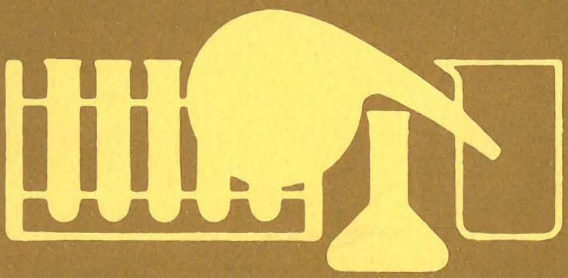
Biographical Information on the Awardees
1967–1969
Under the Programs
Faculty Development Awards In
Clinical Pharmacology
and
Fellowship Awards In
Pharmacology-Morphology



Pharmaceutical Manufacturers Association Foundation, Inc.

FOREWORD

Since 1967 the PMA Foundation has had the opportunity to assist in the career development of fifteen individuals through two Foundation educational programs. The "Faculty Development Awards in Clinical Pharmacology" have provided for support of ten well-qualified individuals who have expressed a strong commitment to the field of clinical pharmacology.

With the offering of the "PMA Foundation Fellowship Awards in Pharmacology-Morphology" in 1968, five individuals with an interest in the study of drugs through morphologic approaches have become associated with the Foundation. These individuals, well-trained in one discipline, will gain familiarity with a complementary discipline through this interdisciplinary training opportunity.

Highlights of the records of accomplishment of these fifteen scientists follow.

The biographical information on the ten faculty development awardees appears on pages 4 to 13. These are:

Faruk S. Abuzzahab, Sr., M.D., Ph.D.
University of Minnesota

Vincent S. Aoki, M.D.
University of Iowa

William Y. W. Au, M.D.
University of Rochester

Arthur H. Hayes, M.D.
Cornell University

John S. Holcenberg, M.D.
University of Washington

John L. McNay, M.D.
Emory University

Donald S. Robinson, M.D.
University of Vermont

Lester F. Soyka, M.D.
Stanford University

Pate D. Thomson, M.D.
University of California

Stanley C. Ushinski, M.D.
University of Pittsburgh

The biographical information on the five fellowship awardees appears on pages 16 to 20. These are:

David W. Hiott, Ph.D.
Medical College of South Carolina

Andrew K. S. Ho, Ph.D.
New York University Medical Center

John O. Lindower, M.D., Ph.D.
The Ohio State University

Timothy H. Mathew, M.B., B.S.
Georgetown University

William J. Scott, D.V.M., Ph.D.
Children's Hospital Research Foundation (Cincinnati)

Brief descriptions of the current research interests of these fifteen individuals begin on page 21.

FACULTY DEVELOPMENT AWARDS IN CLINICAL PHARMACOLOGY

Through this program, annual awards are made to medical schools for salary support of full-time junior faculty members in the field of clinical pharmacology. The awards are for two years each. Application for a third year may be made at the end of the first year of an award, with a report of the progress made during the first year. For some a third year may be necessary, while for others, two years' support will provide a base for an individual to seek long-term support from other sources. The level of support is variable, and is aimed at keeping within the existing salary structure of the applicant university. Funds are also provided for employee fringe benefits at the prevailing level in the institution.

This program was established by the PMA Foundation in 1966, with the first awards presented in 1967, in recognition of the many problems involved in evaluating therapeutic agents. Drug investigation is a demanding task and one for which the medical world is not fully prepared. To meet these demands, clinical pharmacology units have been established. Through these units, scientific drug investigation has attained an important status in many academic centers. As in nearly every aspect of the health field, manpower needs are acute. This program is intended to meet some of these manpower needs in the field of clinical pharmacology.

The ultimate aim of the awards program is to stimulate teaching, training, and research in clinical pharmacology. It is aimed at providing an opportunity for the development of the research potential of clinical pharmacologists during the years immediately following their formal training programs.

