"; and the 13th Jerusalem Symposium on "Carcinogenesis: Fundamental Mechanisms and Environmental Effects" (1980); Chairman of the Scientific Program in the Contractor-Meeting Workshop, Division of Biomedical and Environmental Research, U.S. Department of Energy, on "Review and Development of Biotesting Programs for Energy Utilization" (1978); and Chairman of the U.S. Department of Energy Conference on Human Health Effects, sponsored by the DOE Office of Energy Research (1981), for whom Dr. Ts'o acts as a consultant.

RECENT PROGRESS IN NUCLEIC ACID CHEMISTRY - FROM CONFORMATIONAL STUDIES TO DEVELOPMENT OF THERAPEUTIC AGENTS

Two types of nucleic acids and its analogs have been synthesized in the Division of Biophysics. The first type is the short oligomer helix, such as $d(CCAAGCTTGG)_2$. This oligomer helix was then extensively investigated by nuclear magnetic resonance (NMR), as well as by optical methods. The data is used to study the conformation of nucleic acids in solution in detail as well as to examine the applicability of NMR theory. These studies, in providing a thorough characterization of the short DNA helix, allows us to study the

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THE MARYLAND CHEMIST AWARD

DATE:

Wednesday, December 16, 1981

PLACE:

Knott Science Center
The College of Notre Dame
of Maryland
North Charles Street
Baltimore

SPEAKER AND TOPIC:

THE MARYLAND CHEMIST
AWARD ADDRESS
8:15 pm
Dr. Paul O. P. Ts'o
The Johns Hopkins University
"Recent Progress in Nucleic
Acid Chemistry - From Conformational Studies to Development of Therapeutic Agents"

COCKTAILS AND DINNER:

Doyle Building Dining Room
College of Notre Dame

Cocktails 6:30 - 7:15

Dinner (7:15) $9.50 per person, but retired chemists and students may attend for $7.00

Dinner reservations should be made by mailing checks, payable to Maryland Section of ACS, to

Merle Eiss
McCormick & Co., Inc.
Hunt Valley, MD 21031

by December 9. Late reservations may be made by calling

667-7485

before December 11.

It is not necessary to be a member of the American Chemical Society to attend. You may attend the lecture without attending the dinner.

MARYLAND CHEMIST AWARD

The Maryland Chemist Award was established in 1962 to recognize and to honor, each year, a member of the Maryland Section for outstanding achievement in the field of chemistry. The achievement may be in pure or applied chemistry, chemical engineering or chemical education. The 1980 award went to Dr. M. Gali Sanchez of W. R. Grace and Company.

Other previous recipients have been:

1962	Dr. E. Emmet Reid	1971	Dr. Giles B. Cooke
1963	Dr. W. Mansfield Clark	1972	Dr. Arnold M. Seligman
1964	Dr. Alsoph H. Corwin	1973	Dr. Lester P. Kuhn
1965	Dr. John C. Krantz, Jr.	1974	Dr. Joyce J. Kaufman
1966	Dr. Belle O. Talbot	1975	Dr. Benjamin Witten
1967	Dr. Walter S. Koski	1976	Dr. Richard L. Hall
1968	Dr. George L. Braude	1977	Dr. Henry C. Freimuth
1969	Dr. Leslie Hellerman	1978	Dr. Gunther L. Eichhorn
1970	Dr. Paul H. Emmett	1979	Dr. Emil H. White

There will be no January meeting of the Maryland Section. Consequently, the January and February issues of *The Chesapeake Chemist* will be combined and will appear at the usual time for the February issue.

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interactions of drugs, carcinogens, and mutagens with this helix as a model system for DNA. The second type is nonionic oligonucleotides such as nucleic acids having phosphoethyltriesters or methylphosphonates as linkages in the backbone. These compounds have no ionizable group, can form stable complexes with complementary polynucleotides, are resistant to hydrolysis by nucleases, and can enter mammalian cells with ease. The study of their physical and biochemical properties reveals that these compounds are useful in controlling reactions involving single-stranded nucleic acids. Preliminary studies with living mammalian and *E. coli* cells suggest that these compounds can enter the living cells and interact with complementary sequences inside living cells, thereby exerting their actions on the cells. These compounds may prove to be valuable for therapeutic purposes. Finally, double-stranded polynucleotides such as poly I·poly C have been known to function as interferon inducers as well as activators in enzyme systems related to interferon action. Chemical modification of these ribonucleotide duplexes have led to the understanding of the structure requirements of interferon induction or enzyme activation. This information is useful for designing more effective interferon inducers for clinical application.

I&EC MEMBERSHIP CAMPAIGN

The ACS Division of Industrial and Engineering Chemistry is conducting a campaign to increase the Division membership. The Division is interdisciplinary in nature and serves as a forum for areas of chemical technology not represented by other ACS divisions.

Annual dues are $2.00 for ACS members. Membership information may be obtained from Dr. George Blytas, Division of Industrial and Engineering Chemistry, P.O. Box 218466, Houston, Texas 77218.

THE JOHNS HOPKINS UNIVERSITY

CHEMISTRY COLLOQUIA

Colloquia are held at 4:15 p.m. in Remsen Hall 221 on the Homewood Campus of the Johns Hopkins University. Refreshments are served at 4:00 p.m.

Day and Date	Speaker and Affiliation	Title or Topic
Tuesday December 1	Charles S. Parmenter University of Indiana	Studies of Intramolecular Vibrational Redistribution in the S_1 States of Polyatomics
Tuesday December 8	Barbara J. Garrison Pennsylvania State University	Molecular Dynamics Calculations of keV Ions Interacting with Solid Surfaces

MOSHA ON-SITE CONSULTATION PROGRAM

The Maryland Occupational Safety and Health Administration offers a free On-Site Consultation Program to assist employers in their obligation to provide a safe and healthy workplace for their employees. "Employer awareness is our major objective," explains Harvey A. Epstein, Commissioner of Labor and Industry.

Requests for this service can be initiated only by an employer, and may include a survey of the entire plant or be limited to a specific operation therein. Consultants will identify problems and offer solutions. The program is designed to offer assistance and to develop a better understanding of requirements and standards of the MOSH Act.

On-Site Consultation visits consist of a meeting with the employer and a walk through the workplace. The Consultant will present a written report to the employer and suggest solutions for eliminating any hazards. All information is confidential.

Scheduling priority will be assigned to small businesses requesting consultation services to correct health and safety problems. Emphasis will be on high-hazard industries. Every effort will be made to provide this service at the earliest possible date.

Visits may be scheduled by contacting: Betty Galvin, On-Site Consultation Services, Division of Labor and Industry, 203 East Baltimore Street, Baltimore, Maryland 21202, Phone 301-659-4178.