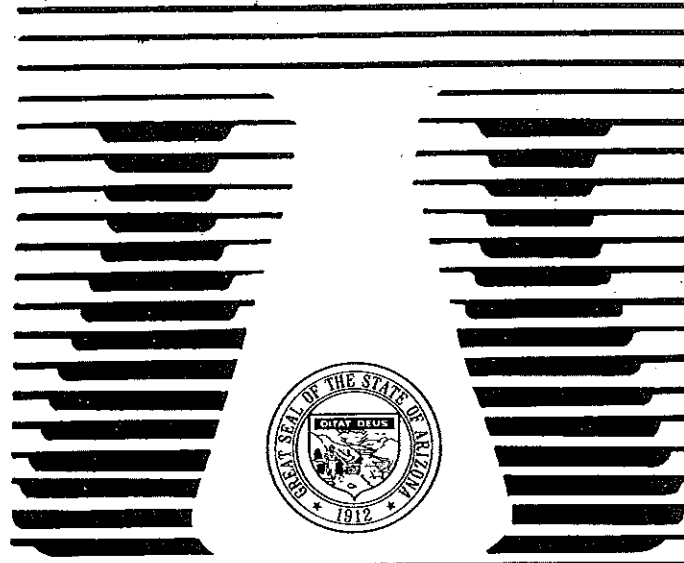


ANNUAL REPORT



**A R I Z O N A
D I S E A S E
C O N T R O L
R E S E A R C H
C O M M I S S I O N**

FY 1990-91

ARIZONA DISEASE CONTROL RESEARCH COMMISSION

ANNUAL REPORT

FY 1990-91

Fife Symington, Governor

Alethea O. Caldwell, Chairman

COMMISSIONERS

Medical Community

Herbert Abrams, MD

William Crisp, MD

Jon Rubach, MD

Scientific Research Community

Emmanuel Akporiaye, PhD

Mary Hendrix, PhD

William O'Callaghan, MD

General Public

Frank Hidalgo

James Matthews

Beth Schermer

STAFF

Executive Director, Robert Byars, PhD

Business Manager, Toshie Isogai

Administrative Assistant, Joseph Hashem

1740 West Adams Street, Room 408, Phoenix, AZ 85007

Telephone: (602) 542-1028

MESSAGE FROM THE CHAIRMAN

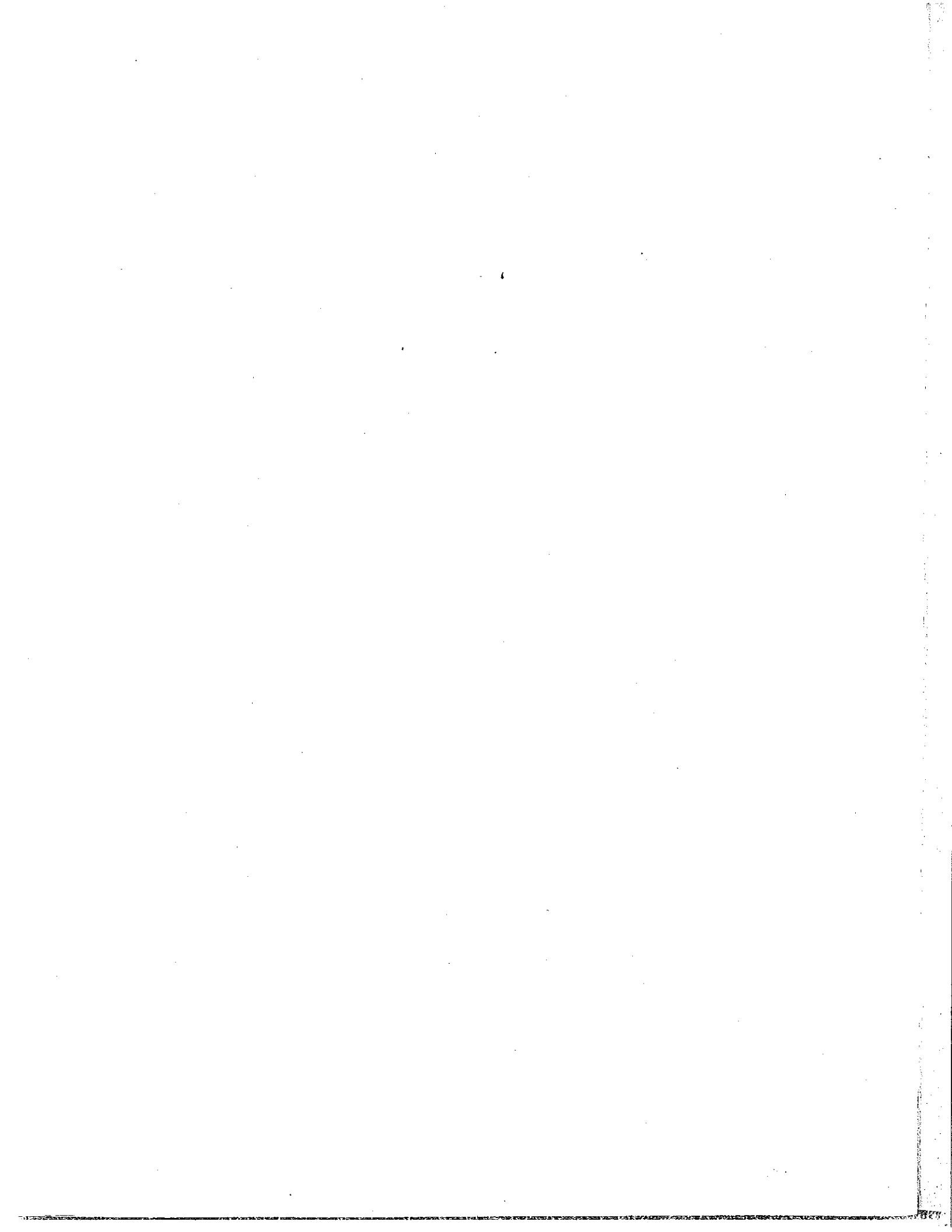
As Chairman of the Arizona Disease Control Research Commission, I am pleased to report on the progress of a unique State agency. The Arizona Disease Control Research Commission (ADCRC) was established by the Arizona Legislature in 1984. The ADCRC provides funds for research on the causes, epidemiology, diagnosis, treatment, and prevention of diseases affecting Arizonans. The Commission is unique in the United States in its expenditure of public funds for basic research on a wide range of medical and health concerns. Funds are appropriated annually from penalties or interest on delinquent taxes. By statute, the Commission must prepare and submit a report on or before January 15 of each year to the Governor, the President of the Senate and the Speaker of the House of Representatives.



During the fiscal year, the Commission awarded 34 new contracts for 1991-94 for medical and health research in Arizona. Summaries of the progress of the 71 projects in force during 1990-91 are presented in the fourth volume of ABSTRACTS, a copy of which may be obtained from the Commission.

The improvement of the health of Arizona citizens through research by Arizona scientists and clinicians is the mission of the ADCRC. Additionally, a recent survey of ADCRC funded principal investigators shows that each dollar appropriated to the Commission brings \$4.15 in national grant money into Arizona, thus stimulating the State's economy and contributing to the growth of our health industry. I would like to thank the Commissioners for their work and to Ted Williams who guided the award process during 1990-91.

*Alethea O. Caldwell
Chairman*



Nine Commissioners serve to guide the work of the Arizona Disease Control Research Commission. They are appointed by the Governor and confirmed by the Senate. Three members represent the medical community, three represent the scientific research community and three represent the general public. Commissioners are appointed for three-year terms, unless reappointed. The terms of three members expire each year. The Director of the Department of Health of Services serves as Chairman of the Commission and *ex-officio* member. The Chairman and Commissioners serving during FY 1990-91 are presented below.

Chairman and Ex-Officio Member:

Ted Williams

Director

Arizona Department of Health Services

Chairman Williams was appointed Director of the Arizona Department of Health Services in January, 1987. He has extensive experience in state government. After serving as an Executive Assistant to Governor Raul Castro, he was appointed Deputy Director of the Department of Health Services. Later he served as Deputy Director of the Arizona Department of Transportation. He also served as a consultant to the Arizona Legislature. Prior to his appointment as Director of the Arizona Department of Health Services he was Executive Vice President of Baptist Hospitals and Health Systems. This was his last year as Chairman of the ADCRC. The new Director of the Department of Health Services, Alethea O. Caldwell, will be the new ADCRC Chairman during FY 1991-92.

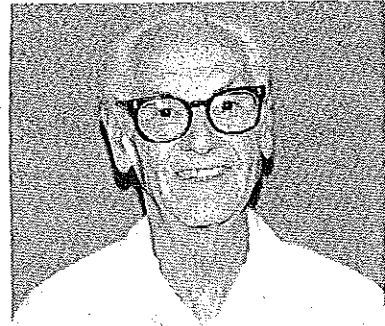


Medical Community Representatives:

Herbert K. Abrams, M.D.

Professor Emeritus
University of Arizona

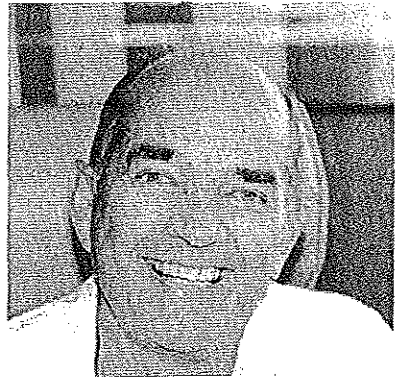
Commissioner Abrams was founder and Head (1968-1978) of the Department of Family and Community Medicine at the University of Arizona College of Medicine. From 1978 to 1983, he was Director of the Arizona Center for Occupational Safety and Health, which he also founded. He has been an Arizona resident for over twenty years. He was first appointed to the Commission by Governor Babbitt. He was reappointed in 1987 and 1990. His term of office expires in January, 1993.



William E. Crisp, M.D.

Gynecology and Oncology
Phoenix

Commissioner Crisp practices gynecology and oncology in Phoenix. He is also Clinical Associate Professor at the University of Arizona College of Medicine. He was Chairman of the Department of Obstetrics and Gynecology at Good Samaritan Hospital. He served as President of both the Arizona Medical Association and the Maricopa Medical Society. He was appointed to the Commission by Governor Mofford in June, 1988, and was reappointed by Governor Symington in April of 1991; his term expires in January, 1994.



Jon P. Rubach, M.D.

Oncology and Hematology
Mesa

Commissioner Rubach was appointed to the Commission by Governor Mofford in January of 1989. He has been a private practitioner in medical oncology in Mesa since 1976. He received his medical school training at the State University of New York at Buffalo from 1969-1973, and his internal medicine and oncology training at Affiliated Hospital in Buffalo from 1973-1976. He served as Secretary of the Maricopa County Medical Society in 1988 and is President-Chief of Staff of Desert Samaritan Hospital in Mesa. He also holds a law degree from the University of Notre Dame and a Bachelor of Science degree in Biology from Siena College. His term expires in January, 1992.

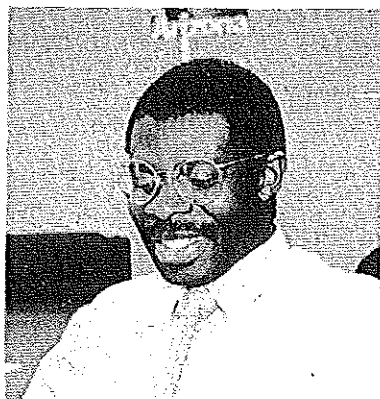


Scientific Research Community Representatives:

Emmanuel T. Akporiaye, Ph.D.

Department of Microbiology and Immunology
University of Arizona

Commissioner Akporiaye was born in Nigeria and is Associate Professor in the Department of Microbiology and Immunology in the College of Medicine at the University of Arizona. He specializes in cancer biology and the immune response system. He formerly was on the faculty at Northern Arizona University. He received his Master of Science degree in Biology from New Mexico Highlands University in 1978 and his Doctorate in Pathogenic Microbiology from the University of New Mexico in 1983. He was appointed to the Commission in January, 1989, by Governor Mofford. His term expires in January, 1992.