FARUK S. ABUZZAHAB, SR., M.D., Ph.D.
Assistant Professor of Psychiatry and Pharmacology, University of Minnesota, Minneapolis, Minnesota

Education:

M.D., School of Medicine, American University of Beirut, Republic of Lebanon, 1954-59
Special Student, The Johns Hopkins University, Baltimore, 1959-62
Ph.D., Graduate School, University of Minnesota, Minneapolis, Minnesota, 1962-68. Major: Pharmacology; Minor: Psychology

Fellowships:

Research Fellow, Departments of Psychiatry and Pharmacology, University of Minnesota, 1962-63
Research Fellow, Department of Pharmacology, University of Minnesota, 1963-66
Instructor, Departments of Psychiatry and Pharmacology, University of Minnesota, 1966-67
Assistant Professor, Departments of Psychiatry and Pharmacology, University of Minnesota, 1967-date

Academic Appointments:

Research Fellow, Departments of Psychiatry and Pharmacology, University of Minnesota, 1962-63
Research Fellow, Department of Pharmacology, University of Minnesota, 1963-66
Instructor, Departments of Psychiatry and Pharmacology, University of Minnesota, 1966-67
Assistant Professor, Clinical Psychopharmacology Service, University of Minnesota Hospital, 1967-date

Honors and Societies:

American Medical Association
American Psychiatric Association
Alpha Omega Alpha (National Honor Medical Society)
Sigma Xi (National Honor Science Society)
Medical Dean's Honor List, American University of Beirut, Beirut, Republic of Lebanon, 1954-58
Voted Outstanding Teacher in Psychiatry by the Junior Medical Class, University of Minnesota, 1968-69
Pharmaceutical Manufacturers Association Foundation Faculty Development Award in Clinical Pharmacology, 1967-69

Professional Certificates and License:

Medical Licenses: District of Columbia and Minnesota
Passed American Board of Psychiatry and Neurology Examinations in Psychiatry, 1966

VINCENT SHIRO AOKI, M.D.
Assistant Professor of Medicine and
Pharmacology, University of Iowa
College of Medicine, Iowa City, Iowa

Education:

A.B., Harvard University, 1957
M.D., Baylor University, 1961
M.S. (Pharmacology), University of Iowa, 1966

Fellowships:

Clinical Pharmacology Trainee (NHI), University of Iowa, 1964-66

Academic Appointments:

Instructor, Department of Internal Medicine, University of Iowa, 1965-66
Clinical Assistant in Medicine, Boston City Hospital, 1968
Assistant Professor, Departments of Internal Medicine and Pharmacology, 1969

Honors and Societies:

American Federation for Clinical Research
American Heart Association
The Scientific Research Society of America (RESA)
Pharmaceutical Manufacturers Association Foundation Faculty Development Award in Clinical Pharmacology, 1969-71

Professional Certificates and License:

Medical License: Texas, Massachusetts, Iowa

Military Service:

Major, U.S. Army Medical Corps
U.S. Army Research Institute of Environmental Medicine, Natick, Massachusetts, 1966-69

WILLIAM Y. W. AU, M.D.
Assistant Professor of Pharmacology and Medicine, University of Rochester School of Medicine and Dentistry, Rochester, New York

Education:

A.B. (Cum Laude and with distinction in Biology), Boston University College of Liberal Arts, 1947-51
M.D. (Magna Cum Laude), Boston University School of Medicine, 1951-55

Fellowships:

Life Insurance Medical Research Fund Postgraduate Fellow, (1) at State University of New York, Upstate Medical Center and V.A. Hospital, Syracuse, New York, July 1958-June 1959; and (2) at Clinical Endocrinology Branch, N.I.H., Bethesda, Maryland, September 1961-May 1962
Postdoctoral Research Fellow, U.S.P.H.S. Endocrinology Branch, June 1962-June 1963
Trainee in Clinical Pharmacology, University of Rochester School of Medicine, June 1963-July 1965

Academic Appointments:

Instructor in Pharmacology and Medicine, University of Rochester School of Medicine and Dentistry, June 1963-July 1965
Senior Instructor in Pharmacology and Medicine, University of Rochester School of Medicine and Dentistry, July 1965-July 1966
Assistant Professor, Departments of Pharmacology and Medicine, University of Rochester School of Medicine, July 1966 to present
Presently on sabbatical leave at St. Mary's Hospital Medical School, London

Honors and Societies:

Phi Beta Kappa
Alpha Omega Alpha (National Honor Medical Society)
American Federation for Clinical Research
Sigma Xi (National Honor Science Society)
American Society for Pharmacology and Experimental Therapeutics
Endocrine Society
Pharmaceutical Manufacturers Association Foundation Faculty Development Award in Clinical Pharmacology, 1968-70

Professional Certificates and License:

Diplomate, National Board of Medical Examiners
New York State Medical License, 1957

Military Service:

Captain, USAF (MC)
Internist, USAF Hospital, Maxwell AFB, Alabama, 1959-61

ARTHUR HULL HAYES, JR., M.D.
Assistant Professor of Pharmacology and Medicine, Cornell University Medical College, New York, New York

Education:

A.B. Magna Cum Laude (Philosophy), University of Santa Clara, Santa Clara, California, 1955
M.A. Honours (Philosophy, Politics, and Economics), Oxford University, Oxford, England, 1957
Premedical 1 year and Medicine 2 years, Georgetown University, Washington, D. C., 1957-60
M.D., Cornell University Medical College, 1964

Fellowships:

Rhodes Scholarship, 1955
Danforth Fellowship, 1955
USPHS Predoctoral Fellow in Pharmacology, Cornell University Medical College, 1960-62
USPHS Research Fellow in Pharmacology, Cornell University Medical College, January-June 1968

Academic Appointments:

Assistant Professor, Departments of Pharmacology and Medicine, Cornell University Medical College

Honors and Societies:

American Chemical Society, Medicinal Chemistry Division
New York Heart Association
Alpha Omega Alpha (National Medical Honor Society)
Good Physician Award, Cornell Medical College, 1964
Mary Aldrich Research Prize, Cornell Medical College, 1964
Department of the Army Certificate of Achievement, 1967
Pharmaceutical Manufacturers Association Foundation Faculty Development Award in Clinical Pharmacology, 1968-70

Professional Certificates and License:

Diplomate, National Board of Medical Examiners
Medical License: Maryland, New York

Military Service:

Captain, United States Army Medical Corps
Active Duty: August 1965-August 1967
Assignment: Chief, Clinical Investigation Branch, Clinical Research Department, Medical Research Laboratories, Edgewood Arsenal, Maryland

JOHN S. HOLCENBERG, M.D.
Assistant Professor of Medicine and Pharmacology, University of Washington School of Medicine, Seattle, Washington

Education:

A.B. (Chemistry), Harvard College, 1956
M.D., University of Washington School of Medicine, 1961

Fellowships:

Post-sophomore fellowship, National Institutes of Health, July 1958-July 1959, University of Washington
Post-doctoral fellowship, American Cancer Society
National Institute of Arthritis and Metabolic Diseases, July 1965-July 1967

Academic Appointments:

Assistant Professor, Departments of Medicine and Pharmacology (Division of Clinical Pharmacology)

Honors and Societies:

Alpha Omega Alpha (National Honor Medical Society)
John and Mary Wilson Scholarship, 1960-61
Sheard-Sanford Research Award of American Society of Clinical Pathologists, 1961
Thesis Honors, University of Washington School of Medicine
Medical Research Society, University of Washington School of Medicine, 1959-1961, President 1960-1961
Pharmaceutical Manufacturers Association Foundation Faculty Development Award in Clinical Pharmacology, 1967-70

Professional Certificates and License:

Diplomate, National Board of Medical Examiners, 1963

Military Service:

Surgeon, Research Investigator, Public Health Service, Clinical Endocrinology Branch, National Institute of Arthritis and Metabolic Diseases, N.I.H., 1965-1967

JOHN L. McNAY, JR., M.D.
Assistant Professor of Pharmacology and
Associate Professor of Internal Medicine,
Emory University School of Medicine,
Atlanta, Georgia

Education:

B.A., Yale University, 1949-53
M.D., Harvard Medical School, 1953-57

Fellowships:

Fellowship in Clinical Cardiology (Kansas Heart Association), Kansas University Medical Center, 1961-62
Post-doctoral Fellowship, United States Public Health Service, Departments of Pharmacology and Internal Medicine, Emory University School of Medicine, Atlanta, Georgia, 1962-64

Academic Appointments:

Assistant Professor, Department of Pharmacology, Emory University School of Medicine, 1965-present
Associate Professor, Department of Internal Medicine, Emory University School of Medicine, 1967-present

Honors and Societies:

New York Yale Club Prize
Phi Beta Kappa
Victor Wilson Scholarship, 1949-53
Research Career Development Award, USPHS, 1969-74
Alpha Omega Alpha (National Honor Medical Society)
Sigma Xi (National Honor Science Society)
American Society of Nephrology
American Society for Pharmacology and Experimental Therapeutics
American Federation of Clinical Research
Pharmaceutical Manufacturers Association Foundation Faculty Development Award in Clinical Pharmacology, 1967-69