Mary J. C. Hendrix, Ph.D.

Department of Anatomy
University of Arizona

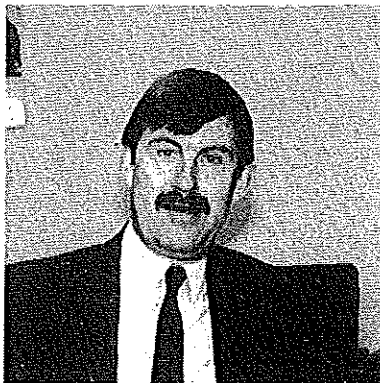
Commissioner Hendrix received her doctorate in Anatomy from The George Washington University in Washington, D.C. followed by a postdoctoral fellowship in cell biology at Harvard Medical School. She is currently Associate Professor of Anatomy at the University of Arizona College of Medicine. She was first appointed to the Commission in March, 1985, by Governor Babbitt. She was reappointed by Governor Mofford in 1988 and subsequently by Governor Symington in April of 1991. Her term of office expires in January, 1994.



William G. O'Callaghan, M.D.

Cardiologist
Mayo Clinic

Commissioner O'Callaghan is a consultant in cardiovascular disease at Mayo Clinic Scottsdale. Born in Tipperary, Ireland he attended the National University of Ireland. He became a Member of the Royal College of Physicians of Ireland in 1979. He was a Fellow in Cardiology at the Duke University Medical Center from 1983 to 1986. He was awarded a Diploma from the American Board of Internal Medicine in 1988. As a medical researcher on cardiovascular disease, he is the author of numerous publications. He was appointed to the ADCRC by Governor Mofford. He was appointed in 1990. His term of office expires in January, 1993.



General Public Representatives:

Jane H. Aiken

College of Law
Arizona State University

Jane Aiken is currently on leave from the College of Law at Arizona State University. She was admitted to the Arizona Bar in 1986. Before joining the law faculty at ASU in 1985, Ms. Aiken was an Advocacy Fellow at the Center for Applied Legal Studies at Georgetown. She chaired the Governor's Task Force on AIDS in 1988 and 1989. She was appointed to the ADCRC by Governor Mofford in June, 1988 and resigned from the ADCRC in December, 1990.



James B. Matthews

Executive Secretary
Arizona Corporation Commission

Commissioner Matthews has been Executive Secretary for the Arizona Corporation Commission since 1985. Prior to this he was Deputy Director of the Arizona Health Care Cost Containment System (AHCCCS) and a policy advisor in the Arizona Department of Health Services. From 1979-1983 he was a special assistant to Governor Bruce Babbitt. He received his Bachelor's degree in Education and Political Science from the University of New Mexico and his Master of Public Affairs degree from Arizona State University. His term expires in January, 1992. He was appointed by Governor Mofford in January, 1989.



Karen Carter Owens

Attorney
Lewis and Roca

Commissioner Owens is an attorney with Lewis and Roca in Phoenix. She has been associated with this law firm since 1984. She received a Bachelor's degree from Brown University and her law degree from Vanderbilt University. Her main area of professional interest and expertise is in health care. Her major civic involvements have been in health care as well. She was appointed by Governor Mofford in January of 1990. She resigned in December of 1990.



General Public Representatives:

Beth Schermer

Partner

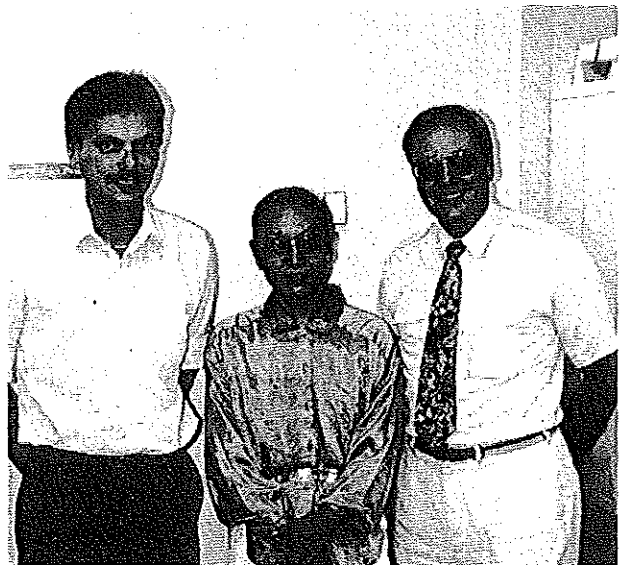
Lewis and Roca

Commissioner Schermer is a partner in the Lewis and Roca law Firm. Her practice is concentrated primarily in the areas of hospital and health care law. She has also been involved in federal and state regulatory arenas as well as with legislative efforts on behalf of health care clients. She is a member of the American Academy of Hospital Attorneys and the National Health Lawyers Association. She graduated Summa Cum Lauda from Yale University in 1977 and received her law degree from Harvard University in 1980. She was appointed to the ADCRC by Governor Fife Symington. Her term of office extends until 1994.



Commission Staff:

The ADCRC staff is composed of an Executive Director, a Business Manager, and an Administrative Assistant. Robert Byars, Ph.D., Executive Director, was appointed in 1988. Toshie Isogai, Business Manager, has been with the Commission since 1988. Joseph Hashem, Administrative Assistant, joined the staff in 1990.



Summary of FY 1990-91 Commission Activities

The Commission had 71 contracts with medical and health researchers in Arizona at the start of FY 1990-91. Appendix A contains a complete listing of all contracts for FY 1990-91.

Approximately 713 Requests for Proposals (RFPs) for FY 1991-92 awards were mailed to potential applicants in August, 1990. The amount available for new contract awards for FY 1991-92 was \$1,776,000. The Commission received 135 proposals by November 2, 1990, in response to the RFP. Appendix B presents summaries of the research applications received. Appendix C contains a listing of the proposals received by priority area. In mid-November, the proposals were sent to panels of national scientific and medical experts for peer evaluation and review. An average of three reviews were sought for each proposal with a goal of receiving at least three evaluations back for each proposal.

In January, the Commission received over 400 proposal evaluations from more than 100 out-of-state peer reviewers. The goal of at least three reviews for each proposal was achieved. The proposals and evaluations were distributed to the Commissioners for their review. The Commissioners formed three subcommittees to facilitate the review process. In April, the Commissioners selected the award-winning proposals from the 135 applications submitted. Thirty-four proposals were funded. A complete list of those selected for new awards may be found in Appendix E.

The 41 continuing awards for FY 1991-92 are listed in Appendix F. During FY 1991-92, the ADCRC will be managing a record number of 75 contracts.

Publications Reported for FY 1990-91

During FY 1990-91 Commission staff compiled a comprehensive bibliography consisting of approximately 300 publications sponsored by ADCRC funds that have appeared in the national and international literature. These professional journal articles, and one book, represent the best reflection we have that the Commission is funding truly meritorious medical research. Besides the clinical advances and other practical spin-offs of ADCRC-funded research, the scientific publications demonstrate that the Commission is helping to advance the frontiers of medical knowledge. Appendix G lists the publications that were reported in FY 1990-91. Publications are included only if the support of the Commission is acknowledged and if we have a copy or reprint of the article in our files. The larger bibliography, containing over 300 citations, is available from the Commission upon request.

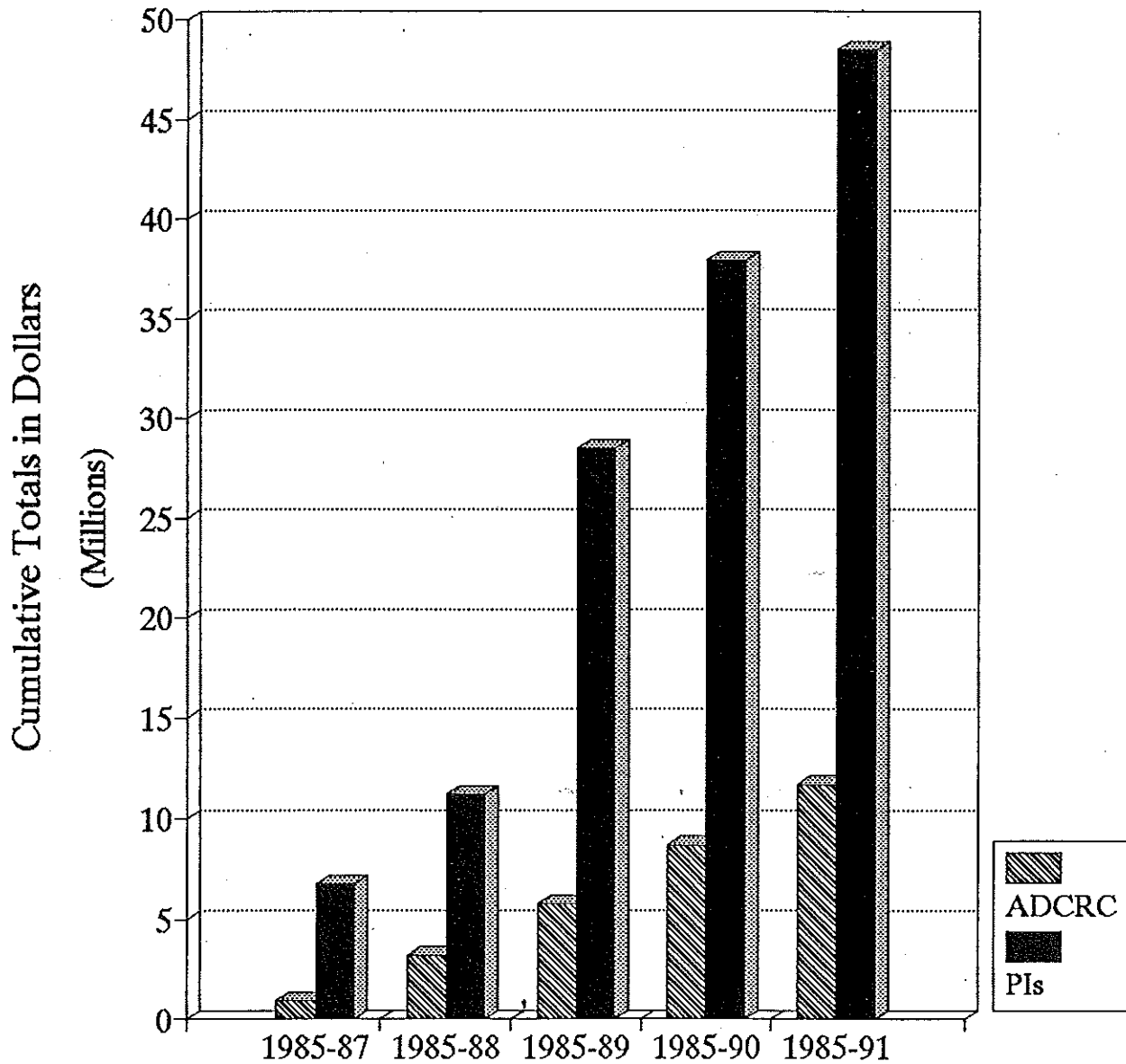
Second Annual
Survey of Principal Investigators' National Grants