Professional Certificates and License:

Diplomate, National Board of Medical Examiners
Kansas State Board of Medicine, 1962
License by Reciprocity, States of Georgia and Missouri
American Board of Internal Medicine, Part One, October 1967; Part Two, February 1968
Fellow, American College of Physicians, 1968

DONALD S. ROBINSON, M.D.
Assistant Professor of Medicine and
Pharmacology, University of Vermont
College of Medicine, Burlington, Vermont

Education:

B.Ch.E., Renselaer Polytechnic Institute, 1949
M.D., University of Pennsylvania School of Medicine, 1959
M.S. (Pharmacology), University of Vermont Graduate School, 1966

Fellowships:

N.I.H. Postdoctoral Fellowship in Clinical Pharmacology, University of Vermont, 1964-66

Academic Appointments:

Assistant Professor, Departments of Medicine and Pharmacology, University of Vermont College of Medicine

Honors and Societies:

American Federation of Clinical Research, 1966
Pharmaceutical Manufacturers Association Foundation Faculty Development Award in Clinical Pharmacology, 1968-70

Professional Certificates and License:

Diplomate, American Board of Internal Medicine, 1966
Medical Licensure in states of Vermont and Washington

Military Service:

U.S. Army, 1951-55
U.S. Public Health Service, 1959-60
Senior Investigator (Senior Surgeon), National Heart Institute, 1966-68

LESTER FRANK SOYKA, M.D.
Assistant Professor of Pediatrics,
Stanford University School of Medicine,
Menlo Park, California

Education:

B.S., University of Wisconsin, 1952
M.S. (Pharmacology), University of Illinois, 1960
M.D., University of Illinois, 1961

Fellowships:

Clinical and Research Fellow, Children's Service, Massachusetts General Hospital
Research Fellow in Pediatrics, Harvard Medical School, 1963-65

Academic Appointments:

Teaching Fellow in Pediatrics, Harvard Medical School
Assistant in Pediatrics, Massachusetts General Hospital
Instructor in Pediatrics, Harvard Medical School
Visiting Assistant Professor of Pediatrics, Stanford University School of Medicine
Assistant Professor, Department of Pediatrics, Stanford University School of Medicine

Honors and Societies:

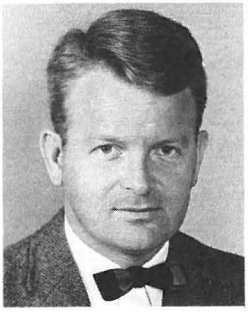
Alpha Omega Alpha (National Medical Honor Society)
Pharmaceutical Manufacturers Association Foundation Faculty Development Award in Clinical Pharmacology, 1969-71

Professional Certificates and License:

Medical License: Massachusetts, California
American Board of Pediatrics, 1966

Military Service:

Lieutenant, Medical Service Corps, U.S. Army, 1952-54



PATE D. THOMSON, M.D.
Instructor in Medicine,
University of California Medical Center,
San Francisco, California

Education:

B.S., University of South Dakota, 1961
M.D., University of Washington, 1963

Fellowships:

University of California, Cardiology, July 1966-December 1967
University of California, Clinical Pharmacology, January 1968-June 1969

Academic Appointments:

Instructor in Medicine in Residence, Department of Medicine, University of California Medical Center, San Francisco
Consultant, USPHS Hospital, San Francisco

Honors and Societies:

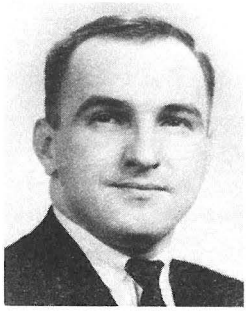
Mosby Award for Scholarship, 1961
E. O. Jones Award for Scholastic Achievement, 1962
Alpha Omega Alpha (National Medical Honor Society)
Seminar Honors Curriculum, 1963
American Heart Association
Pharmaceutical Manufacturers Association Foundation Faculty Development Award in Clinical Pharmacology, 1969-71

Professional Certificates and License:

State of California Physician and Surgeon

Military Service:

U.S. Army Medical Service Corps, 1958-59



STANLEY C. USHINSKI, M.D.
Assistant Professor of Pediatrics and Pharmacology, School of Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania

Education:

B.S. (Magna Cum Laude), Kings College, 1955-59

M.D., Jefferson Medical College, 1959-63

Fellowships:

Fellow in Pediatric Allergy, Children's Hospital of Pittsburgh, 1966-68

Academic Appointments:

Instructor, Departments of Pediatrics and Pharmacology, 1968-69

Assistant Professor, Departments of Pediatrics and Pharmacology, 1969-present

Honors and Societies:

Regina Science Award for Highest Average in Sciences, Kings College, 1959

Pharmaceutical Manufacturers Association Foundation Faculty Development Award, 1969-71

Professional Certificates and License:

State License, Pennsylvania, 1968

Passed Written Examination of American Board of Pediatrics, January 1968

Military Service:

Captain, United States Air Force, Retired Reserves

FELLOWSHIP AWARDS IN PHARMACOLOGY-MORPHOLOGY

Recent developments in the field of cellular structure-function relations make it increasingly important to conduct parallel studies of drug-evoked changes in structure and their functional significance. That area of study aimed at relating drug action with drug-induced morphologic changes is referred to as pharmacology-morphology.

To encourage activities in this interdisciplinary area, the Pharmaceutical Manufacturers Association Foundation established a fellowship program in pharmacology-morphology in 1967. The objectives of this program are to advance understanding of drug action through discovery of specifically related cellular and tissue changes; and concurrently, to uncover associations between normal and abnormal function in particular tissue and cellular structures.

The awards are for two years each and, in exceptional circumstances, may be extended for an additional year. The level of support is variable, and is aimed at keeping within the existing stipend levels for similarly trained individuals within the applicant university.

The fellowship program is designed to support individuals who will train to study the actions of drugs through morphologic approaches (cytology, histology, ultrastructure, pathology). This pursuit implies an interdisciplinary training. Although the program requires that the candidate be qualified primarily either in a morphologic specialty or in pharmacology, training in the complementary discipline need not be formal. The aim is to have the candidate gain familiarity with a new disciplinary approach by use of his primary discipline as a medium for acquiring the second.

DAVID W. HIOTT, Ph.D.
Associate in Pharmacology (post-doctoral),
Medical University of South Carolina,
Charleston, South Carolina

Education:

B.S., School of Pharmacy, Medical College of South Carolina, 1963
M.S. (Pharmacology), Medical College of South Carolina, 1965
Ph.D. (Pharmacology), Medical College of South Carolina, 1968

Fellowships:

U.S.P.H.S. Trainee, 1963-68
South Carolina Heart Research Grant, 1969
Pharmaceutical Manufacturers Association Foundation Fellowship Award in Pharmacology-Morphology, 1968-70

Academic Appointments:

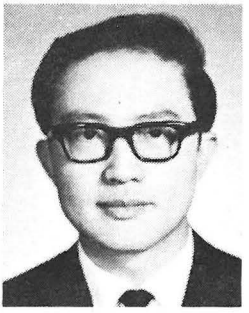
Instructor in Pharmacology, 1968
Associate in Pharmacology, 1969
(Both positions in the School of Medicine, Medical University of South Carolina)

Honors and Societies:

Rho Chi Society
First Honor Graduate, School of Pharmacy, 1963

Professional Certificates and License:

None



ANDREW K. S. HO, Ph.D.
Research Scientist, New York University
Medical Center, New York, New York

Education:

B.S., University of Melbourne, 1963
M.S., University of Melbourne, 1965
Ph.D., Monash University, Victoria, Australia, 1967

Fellowships:

National Health and Medical Research Council Pre-doctoral Fellow, Monash University, Victoria, Australia, 1965-67
Imperial Chemical Industries Fellow, Edinburgh University, Edinburgh, Scotland, U.K., 1967
National Institute of Mental Health Post-doctoral Fellow, New York University, 1968-69
Pharmaceutical Manufacturers Association Foundation Fellowship Award in Pharmacology-Morphology, 1969-71

Academic Appointments:

Instructor, Pharmacology, Monash University
Instructor, Neuropsychopharmacology, Department of Psychiatry, New York University Medical Center

Honors and Societies:

Australian Physiological and Pharmacological Society
Anatomical Society of Australia and New Zealand
International Union of Physiological Sciences