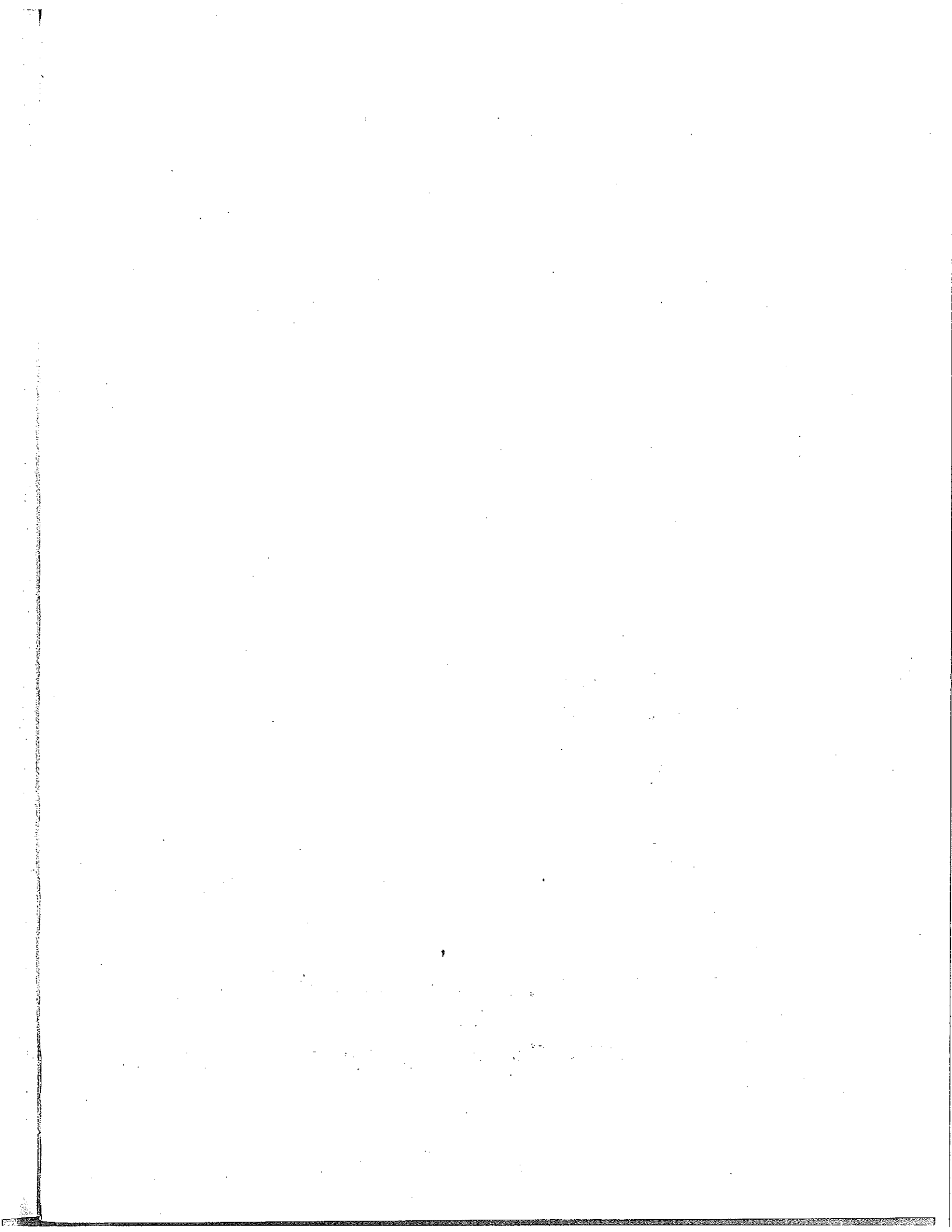
The second annual survey questionnaire of former principal investigators was mailed out in December in order to determine how much funding has come into the State of Arizona as a direct or indirect result of research funded by the ADCRC. There were 136 principal investigators on the list of former awardees of Commission research contracts. Of the 127 principal investigators still residing in the State (one is deceased) 81 (64%) responded.

Cumulative appropriations to the ADCRC between FY 1985-86 and FY 1989-90 amounted to \$11,680,000. The amount of funds attracted to the State (as of June, 1991) as a result of ADCRC-sponsored research was \$48,459,336. (A list of the outside grants may be found in Appendix H.) Using these figures, it can be estimated that each dollar spent on ADCRC research during the first five years of the program has, indirectly or directly, helped to generate at least \$4.15 *so far* in new money coming into Arizona. The accompanying bar graph shows the cumulative appropriations to the ADCRC compared with the cumulative grant funds that ADCRC principal investigators have brought into the State. While it cannot be claimed that Commission sponsorship was solely responsible for these funds coming into the State, it is certain that there is a genuine connection. This does not even consider the multiplier effect that is undoubtedly at work, as each added dollar generates additional research funds for the State.

Besides advancing the health and medical welfare of Arizonans, it can be argued, legitimately, that the program is contributing to economic development and job creation in the State. The survey will be repeated annually so as to remain current on these important statistics.

ADCRC Appropriations vs. Principal Investigators' National Grants



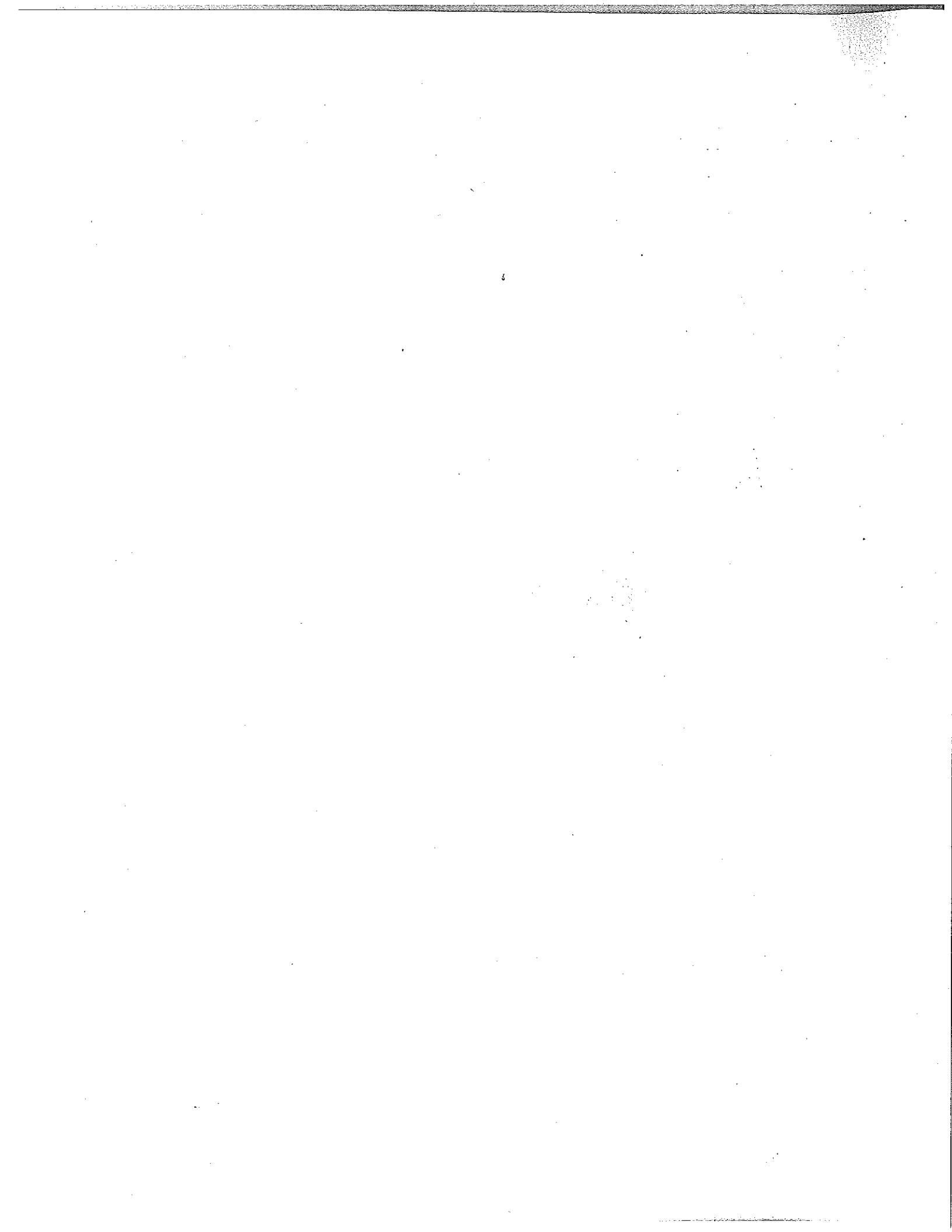


APPENDICES

- Appendix A: Contractors for FY 1990-91
- Appendix B: Summary Statistics of Research Proposals Received for 1991-94 Contract Years
- Appendix C: Research Proposals Received for 1991-94 Contract Years
- Appendix D: Summary Statistics of New Research Contracts for 1991-94 Contract Years
- Appendix E: New Awards for 1991-94 Contract Years
- Appendix F: Continuing Awards for FY 1991-92
- Appendix G: Publications Reported for FY 1990-91
- Appendix H: Survey of Principal Investigators' National Grants

APPENDIX A

Contractors for FY 1990-91



Contractors for FY 1990-91

Cardiovascular and Other Circulatory Diseases/Disorders

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Burt	University of Arizona	Role of Gap Junctions in Vascular Responses	36,800
Gmitro	University of Arizona	In-Vivo Diagnosis and Localization of Disease via NMR and Optical Spectroscopy	25,000
Johnson	University of Arizona	Vascular Reflexes in Hemorrhagic Hypotension	26,100
Keller	Barrow Neurological Institute	Screening for Normalcy of Arterial Vasculature in Human Necks by Magnetic Resonance Angiography	19,000
Kreulen	University of Arizona	Antihypertensive Diuretic Drugs: Neurovascular Sites and Mechanisms of Action	65,000
Lloyd	University of Arizona	Transcatheter Stenting of the Ductus Arteriosus as an Alternative to Surgical Systemic-Pulmonary Arterial Shunts	24,700
MacDonald	Southwest Biomedical Research Institute	Role of Arachidonoyl-Diacylglycerol Kinase in Fatty Acid Homeostasis: Effects on Inhibitors on Cellular Functions Related to Cardiovascular Disease	21,000
Morkin	University of Arizona	Actions of Thyroid Hormone on the Heart: A New Basis for Treatment of Congestive Heart Failure	70,000
Nolan	University of Arizona	Clinical Pharmacokinetics of Amiodarone in the Elderly, Obese and in Individuals with Hepatic Disease	24,800
Thorpe	University of Arizona	Signal Transduction by Guanylate Cyclase	25,000

Health Effects of Environmental Pollutants

Cartmel	University of Arizona	Assessment of the Long Term Health Effects of Occupational Exposure to Tritium in Arizona	24,800
Cluff	Arizona State University	Effects of Hearing Protection on Communication	18,500
Goldberg	University of Arizona	Cardiac Teratogenicity of Halogenated Aliphatic Hydrocarbons and Chromium in Avian and Mammalian Models	90,000

Contractors for FY 1990-91

Health Effects of Environmental Pollutants (Cont'd)

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Pepper	University of Arizona	Health Risks Associated with Bacterial and Viral Pathogens in Groundwater	27,100
Rykowski	University of Arizona	The Structure of Transposon Insertion Sites	25,000
Sommerfeld	Arizona State University	Urban Lakes: Potential Sinks for Biohazardous Substances	24,500
Witte	University of Arizona	Effect of Alcohol on the Hepatic Microvasculature in Vivo and in Vitro	24,500

Health Promotion and Disease Prevention

Dillenberg	Arizona Department of Health Services	A Project to Assess the Actual Fluoride Levels in Arizona Water Supplies and to Determine the Knowledge About and Appropriate Utilization of Dietary Fluoride Supplements by Health Care Providers of Children	30,000
Dillenberg	Arizona Department of Health Services	Survey of Oral Health Status and Treatment Needs of Arizona Elderly	24,700
Egen	University of Arizona	A Technique for Identifying and Quantifying Specific Rattlesnake Venom in Envenomated Patients	24,000
Finley	University of Arizona	The Use of Recombinant DNA Technology and Restriction Fragment Length Polymorphism in the Study of Hemophilla A (Factor VIII Deficiency) and Carrier States in Arizona (Phase II)	22,200
Harrison	University of Arizona	Validation of Objective Measures of Adherence to Low-Fat Diets	24,500
Herman	Good Samaritan Regional Medical Center	Injury Surveillance: State of Arizona	24,900
Holbert	Arizona State University	Radon Mitigation Demonstration: Southwest Tucson	22,200
Keller	Arizona State University	The Relationships among Selected Health Belief Variables and Cardiovascular Risk Factor Status	22,600
Perednia	University of Arizona	Computerized Skin Scanning for Early Detection, Evaluation, and Treatment of Skin Disease	25,000

Contractors for FY 1990-91

Health Promotion and Disease Prevention (Cont'd)

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Weiss	University of Arizona	Relationship between Illiteracy and Health Care Costs among Patients in the AHCCCS Program: Implications for Health Education	28,800

Infectious and Immunologic Diseases/Disorders

Adam	University of Arizona	Giardia Lamblia, an Immunization Strategy Based on a Major Surface Antigen	25,000
Friedman	University of Arizona	Further Development of Rapid Diagnostic Tools for Identification of Bordetella Pertussis	47,250
Friedman	University of Arizona	Studies on the Invasion and Survival of Bordetella Pertussis in Human Monocytes	33,100
Galgiani	University of Arizona	Purification and Application of Antigens from <u>Coccidioides immitis</u> , Phase II	40,000
Joens	University of Arizona	Investigations into the Invasive Properties of <u>Campylobacter jejuni</u>	19,000
McCuskey	University of Arizona	Role of Kupffer Cells in Liver Pathophysiology	24,500
Payne	University of Arizona	Effect of Interferons and Interleukins of Natural Killer Cell-Mediated Damage to the DNA of Virally-Infected Target Cells	24,900
Petersen	University of Arizona	HIV Disease and Treatment in Arizona: Data Collection and Analysis	25,000
Ray	University of Arizona	Molecular Pathogenesis of Epstein-Barr Virus (EBV) in Malignant Lymphomas and Chronic Illness	24,700
Santosham	Johns Hopkins University	BPIG Prophylaxis of Pneumococcal and Other Infections	90,000
Schram	University of Arizona	A New Approach to Diagnosis of HIV Infection and Staging of AIDS Based on Analysis of Urinary Nucleosides by GC-MS	30,000
Witte	University of Arizona	Boosting Extrasplenic Splenomimetic Function to Avert Fatal Post-Splenectomy Sepsis	24,500
Yocum	University of Arizona	Characterization of Epidermal Growth Factor Regulation in Rheumatoid Arthritis	21,000

Contractors for FY 1990-91

Infectious and Immunologic Diseases/Disorders (Cont'd)

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Zautra	Arizona State University	Life Stress and Neuro-Immune Function in Rheumatoid Arthritis	28,700

Malignant Neoplasms

Fennerty	University of Arizona	Clinical and Biologic Studies of Preneoplastic Gastric Lesions	22,300
Gerner	University of Arizona	Hyperthermia Induced Polyamine Acetylation	24,500
Grimes	University of Arizona	Biochemical Studies of the LAK Phenomenon	30,000
Hill	Arizona State University	Enhanced Isolation of Cis-Platinum-Resistant Mutants from Human Tumor Lines Following DNA Synthesis Inhibition	25,000
Laird	University of Arizona	Mechanism of Benzodiazepine Modulation of Normal and Malignant Cell Growth	25,200
Lam	University of Arizona	Antigen-directed Immunotherapy in B-cell Lymphoma	21,000
Miesfeld	University of Arizona	Molecular Determinants of Androgen-Independent Prostate Cell Growth	25,000
Pettit	Arizona State University	Discovery and Development of New Anticancer Drugs	175,000
Salmon	University of Arizona	Arizona Cancer Center Research Program	750,000
Seftor	University of Arizona	Modulation of Cell Surface Dramatically Effects Tumor Cell Invasions: Analysis of Specific Composition and Structural Changes	24,600
Shimizu	University of Arizona	Aspects of Negative Regulation of EGF Receptor Gene Expression	20,900
Smith	Arizona State University	Regulation of <u>c-myc</u> Gene Expression by Interferons	25,000
Yohem	University of Arizona	Modulation of Tumor Cell Invasion by Calcium Channel Blockers	24,900

Contractors for FY 1990-91

Metabolic and Endocrine Disorders

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Bogardus	National Institutes of Health	A New Method to Measure Physical Activity in Man: Relationship with Age and Diabetes Mellitus	23,500
Jeevanandam	St. Joseph's Hospital and Medical Center	Metabolic Responses to Trauma in Obese Subjects and the Nutritional Implications	25,000
Jeevanandam	St. Joseph's Hospital and Medical Center	Evaluation of Biochemical Markers of Catabolism in Trauma	25,000
Rance	University of Arizona	Morphological Alterations in the Central Nervous System of Postmenopausal Women	23,300
Sommercorn	National Institutes of Health	Regulation of Protein Tyrosine Phosphatase Activity by Insulin in Skeletal Muscle of Human Subjects with Different Degrees of Insulin Resistance	25,000
Wright	University of Arizona	Pathways of Drug Excretion	35,000

Neurologic, Mental and Behavioral Diseases/Disorders

Burd	University of Arizona	Effects of Hyperthyroidism and Hypothyroidism on Neural Development	22,100
Civin	Institute for Biogerontology Research	Brain-Immune Interactions in Alzheimer's Disease	24,500
French	University of Arizona	Cellular Neurobiology of Psychosis Producing Drugs of Abuse: A Model for Schizophrenia	21,000
Leonard	Barrow Neurological Institute	Early Locomotor Training in Cerebral Palsied and Normal Infants	26,000
McMullen	University of Arizona	Central Nervous System Sequelae Following Neonatal Deafness	22,300
Moore	University of Arizona	Central Nervous System Tissue Damage and Cognitive Impairments in Children with Acute Lymphoblastic Leukemia	24,900
Prior	Northern Arizona University	Neural Modulation of Central and Peripheral Targets	20,000

Contractors for FY 1990-91

Neurologic, Mental and Behavioral Diseases/Disorders (Cont'd)

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Rogers	Institute for Biogerontology Research	Neuropathology of Memory Associated Regions in Alzheimer's Diseased Brain	21,000
Spetzler	Barrow Neurological Institute	Familial Cavernous Malformations: Study of the Natural History	19,900

Respiratory Diseases

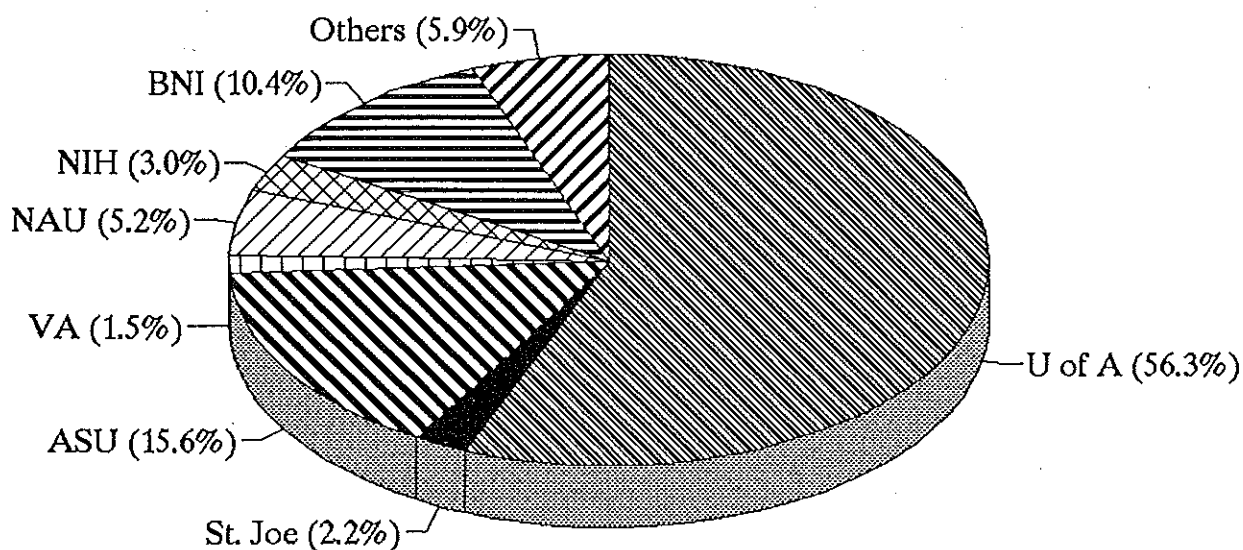
Bloom	University of Arizona	Cholinergic Mechanisms in Bronchoconstriction	24,800
Martinez	University of Arizona	The Role of Orally and Parenterally Administered Growth Factors in Lung Development	20,950

APPENDIX B

**Summary Statistics of
Research Proposals Received
for
1991-94 Contract Years**

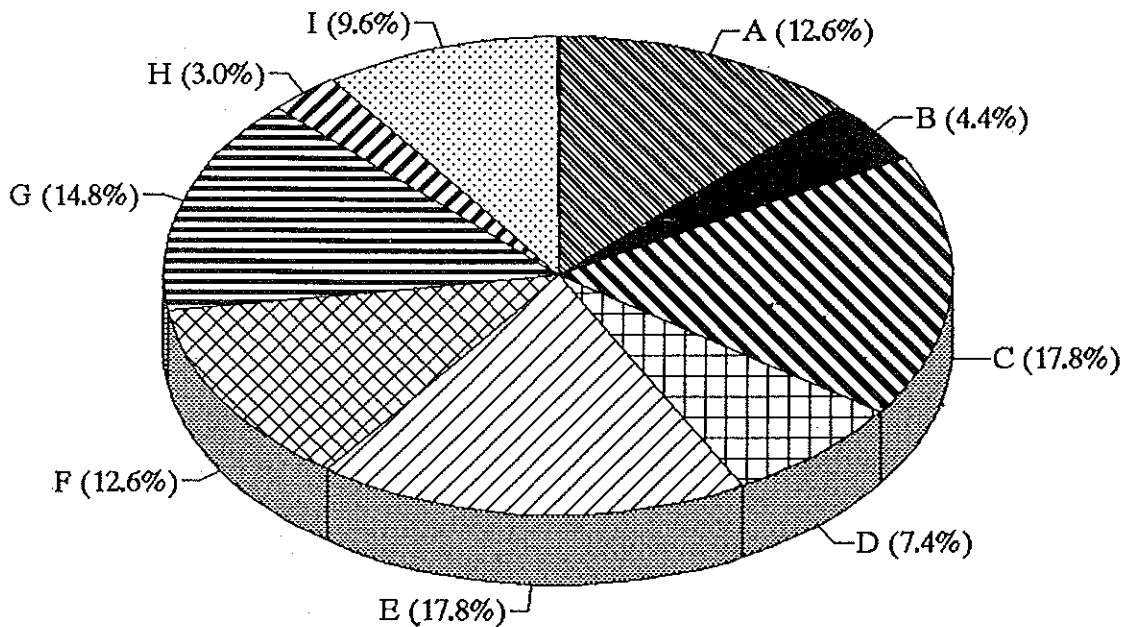
**SUMMARY STATISTICS OF RESEARCH PROPOSALS RECEIVED
for 1991-94 Contract Years**

No.	Institution	No. of Proposals Received	Percentage
1	University of Arizona	76	56.3%
2	Arizona State University	21	15.6%
3	Barrow Neurological Institute	14	10.4%
4	Northern Arizona University	7	5.2%
5	National Institutes of Health	4	3.0%
6	St. Joseph's Hospital and Medical Center	3	2.2%
7	VA Medical Center (Tucson)	2	1.5%
8	Institute of Biogerontology Research	1	0.7%
9	Mayo Clinic	1	0.7%
10	Harrington Arthritis Foundation	1	0.7%
11	Phoenix Children's Hospital	1	0.7%
12	Phoenix South Community Mental Health Center	1	0.7%
13	Arizona Department of Health Services	1	0.7%
14	Radiation Safety Engineering	1	0.7%
15	Western Occupational Health Center	1	0.7%
TOTAL:		135	100.0%