Professional Certificates and License:

None

JOHN O. LINDOWER, M.D., Ph.D.
Assistant Professor of Pharmacology,
College of Medicine,
The Ohio State University,
Columbus, Ohio

Education:

A.B., Ashland College, Ashland, Ohio, 1950

M.D., College of Medicine, The Ohio State University, 1955

Ph.D., Graduate School, The Ohio State University, 1968

Fellowships:

Post-doctoral, National Heart Institute, N.I.H., 1965-67

Cardiovascular Research, Central Ohio Heart Association, 1967-68

Pharmaceutical Manufacturers Association Foundation Fellowship Award in Pharmacology-Morphology, 1968-70

Academic Appointments:

Assistant Professor, Department of Pharmacology

Faculty, Pilot Program for Tutorial Computer-Assisted Instruction, College of Medicine

Honors and Societies:

Sigma Xi (National Honor Science Society)

Professional Certificates and License:

Medical License: Ohio

Military Service:

General Medical Officer and Pharmacy Officer, Boston Army Base, Boston, Massachusetts, 1956-58

TIMOTHY H. MATHEW, M.B., B.S.
Instructor in Medicine, Georgetown University Hospital, Washington, D. C.

Education:

Scotch College, Melbourne, Australia
M.B., B.S., University of Melbourne, 1961

Fellowships:

Royal Australian College of Physicians Overseas Scholarship, 1967-68
National Kidney Foundation Fellow, 1967-68
Pharmaceutical Manufacturers Association Foundation Fellowship Award in Pharmacology-Morphology, 1968-70

Academic Appointments:

Associate in Medicine, Royal Melbourne Hospital, 1966
Instructor in Medicine, Georgetown University Hospital, 1969

Honors and Societies:

Australian Medical Society
Australian Nephrological Society
International Nephrological Society
American Nephrological Society
American Society of Artificial Internal Organs
Clinical Research Society

Professional Certificates and License:

M.B., B.S., Melbourne, 1961
M.R.A.C.P., Melbourne, 1965

Military Service:

Australian National Service, 1956-59

WILLIAM J. SCOTT, JR., D.V.M., Ph.D.
PMA Foundation Postdoctoral Fellow,
Children's Hospital Research Foundation,
Cincinnati, Ohio

Education:

D.V.M., University of Georgia, 1961

Ph.D., George Washington University, 1969

Fellowships:

Teaching Fellowship, Department of Anatomy, George Washington University, February 1968-June 1969

Pharmaceutical Manufacturers Association Foundation Fellowship Award in Pharmacology-Morphology, 1969-70

Academic Appointments:

None

Honors and Societies:

International Primatological Society

American Association of Laboratory Animal Science

Professional Certificates and License:

D.V.M. License, Virginia

Military Service:

Fourth U.S. Army Medical Laboratory, Fort Sam Houston, Texas, 1961-63

CURRENT RESEARCH INTERESTS

FACULTY DEVELOPMENT AWARDEES IN CLINICAL PHARMACOLOGY

Faruk S. Abuzzahab, Sr., M.D., Ph.D.

Studies are underway on the long term toxicity effects of lithium carbonate in ewes. In addition, a number of studies in the field of clinical psychopharmacologic research are underway, including testing of anti-depressant psychotic compounds. He is also engaged in Phase II and Phase III studies.

Vincent S. Aoki, M.D.

Studies are being made of the effects of drugs on blood vessels of the lung and skeletal muscle. Of special interest is the role these blood vessels may play as storage sites for blood. Other efforts include conducting clinical trials of new drugs which appear to have promise in treating high blood pressure and angina pectoris.

William Y. W. Au, M.D.

Presently at St. Mary's Hospital Medical School in London studying with Doctors R. T. Williams and W. S. Peart the metabolism of anti-hypertensive drugs in man, particularly alphamethyldopa. This drug shows variable effects and sometimes loses its effectiveness after prolonged treatment. The study is directed at determining if changes in metabolism can account for this variability. Also studying a newly discovered hormone, thyrocalcitonin, which is important in calcium metabolism and may play a role in the cause or cure of some metabolic bone diseases. He has developed a method for isolating, identifying and assaying this hormone in blood.

Arthur H. Hayes, M.D.