**SUMMARY STATISTICS OF RESEARCH PROPOSALS RECEIVED
for 1991-94 Contract Years**

Priority Area	Priority Area Description	No. of Proposals Received	Percentage
A	Cardiovascular and Other Circulatory Diseases	17	12.6%
B	Health Effects of Environmental Pollutants	6	4.4%
C	Health Promotion and Disease Prevention	24	17.8%
D	Infectious and Immunologic Diseases/Disorders	10	7.4%
E	Malignant Neoplasms	24	17.8%
F	Metabolic and Endocrine Disorders	17	12.6%
G	Neurologic, Mental and Behavioral Diseases/Disorders	20	14.8%
H	Respiratory Diseases	4	3.0%
I	Aging and Disease	13	9.6%
TOTAL:		135	100.0%



APPENDIX C

**Research Proposals Received
for
1991-94 Contract Years**



Research Proposals Received for 1991-94 Contract Years

Cardiovascular and Other Circulatory Diseases/Disorders

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-125	Brendel	University of Arizona	Cultured Myocardial Slices as an Alternative in <u>In Vitro</u> Tool for Toxicity Evaluation	3	24,899 24,589 24,792
1-080	Carter	University of Arizona	Evaluation of Tissue Plasminogen Activator Therapy for the Treatment of Embolic Stroke	1	24,503 - -
1-062	Ewy	University of Arizona	Psychological Effects of a Lowered Serum Cholesterol	3	23,304 23,304 23,854
1-068	Fairchild	University of Arizona	The Differential Effect of Biofeedback Training for the Control of Essential Hypertension	3	24,542 18,079 22,029
1-102	Feinberg	University of Arizona	Activation of the Coagulation System in Patients with Atrial Fibrillation	2	24,996 25,000 -
1-076	Gaballa	University of Arizona	Ventricular Wall Passive Mechanics of Isolated, Normal and Infarcted Canine	3	24,494 24,882 24,882
1-124	Gruener	University of Arizona	Ion Channel Modulation by Membrane Lipids	3	27,000 25,402 26,370
1-042	Hunter	University of Arizona	The Role of Oxygen Free Radical Induced Lipid Peroxidation in Vein Graft Atherosclerosis	2	24,805 24,662 -
1-066	Kern	University of Arizona	Post Resuscitation Myocardial Dysfunction: Characterization and Evaluation of Therapies	3	24,822 24,407 25,000
1-069	Lai	University of Arizona	Molecular Biology of Congenital Heart Disease in Down Syndrome	3	25,000 25,000 25,000
1-111	Larson	University of Arizona	Immunological Determinants of Organ Preservation	3	25,000 25,000 25,000
1-132	Spetzler	Barrow Neurological Institute	Thrombolytic Treatment of Acute Stroke	1	32,149 - -
1-133	Spetzler	Barrow Neurological Institute	Induced Cardiac Arrest and Brain Ischemia	1	52,602 - -

Research Proposals Received for 1991-94 Contract Years

Cardiovascular and Other Circulatory Diseases/Disorders (Cont'd)

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-027	Valenzuela	University of Arizona	Rural and Urban Prehospital Diagnosis and Thrombolytic Treatment and Acute Myocardial Infarction	3	22,570 23,585 24,740
1-064	Wells	University of Arizona	A Model System to Study High Density Lipoprotein Metabolism	3	25,000 25,000 25,000
1-100	Williams	University of Arizona	Whole-body Lymphangioscintigraphy and Lymphatic Transport Measurement in the Assessment of Peripheral Lymphedema	3	24,669 24,393 24,690
1-054	Witte	University of Arizona	Systemic Vascular Leak-Edema Syndrome during Interleukin-2 and Tumor Necrosis Factor Therapy	3	24,970 24,970 24,970

Health Effects of Environmental Pollutants

1-091	Aickin	University of Arizona	Clustering System for Disease Surveillance	1	16,204 -
1-039	Buseck	Arizona State University	Health Effects and Characterization of Particulate Air Pollutants in Arid, Urban Environments: Phoenix and Tucson	3	97,728 116,512 122,212
1-073	Schwartz	University of Arizona	Effects of Subsensory and Olfactory Threshold Exposures of Indoor Air Pollutants on Environmentally Sensitive Individuals	3	25,000 25,000 25,000
1-026	Sipes	University of Arizona	Vitamin A (Retinol) Potentiation of Hepatic Damage Due To Environmental Compounds	3	24,916 25,000 25,000
1-018	Sommerfeld	Arizona State University	Stormwater Runoff: A Source of Non-point Pollution in the Urban Environment	3	69,964 58,436 59,370
1-129	Ulreich	University of Arizona	In Vitro Models for Assessment of the Mechanism of Action of Halogenated Hydrocarbons on the Developing Heart	3	24,985 24,943 24,967

Research Proposals Received for 1991-94 Contract Years

Health Promotion and Disease Prevention

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-010	Balcazar	Arizona State University	Heterogeneity of Low Birth Weight: Implications for Clinical Diagnosis at Birth and Functional Consequences	3	85,258 79,058 42,054
1-075	Bell	University of Arizona	Preventative Effects of Cortisol Reduction and Nutritional Supplementation on Cognitive Dysfunction of Arizona Elderly	3	24,996 24,996 24,996
1-098	Bencherif	Barrow Neurological Institute	Mechanisms of Nicotine Addiction	3	25,000 25,000 25,000
1-009	Bingham	Arizona State University	Biosynthesis of Health Promoting Triglycerides	3	24,936 24,740 24,593
1-048	Clark	University of Arizona	Active Case Finding for Colorectal Cancer with Development of a Primary Care Cancer Prevention Network	3	60,209 33,682 34,799
1-044	Cooper	Arizona Department of Health Services	A Study of the Nature Incidence, and Consequences of Elementary School Playground-Related Injuries in Arizona	2	24,924 5,860 -
1-128	Erickson	University of Arizona	Genetic Susceptibility to Cleft Lip With or Without Cleft Palate	3	25,000 25,000 25,000
1-118	Flores	University of Arizona	Fate of Dietary Carnitine during Development	3	24,652 23,744 24,916
1-071	Gerba	University of Arizona	Virus Penetration of Condoms	2	24,809 25,384 -
1-040	Hastings	University of Arizona	Assessment of the Prevalence of Cyclopiazonic Acid Contamination of Food Commodities in Arizona	2	37,666 39,606 -
1-110	Kronenfeld	Arizona State University	Perceptions of Risk of Child Injury in Arizona as Compared with South Carolina	2	24,970 24,849 -
1-030	McPoil	Northern Arizona University	Effect of Forefoot Deformities on the Duration and Amplitude of Foot Plantar Pressures in Diabetic American Indians	2	24,860 20,350 -
1-055	Michael	Tucson VA Medical Center	The Effects of a Fish Oil Enriched Diet on Glomerular Filtration Dynamics in the Rat	2	25,000 25,000 -

Research Proposals Received for 1991-94 Contract Years

Health Promotion and Disease Prevention (Cont'd)

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-034	Modiano	University of Arizona	Barriers to Cancer Screening in Hispanic Women: A Pilot Study	3	24,998 25,000 24,550
1-083	Park	University of Arizona	Reduction in Primary Liver Cancer and Aflatoxins Induced DNA - Adduct Formation by Dietary Selenium	2	23,671 24,945 -
1-084	Park	University of Arizona	Determination of Anti-Mutagenic/Carcinogenic Effects of Cruciferous Vegetables on Aflatoxin B1 and B2 Mutagenic/Carcinogenic Potentials	2	24,661 24,561 -
1-085	Park	University of Arizona	Reduction of Carcinogenic Risks Posed by Aflatoxin Contamination	2	24,881 24,945 -
1-117	Price	Northern Arizona University	Beliefs and Behaviors in HIV/AIDS and Substance Abuse among Navajo and Hispanic Americans	3	23,155 25,635 26,718
1-020	Roberson	Arizona State University	The Influence of Ketoconazole on Protein Synthesis in <i>Coccidioides Immitus</i> : Pathogen Survival and Recovery	3	23,839 24,558 24,724
1-043	Roehrig	University of Arizona	Reduction of Patient Exposure in Pediatric Radiology	3	24,999 24,999 24,999
1-119	Slack	University of Arizona	Incidence and Cost of Preventable Drug Related Disease in an Ambulatory Medical Clinic	1	24,578 - -
1-016	Soo Hoo	Western Occupational Health Center, Inc.	Can Measurements of Physical Fitness Predict the Incidence and Severity of Work-Related Injuries and Illness in Fire Fighters	1	24,824 - -
1-035	Unger	University of Arizona	Liposomes as Ultrasound Contrast Agents	3	24,998 24,999 24,999
1-074	Unger	University of Arizona	Targeted MR Contrast Agents	2	25,000 25,000 -

Research Proposals Received for 1991-94 Contract Years

Infectious and Immunologic Diseases/Disorders

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-094	Ampel	University of Arizona	Cellular Immune Events in Human Coccidioidomycosis. A Study Comparing Subjects with Disseminated Coccidioidomycosis to Healthy Subjects	2	24,776 24,776 -
1-121	Eskelson	University of Arizona	Kupffer Cell Formation of Ethanol and Its Consequences	3	86,603 72,469 75,536
1-072	Howard	Harrington Arthritis Research Center	The Prevalence of Microbial Antibodies and Their Association with Rheumatoid Factor and HLA-DR in Early Rheumatoid Arthritis	2	56,128 58,166 -
1-012	Jacobs	Arizona State University	Characterization of the Interferon Sensitivity of the Human Immunodeficiency Virus	3	25,000 25,000 25,000
1-103	Marchalonis	University of Arizona	Analysis of Synovial Tissue T Cell Receptor Heterogeneity in a Clinical Subset of Rheumatoid Arthritis	3	150,142 137,932 144,691
1-037	Pizziconi	Arizona State University	Novel Rheumatoid Factor Characterization Study	3	24,995 24,995 24,995
1-095	Rifkind	Northern Arizona University	Host Defense Against Cryptococcus Neoformans	3	23,881 24,103 24,358
1-115	Schram	University of Arizona	Fast ATOM Bombardment Mass Spectrometry of "Antisense" Oligonucleotides	2	55,940 56,960 -
1-107	Timmermann	University of Arizona	Isolation of Anti-HIV Agents from Plants of Arizona	3	24,795 25,000 25,000
1-052	Witte	University of Arizona	Hybridoma-produced Monoclonal Antibodies to AIDS-Kaposi Sarcoma Cells	3	24,970 24,970 24,970

Research Proposals Received for 1991-94 Contract Years

Malignant Neoplasms

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-024	Berens	Barrow Neurological Institute	Brain Metastasis of Melanoma	3	28,586 28,820 33,462
1-033	Berens	Barrow Neurological Institute	Autocrine Growth Stimulation of Gliomas	2	26,079 27,353
1-082	Bernstein	University of Arizona	Genotoxicity of Bile Acids and Protective Effect of Fiber: Relationship to Colon Cancer	3	25,000 25,000 25,000
1-036	Fajardo	University of Arizona	Stereotactic Needle Biopsy of Nonpalpable Breast Lesions Using Electronic Imaging	3	24,970 24,338 23,650
1-097	Fennerty	University of Arizona	Clinical and Biologic Studies of Neoplastic Colorectal Polyps	3	22,242 22,703 23,667
1-123	Glasser	University of Arizona	Response of Human Multiple Myeloma to Akylysophospholipids: Applicability to Treatment and Bone Marrow Purging	3	25,000 25,000 25,000
1-060	Gmitro	University of Arizona	Real-Time Magnetic Resonance Imaging	3	25,000 25,000 25,000
1-013	Goldstein	Arizona State University	A Molecular and Genetic Analysis of the Jun Oncogene	3	25,000 25,000 25,000
1-061	Granstrom	University of Arizona	Clinical Evaluation of a Superparamagnetic Oral Contrast Agent for Abdominal and Pelvic MRI Studies	1	24,420 -
1-005	Hill	Arizona State University	Further Characterization of Cisplatin Resistant Human Ovarian Cell Lines	3	25,000 25,000 25,000
1-099	Lukas	Barrow Neurological Institute	Lung Cancer Cell Expression of Nicotinic Receptors	3	25,000 25,000 25,000
1-031	Metzger	Radiation Safety Engineering, Inc.	Boronated 2-Nitroimidazoles for Boron Neutron Capture Therapy of Cancer	3	29,700 29,700 29,700
1-108	Neumayer	University of Arizona	Biochemical Effects of Mitogen Stimulation of Neoplastic Breast Tissue	2	24,581 23,185

Research Proposals Received for 1991-94 Contract Years

Malignant Neoplasms (Cont'd)

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-120	Pettit	Arizona State University	Discovery and Development of New Anticancer Drugs	3	273,997 286,328 300,359
1-101	Pillai	University of Arizona	Cancer Chemoprevention and Intermediate End Points in a Transgenic Tumor Model	3	24,748 24,748 24,748
1-041	Polt	University of Arizona	New Synthetic Methods: Glycosphingolipids and Glycopeptides (New Regulators of Cell Metabolism)	3	30,182 30,182 30,182
1-023	Salmon	University of Arizona	Arizona Cancer Center Research Program	3	1,300,000 1,358,502 1,419,649
1-096	Sampliner	Tucson VAM/University of Arizona	Pima County Barrett's Esophagus Registry	3	25,000 25,000 25,000
1-051	Scheck	Barrow Neurological Institute	BCNU Resistance in Human Malignant Gliomas: Involvement of Genes of Chromosome 22	3	29,913 29,513 29,027
1-057	Seftor	University of Arizona	Signal Transduction Events Leading to Tumor Cell Invasion	1	24,560 - -
1-056	Stackowiak	Barrow Neurological Institute	Expression of c-Fos and c-Jun Families of Proteins in Human Gliomas	3	25,000 25,000 25,000
1-090	Sutherland	University of Arizona	Isolation and Identification of Tumor-Bound Antibodies and Antigens in Solid Human Tumors	3	23,556 24,463 24,999
1-053	Witte	University of Arizona	In <u>Vitro</u> Model of Kaposi Sarcoma: Phenotypic and Genotypic Profile	3	24,970 24,970 24,970
1-127	Zoellner	Northern Arizona University	Metal-containing Potential Anti-cancer Agents Prepared by Metal Vapor Synthesis (MVS) Techniques. Synthesis, Characterization, and Comparative Deoxyribonucleic Acid (DNA) Binding Studies	3	22,874 23,297 24,173

Research Proposals Received for 1991-94 Contract Years

Metabolic and Endocrine Disorders

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-001	Bieber	Arizona State University	Structural Studies of Parathyroid Hormone-related Peptides by Two Dimensional Nuclear Magnetic Resonance Spectroscopy	3	24,984 25,000 24,998
1-122	Brush	National Institutes of Health	Gene-linked Proteins Producing Non-insulin-dependent Diabetes	2	27,897 29,241
1-003	Dorson	Arizona State University	Continuous Ambulatory Peritoneal Treatment of Diabetes: Research, Simulation and Design of the Hybrid Artificial Pancreas	2	21,204 20,904
1-029	Dorson	Arizona State University	Optimizing the Augmented Hyperbilirubinemia Detoxification System	1	61,916
1-078	Gunderson	Northern Arizona University	The Effect of Exercise on Carbohydrate Metabolism in the Diabetic Animal	3	25,000 26,125 27,405
1-126	Jeevanandam	St. Joseph's Hospital and Medical Center	Benefits of a Time-Dependent, Tailored, Nutritional Support to Severely Injured Trauma Patients	3	28,930 30,377 31,897
1-045	Knowler	National Institutes of Health	Prevention of Non-Insulin-Dependent Diabetes - A Pilot Study	3	48,650 49,739 26,123
1-089	Lillioja	National Institutes of Health	Protein Markers for Noninsulin Dependent Diabetes Mellitus in Native Americans	3	25,000 25,000 25,000
1-116	Lund	University of Arizona	Polymers as Gastrointestinal Contrast Agents for Diagnostic Ultrasound	3	24,999 22,886 22,558
1-070	Lynch	University of Arizona	Inter-relations between Hexokinase and Glucokinase Activities in Modulating Cell Energy State and Excitability in Insulin Secreting Cells	3	25,000 25,000 24,999
1-113	Putnam	University of Arizona	Inhibition of Hepatic Regeneration: Predisposition to Hepatic Failure	3	24,805 24,440 24,915
1-063	Rao	University of Arizona	Role of Epidermal Growth Factor in Gastrointestinal Secretions	3	24,847 24,164 24,708
1-028	Reid	University of Arizona	Metabolic Adaptation to Dietary Lipids and Relation to Obesity and Aging	2	32,627 30,246

Research Proposals Received for 1991-94 Contract Years

Metabolic and Endocrine Disorders (Cont'd)

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-015	Sommercorn	National Institutes of Health	The Role of Protein Kinase C-Mediated Signal Transduction in Insulin Resistance in Pima Indians	3	102,575 102,335 108,403
1-112	Stevens	Northern Arizona University	Diabetes: Stress, Behavior, Metabolic Control, and Moderators	2	27,669 28,690 -
1-011	Williams	Arizona State University	Genetic Susceptibility to Non-insulin-dependent Diabetes Mellitus in the Pima Indians of Arizona	2	58,713 39,704 -
1-021	Wilson	University of Arizona	Structure and Dynamics of Endosomes in Developing Intestine	3	24,999 24,999 24,999

Neurologic, Mental and Behavioral Diseases/Disorders

1-109	Carter	Mayo Clinic Scottsdale	A Double-Blind, Placebo-Controlled Crossover Trial of 3, 4-Diaminopyridine in the Symptomatic Treatment of Multiple Sclerosis	2	25,000 25,000 -
1-025	Gordon	University of Arizona	Localization of Synaptic Elements in Hybrid Muscle Cells	3	25,000 25,000 25,000
1-002	Gustavson	Arizona State University	Relationship of Fetal Exposure to Steroid Hormones and Profound Weight Loss during Adolescence and Adulthood: Development of an Animal Model of Anorexinervosa	3	32,761 37,888 32,427
1-130	Harrington	Barrow Neurological Institute	Cerebral Blood Flow Monitoring in Head Injury	3	53,473 53,473 5,146
1-004	Hoffman	Arizona State University	Neuropsychiatric Involvement in Immunologic Disease	3	25,000 25,000 25,000
1-079	Johnson	University of Arizona	Effect of Alcohol and Phenobarbital Exposure on Neonatal Axonal and Dendritic Development	3	24,981 24,976 24,093
1-092	Kaplan	Phoenix Children's Hospital	Positron Emission Tomography (PET) in Children with Neurofibromatosis (NF)	1	22,000 - -

Research Proposals Received for 1991-94 Contract Years

Neurologic, Mental and Behavioral Diseases/Disorders (Cont'd)

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-014	Lien	University of Arizona	Alcohol Effect on Cell Volume Regulation in the Brain: Study of the Pathogenesis of Central Pontine Myelinolysis	3	25,000 25,000 25,000
1-065	MacFarlane	Phoenix South Community Mental Health Center	Adolescent Suicide in Arizona: A Psycho-Sociological Autopsy Investigation	3	24,537 24,930 24,930
1-038	Montfort	University of Arizona	Structural Studies of Tau, An Aberrant Protein in Alzheimer's Patients	3	25,000 25,000 25,000
1-106	Montgomery	University of Arizona	Pathophysiology of Parkinsonism - Neuronal Studies in Monkeys	3	24,970 24,970 24,970
1-058	Packard	Northern Arizona University	Alcoholic Anonymous Assistance Research Project	3	25,000 25,000 25,000
1-086	Prigatano	Barrow Neurological Institute	Neuropsychological and MRI Predictors of Sustained Employment Several Years Post Craniocerebral Trauma	2	24,274 24,413 -
1-135	Spetzler	Barrow Neurological Institute	The Role of Intracranial Pressure in Hemostasis and Primary Brain Injury Following Experimental Subarachnoid Hemorrhage	1	14,892 - -
1-050	St. John	University of Arizona	Down-Regulation of Neuronal Tackynin Receptors	3	24,860 24,847 24,977
1-088	Stachowiak	Barrow Neurological Institute	Transcriptional Regulatory Factors in Cancer and Development	3	25,000 25,000 25,000
1-007	Stelmach	Arizona State University	The Locus of Bradykinesia in Parkinson's Disease	3	25,000 25,000 25,000
1-049	Von Cloedt-Wood	Barrow Neurological Institute	The Prevalence of Post Concussion Syndrome in Mild Head Injury	1	9,529 - -

Research Proposals Received for 1991-94 Contract Years

Neurologic, Mental and Behavioral Diseases/Disorders (Cont'd)

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-114	Yamamura	University of Arizona	Antidepressant Drug Mechanisms Studied Using Recombinant Cells Expressing Human and Rat 5HT-1A Receptors	3	24,750 24,750 24,750
1-131	Yamamura	University of Arizona	Identification of the Delta Opioid Receptor Gene	3	24,750 24,750 24,750

Respiratory Diseases

1-077	Bloom	University of Arizona	The Role of the Nonadrenergic Noncholinergic Nervous System in Asthma	3	23,803 24,223 24,702
1-105	Heffner	St. Joseph's Hospital and Medical Ctr.	Evaluation of Polyamine Levels in the Adult Respiratory Distress Syndrome	2	19,800 20,691 -
1-134	Sonntag	Barrow Neurological Institute	Treatment of Fat Embolism in a Canine Model	1	34,123 - -
1-006	Tai	Arizona State University	Studies on the Iron Uptake System of <u>Streptococcus Pneumoniae</u> and Its Application in the Vaccine Development	3	25,000 25,000 25,000

Aging and Disease

1-017	Allen	University of Arizona	Satellite Cell Activation in Aging Skeletal Muscle and the Role of Insulin-like Growth Factor I	2	24,944 24,811 -
1-081	Bagnara	University of Arizona	The Action of Pigment Cell Stimulating or Inhibiting Factors from the Vertebrate Integument on Cultured Normal Human Melanocytes and Melanoma Cells	2	24,929 24,983 -
1-046	Crosby	University of Arizona	Variables and Sleep Patterns of Elderly Persons with Rheumatoid Arthritis	3	24,251 24,380 22,435

Research Proposals Received for 1991-94 Contract Years

Aging and Disease (Cont'd)

<u>ID No.</u>	<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Yrs</u>	<u>Budget Amount</u>
1-087	Davis	University of Arizona	Somatostatin and Substance P Metabolism and Peptidase Activity Are Altered in Alzheimer's Disease	3	27,426 27,651 29,006
1-067	Jeevanandam	St. Joseph's Hospital and Medical Ctr.	Adjuvant Growth Hormone Therapy for Geriatric Obese Traumatized Man	3	28,930 30,377 31,897
1-104	Kay	University of Arizona	Cellular Life Span Manipulation in Aging and Alzheimer's Disease	3	124,150 117,897 123,674
1-022	Mooradian	University of Arizona	Age-related Changes in Thyroid Hormone Action	3	24,982 24,998 24,998
1-019	O'Connor	Arizona State University	Effect of Exercise in the Prevention of Depression in the Elderly	3	25,000 24,360 23,739
1-093	Potts	University of Arizona	Early Detection of Age-Related Macular Degeneration (AMD)	2	40,728 33,073
1-032	Reed	University of Arizona	A Randomized Controlled Trial of Growth Hormone to Improve the Rehabilitative Outcomes of Total Knee Replacement in the Elderly	3	24,998 24,974 24,971
1-047	Regan	University of Arizona	Molecular Identification of Adrenergic Receptor Subtypes Involved in the Treatment of Glaucoma	3	24,974 25,036 25,047
1-008	Rice	Arizona State University	Identifying and Changing Older Adults' Misconceptions about Oral Health Care	3	24,220 24,517 24,059
1-059	Schultz	Institute for Biogerontology Research	Age-Related Prostatic Involution and Tumorigenesis	3	25,000 25,000 25,000