Pharmacological investigation of the cardiac-slowing properties of atropine-like drugs is being conducted to define their mechanism of action and assess their clinical usefulness. In patients who have suffered a heart attack, the efficacy of continuous infusion of lidocaine in preventing arrhythmias is being evaluated clinically and correlated with blood levels of the drug. An initial study is underway in patients to determine whether barbiturates increase the rate of metabolism of digitoxin, thereby determining its parameters of action.

John S. Holcenberg, M.D.

Efforts are directed toward finding unusual amino acid requirements in cancer and leukemias. Various animal and human tumors are screened for their requirements for amino acids which are not needed by the host. In a collaborative effort with Drs. Dolowy and Roberts, Department of Animal Medicine, enzymes are being developed which can degrade these amino acids. The eventual aim is to produce tumor remissions by treating the animal or patient with a specific amino acid degrading enzyme.

John L. McNay, M.D.

Studies are mainly centered on renal circulatory pharmacology and investigations on the transfer of drugs between the mother and the fetus.

Donald S. Robinson, M.D.

Study of clinical and biochemical changes in mental depression, and the drug treatment of depressed patients. Several psychotropic drugs are currently being evaluated in various types of mental and emotional syndromes.

A second project is the identification of other drugs which interact with the anticoagulant, warfarin, and may therefore result in bleeding reactions.

Other projects include studies of the influence of pregnancy and the menstrual cycle on blood enzymes.

Lester F. Soyka, M.D.

Studies are underway to examine the reasons why newborns are more susceptible to the effects of certain drugs, and attempts will be made to form explanations of developmental changes in biochemical terms. Additionally, studies are underway of the in-hospital use of drugs in order to establish the numbers and kinds of drugs and the subsequent hazards to which children are exposed.

Pate D. Thomson, M.D.

Study of the influence of common disease states such as heart failure, liver disease and renal disease on the pharmacology of drugs administered in these settings. The emphasis is on drugs used in the treatment of heart disease, such as lidocaine, and the studies involve examining what factors influence the disposition of these drugs in the body.

Stanley C. Ushinski, M.D.

The condition of unresponsiveness to epinephrine, one of the important drugs in the treatment of asthma, is the primary focus of the research endeavors. Investigations on the effect of some environmental factors, especially pH, on the reactivity of an 'in vitro' tracheal smooth muscle preparations to several bronchodilator drugs, like epinephrine, and some bronchoconstrictor drugs are being conducted. Concomitantly, clinical studies are underway to determine the efficacy of sodium bicarbonate therapy in reversing epinephrine unresponsiveness in patients with a severe attack of asthma.

FELLOWSHIP AWARDEES
IN PHARMACOLOGY-MORPHOLOGY

David W. Hiott, Ph.D.

Presently completing studies on the acute effects of high doses of the drugs, quinidine and daunomycin on the electron microscopic morphology of dogs and hamsters hearts. Plans are underway to extend the duration of these experiments for up to thirty days in order to define the progression and final result of the changes.

Andrew K. S. Ho, Ph.D.

Studies are being conducted into the effect of psychopharmacological agents, such as reserpine, morphine, lithium, on neurohormones in different regions of the brain. Experiments are being designed to elucidate the possible indirection between processes involving acetylcholine and biogenetic amines at the cellular and subcellular levels using techniques of bio-chemical pharmacology and histochemistry. The findings of these studies are correlated to the therapeutic use of these drugs and their effect on behavior.

John O. Lindower, M.D., Ph.D.

The effect of the digitalis is being studied by evaluation of the changes it produces in heart cells. Isolated small animal hearts are perfused with a digitalis medium while a recording device measures the more forceful contraction that the drug produces in the heart. After drug effect has been demonstrated, small samples of the heart muscle are examined in the electron miscroscope to detect any changes that have been produced by the drug.

Timothy H. Mathew, M.B., B.S.

Studies are underway which are directed to viewing platlets in the pathogenesis of transplant rejection. An attempt is being made to alter the histological pattern rejection by using drugs directed at changing the platlet function.

William J. Scott, Jr., D.V.M., Ph.D.

Studies attempting to determine the mechanism of teratogenic action of carbonic anhydrase inhibitors in rats. Other studies are underway which will attempt to determine the teratogenic potential of carbonic anhydrase inhibitors and numerous other chemicals in primates.

Pharmaceutical Manufacturers Association Foundation, Inc.

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