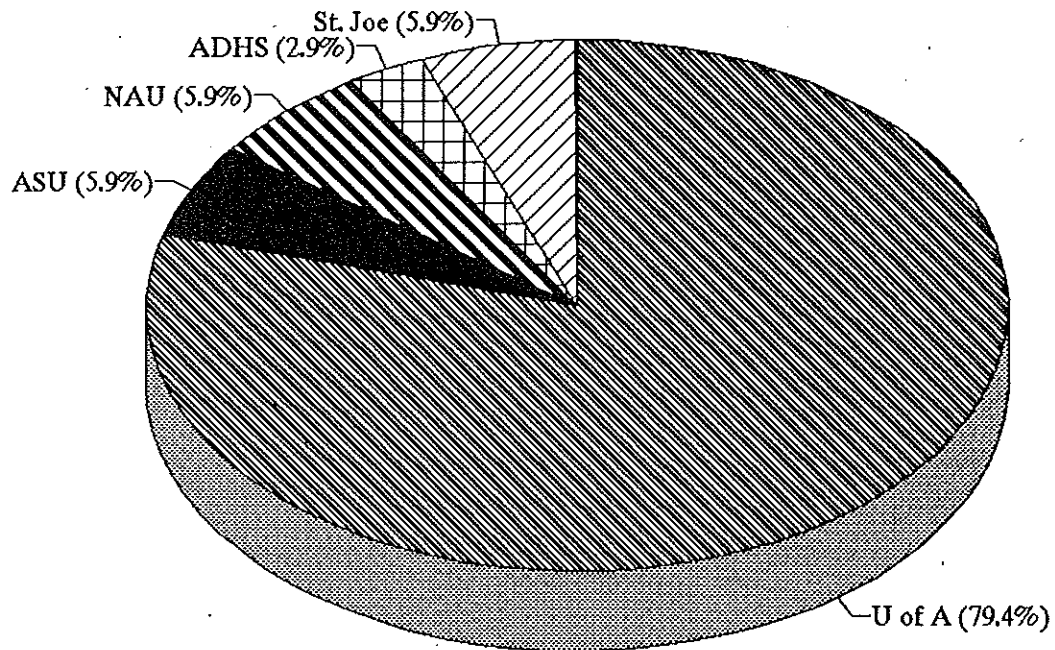
APPENDIX D

**Summary Statistics of
New Research Contracts
for
1991-94 Contract Years**



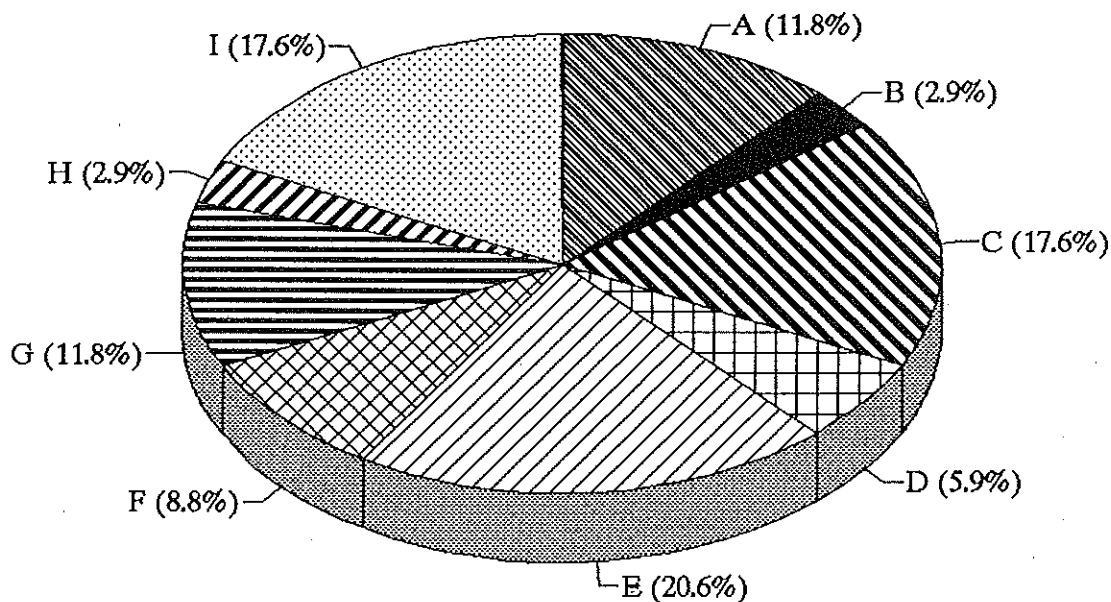
**SUMMARY STATISTICS OF NEW RESEARCH CONTRACTS
for 1991-94 Contract Years**

<u>No.</u>	<u>Institution</u>	<u>No. of New Contracts</u>	<u>Per- centage</u>
1	University of Arizona	27	79.4%
2	Arizona State University	2	5.9%
3	Northern Arizona University	2	5.9%
4	St. Joseph's Hospital and Medical Center	2	5.9%
5	Arizona Department of Health Services	1	2.9%
TOTAL:		34	100.0%



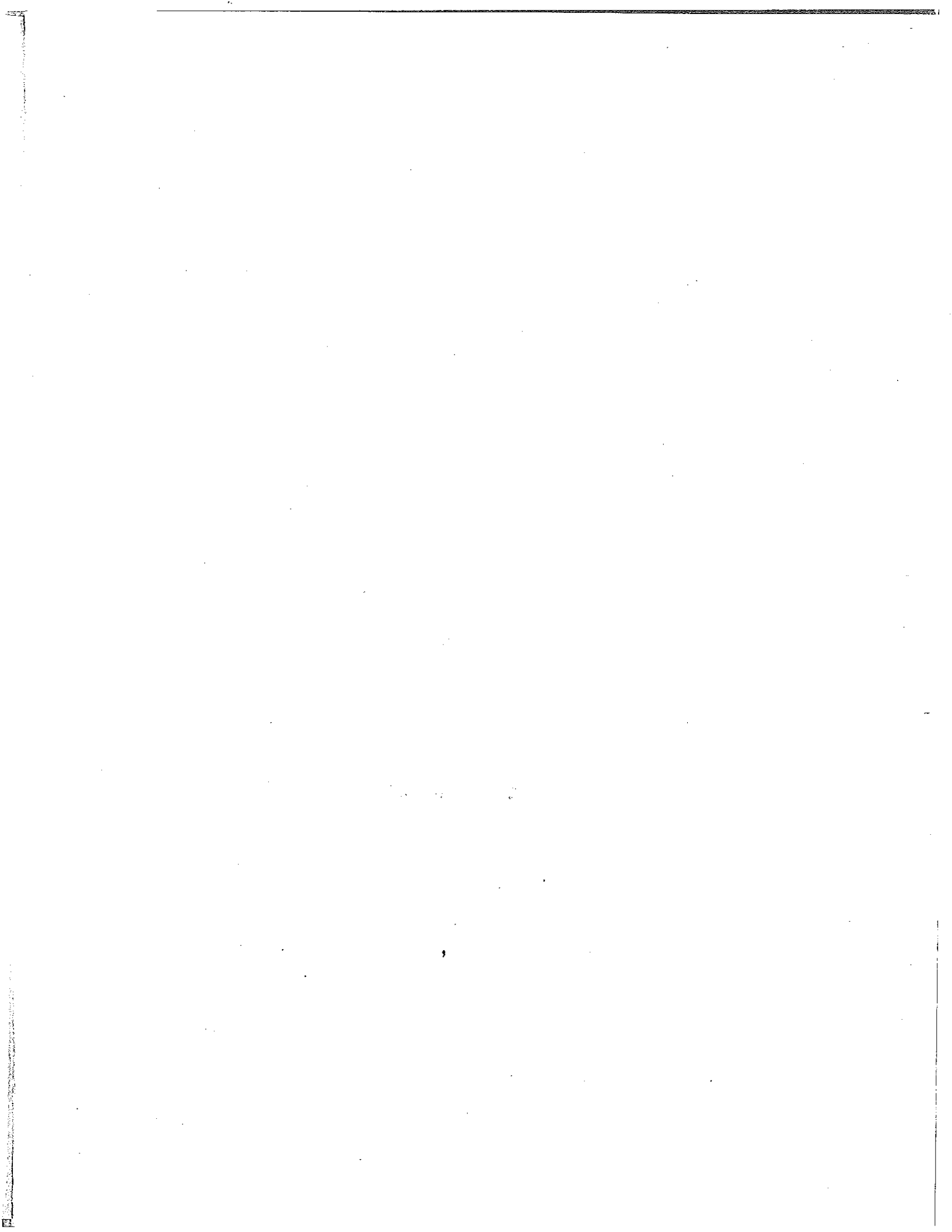
**SUMMARY STATISTICS OF NEW RESEARCH CONTRACTS
for 1991-94 Contract Years**

Priority Area	Priority Area Description	No. of New Contracts	Percentage
A	Cardiovascular and Other Circulatory Diseases	4	11.8%
B	Health Effects of Environmental Pollutants	1	2.9%
C	Health Promotion and Disease Prevention	6	17.6%
D	Infectious and Immunologic Diseases/Disorders	2	5.9%
E	Malignant Neoplasms	7	20.6%
F	Metabolic and Endocrine Disorders	3	8.8%
G	Neurologic, Mental and Behavioral Diseases/Disorders	4	11.8%
H	Respiratory Diseases	1	2.9%
I	Aging and Disease	6	17.6%
TOTAL:		34	100.0%



APPENDIX E

**New Awards
for
1991-94 Contract Years**



New Awards for 1991-94 Contract Years

Cardiovascular and Other Circulatory Diseases/Disorders

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Brendel	University of Arizona	Cultured Myocardial Slices as an Alternative in <u>In Vitro</u> Tool for Toxicity Evaluation	25,000
Carter	University of Arizona	Evaluation of Tissue Plasminogen Activator Therapy for the Treatment of Embolic Stroke	23,500
Gruener	University of Arizona	Ion Channel Modulation by Membrane Lipids	24,000
Williams	University of Arizona	Whole-body Lymphangioscintigraphy and Lymphatic Transport Measurement in the Assessment of Peripheral Lymphedema	20,000

Health Effects of Environmental Pollutants

Aickin	University of Arizona	Clustering System for Disease Surveillance	15,000
--------	-----------------------	--	--------

Health Promotion and Disease Prevention

Bencherif	St. Joseph's Hospital and Medical Center	Mechanisms of Nicotine Addiction	23,500
Cooper	Arizona Department of Health Services	A Study of the Nature Incidence, and Consequences of Elementary School Playground-Related Injuries in Arizona	23,500
Flores	University of Arizona	Fate of Dietary Carnitine during Development	23,500
Modiano	University of Arizona	Barriers to Cancer Screening in Hispanic Women: A Pilot Study	23,500
Roehrig	University of Arizona	Reduction of Patient Exposure in Pediatric Radiology	20,000
Unger	University of Arizona	Targeted MR Contrast Agents	23,500

New Awards for 1991-94 Contract Years

Infectious and Immunologic Diseases/Disorders

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Marchalonis	University of Arizona	Analysis of Synovial Tissue T Cell Receptor Heterogeneity in a Clinical Subset of Rheumatoid Arthritis	49,000
Timmermann	University of Arizona	Isolation of Anti-HIV Agents from Plants of Arizona	23,500

Malignant Neoplasms

Bernstein	University of Arizona	Genotoxicity of Bile Acids and Protective Effect of Fiber: Relationship to Colon Cancer	20,000
Glasser	University of Arizona	Response of Human Multiple Myeloma to Akyllsophospholipids: Applicability to Treatment and Bone Marrow Purging	23,500
Pettit	Arizona State University	Discovery and Development of New Anticancer Drugs	205,000
Salmon	University of Arizona	Arizona Cancer Center Research Program	805,000
Seftor	University of Arizona	Signal Transduction Events Leading to Tumor Cell Invasion	23,500
Witte	University of Arizona	<u>In Vitro</u> Model of Kaposi Sarcoma: Phenotypic and Genotypic Profile	23,500
Zoellner	Northern Arizona University	Metal-containing Potential Anti-cancer Agents Prepared by Metal Vapor Synthesis (MVS) Techniques. Synthesis, Characterization, and Comparative Deoxyribonucleic Acid (DNA) Binding Studies	20,000

Metabolic and Endocrine Disorders

Lynch	University of Arizona	Inter-relations between Hexokinase and Glucokinase Activities in Modulating Cell Energy State and Excitability in Insulin Secreting Cells	23,500
Putnam	University of Arizona	Inhibition of Hepatic Regeneration: Predisposition to Hepatic Failure	23,500

New Awards for 1991-94 Contract Years

Metabolic and Endocrine Disorders (Cont'd)

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Rao	University of Arizona	Role of Epidermal Growth Factor in Gastrointestinal Secretions	23,500

Neurologic, Mental and Behavioral Diseases/Disorders

Gordon	University of Arizona	Localization of Synaptic Elements in Hybrid Muscle Cells	10,000
Johnson	University of Arizona	Effect of Alcohol and Phenobarbital Exposure on Neonatal Axonal and Dendritic Development	23,500
Packard	Northern Arizona University	Alcoholic Anonymous Assistance Research Project	23,500
Yamamura	University of Arizona	Antidepressant Drug Mechanisms Studied Using Recombinant Cells Expressing Human and Rat 5HT-1A Receptors	23,500

Respiratory Diseases

Tai	Arizona State University	Studies on the Iron Uptake System of <u>Streptococcus Pneumoniae</u> and Its Application in the Vaccine Development	23,500
-----	--------------------------	---	--------

Aging and Disease

Allen	University of Arizona	Satellite Cell Activation in Aging Skeletal Muscle and the Role of Insulin-like Growth Factor I	23,500
Davis	University of Arizona	Somatostatin and Substance P Metabolism and Peptidase Activity Are Altered in Alzheimer's Disease	23,500
Jeevanandam	St. Joseph's Hospital and Medical Center	Adjuvant Growth Hormone Therapy for Geriatric Obese Traumatized Man	24,000
Kay	University of Arizona	Cellular Life Span Manipulation in Aging and Alzheimer's Disease	47,000

New Awards for 1991-94 Contract Years

Aging and Disease (Cont'd)

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Reed	University of Arizona	A Randomized Controlled Trial of Growth Hormone to Improve the Rehabilitative Outcomes of Total Knee Replacement in the Elderly	23,500
Regan	University of Arizona	Molecular Identification of Adrenergic Receptor Subtypes Involved in the Treatment of Glaucoma	23,500

APPENDIX F

**Continuing Awards
for
FY 1991-92**



Continuing Awards for FY 1991-92

Cardiovascular and Other Circulatory Diseases/Disorders

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Burt	University of Arizona	Role of Gap Junctions in Vascular Responses	36,800
Johnson	University of Arizona	Vascular Reflexes in Hemorrhagic Hypotension	26,200
MacDonald	Southwest Biomedical Research Institute	Role of Arachidonoyl-Diacylglycerol Kinase in Fatty Acid Homeostasis: Effects on Inhibitors on Cellular Functions Related to Cardiovascular Disease	21,000
Morkin	University of Arizona	Actions of Thyroid Hormone on the Heart: A New Basis for Treatment of Congestive Heart Failure	70,000
Nolan	University of Arizona	Clinical Pharmacokinetics of Amiodarone in the Elderly, Obese and in Individuals with Hepatic Disease	24,900
Thorpe	University of Arizona	Signal Transduction by Guanylate Cyclase	25,000

Health Effects of Environmental Pollutants

Cartmel	University of Arizona	Assessment of the Long Term Health Effects of Occupational Exposure to Tritium in Arizona	24,600
Pepper	University of Arizona	Health Risks Associated with Bacterial and Viral Pathogens in Groundwater	29,800
Rykowski	University of Arizona	The Structure of Transposon Insertion Sites	25,000

Health Promotion and Disease Prevention

Dillenberg	Arizona Department of Health Services	Survey of Oral Health Status and Treatment Needs of Arizona Elderly	24,100
------------	---------------------------------------	---	--------

Continuing Awards for FY 1991-92

Health Promotion and Disease Prevention (Cont'd)

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Finley	University of Arizona	The Use of Recombinant DNA Technology and Restriction Fragment Length Polymorphism in the Study of Hemophilia A (Factor VIII Deficiency) and Carrier States in Arizona (Phase II)	22,200
Herman	Good Samaritan Regional Medical Center	Injury Surveillance: State of Arizona	26,100
Weiss	University of Arizona	Relationship between Illiteracy and Health Care Costs among Patients in the AHCCCS Program: Implications for Health Education	33,700

Infectious and Immunologic Diseases/Disorders

Adam	University of Arizona	Giardia Lamblia, an Immunization Strategy Based on a Major Surface Antigen	26,200
Friedman	University of Arizona	Studies on the Invasion and Survival of Bordetella Pertussis in Human Monocytes	34,100
Galgiani	University of Arizona	Purification and Application of Antigens from <u>Coccidioides immitis</u> , Phase II	40,000
Joens	University of Arizona	Investigations into the Invasive Properties of <u>Campylobacter jejuni</u>	19,000
Payne	University of Arizona	Effect of Interferons and Interleukins of Natural Killer Cell-Mediated Damage to the DNA of Virally-Infected Target Cells	24,900
Petersen	University of Arizona	HIV Disease and Treatment in Arizona: Data Collection and Analysis	25,000
Ray	University of Arizona	Molecular Pathogenesis of Epstein-Barr Virus (EBV) in Malignant Lymphomas and Chronic Illness	24,600
Zautra	Arizona State University	Life Stress and Neuro-Immune Function in Rheumatoid Arthritis	29,700

Continuing Awards for FY 1991-92

Malignant Neoplasms

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
Fennerty	University of Arizona	Clinical and Biologic Studies of Preneoplastic Gastric Lesions	23,300
Grimes	University of Arizona	Biochemical Studies of the LAK Phenomenon	30,000
Laird	University of Arizona	Mechanism of Benzodiazepine Modulation of Normal and Malignant Cell Growth	20,900
Lam	University of Arizona	Antigen-directed Immunotherapy in B-cell Lymphoma	21,000
Miesfeld	University of Arizona	Molecular Determinants of Androgen-Independent Prostate Cell Growth	25,000
Shimizu	University of Arizona	Aspects of Negative Regulation of EGF Receptor Gene Expression	21,900
Smith	Arizona State University	Regulation of <u>c-myc</u> Gene Expression by Interferons	25,000
Yochem	University of Arizona	Modulation of Tumor Cell Invasion by Calcium Channel Blockers	24,900

Metabolic and Endocrine Disorders

Rance	University of Arizona	Morphological Alterations in the Central Nervous System of Postmenopausal Women	24,100
Sommercorn	National Institutes of Health	Regulation of Protein Tyrosine Phosphatase Activity by Insulin in Skeletal Muscle of Human Subjects with Different Degrees of Insulin Resistance	25,000
Wright	University of Arizona	Pathways of Drug Excretion	35,000

Neurologic, Mental and Behavioral Diseases/Disorders

Burd	University of Arizona	Effects of Hyperthyroidism and Hypothyroidism on Neural Development	24,100
------	-----------------------	---	--------

Continuing Awards for FY 1991-92

Neurologic, Mental and Behavioral Diseases/Disorders (Cont'd)

<u>Principal Investigator</u>	<u>Institution</u>	<u>Project Title</u>	<u>Award Amount</u>
French	University of Arizona	Cellular Neurobiology of Psychosis Producing Drugs of Abuse: A Model for Schizophrenia	21,000
Leonard	Barrow Neurological Institute	Early Locomotor Training in Cerebral Palsied and Normal Infants	25,400
McMullen	University of Arizona	Central Nervous System Sequelae Following Neonatal Deafness	20,900
Moore	University of Arizona	Central Nervous System Tissue Damage and Cognitive Impairments in Children with Acute Lymphoblastic Leukemia	24,900
Prior	Northern Arizona University	Neural Modulation of Central and Peripheral Targets	20,000
Rogers	Institute for Biogerontology Research	Neuropathology of Memory Associated Regions in Alzheimer's Diseased Brain	21,000
Spetzler	Barrow Neurological Institute	Familial Cavernous Malformations: Study of the Natural History	21,100

Respiratory Diseases

Martinez	University of Arizona	The Role of Orally and Parenterally Administered Growth Factors in Lung Development	20,950
----------	-----------------------	---	--------

APPENDIX G

**Publications Reported
for
FY 1990-91**



Publications Reported for FY 1990-91

- Alexander, A., Davenport, C., Gmitro, A. "Fluorescence Spectroscopy of Normal and Atheromatous Human Aorta: Optimum Illumination Wavelength" SPIE Proceedings, 1425:6-15, 1991.
- Altbach, M., Mattingly, M., Brown, M., Gmitro, A. "Magnetic Resonance Imaging of Lipid Deposits in Human Atheroma via a Stimulated-Echo Diffusion-Weighted Technique" Magnetic Resonance in Medicine, 20:319-326, 1991.
- Ampel, N., Galgiani, J. "Interaction of Human Peripheral Blood Mononuclear Cells with *Coccidioides Immitis* Arthroconidia" Cellular Immunology, 133:253-262, 1991.
- Bai, R., Pettit, G., Hamel, E. "Binding of Dolastatin 10 to Tubulin at a Distinct Site for Peptide Antimitotic Agents Near the Exchangeable Nucleotide and Vinca Alkaloid Sites" The Journal of Biological Chemistry, 265(28):17141-17149, 1990.
- Bartlett, A., Englender, S., Jarvis, B., Ludwig, L., Carlson, J., Topping, J. "Controlled Trial of *Giardia lamblia*: Control Strategies in Day Care Centers" American Journal of Public Health, 81(6):1001-1006, June 1991.
- Bradshaw, T., Gescher, A., Pettit, G. "The Effect of Fetal Calf Serum on Growth Arrest Caused by Activators of Protein Kinase C" International Journal on Cancer, 47:929-932, 1991.
- Brady, D., Mufson, E. "Alz-50 Immunoreactive Neuropil Differentiates Hippocampal Complex Subfields in Alzheimer's Disease" The Journal of Comparative Neurology, 305:489-507, 1991.
- Brady, D., Mufson, E. "Amygdaloid Pathology in Alzheimer's Disease: Qualitative and Quantitative Analysis" Dementia, 1:5-17, 1990.
- Buller, D., Buller, M. "Approaches to Communicating Preventive Behaviors" Seminars in Oncology Nursing, 7(1):53-63, February 1991.
- Carper, S., Willis, D., Manning, K., Gerner, E. "Spermidine Acetylation in Response to a Variety of Stresses in *Escherichia coli*" The Journal of Biological Chemistry, 266(19):12439-12441, 1991.
- Chong, A., Pinkard, J., Lam, K., Scuderi, P., Hersh, E., Grimes, W. "Ability of Cell-Sized Beads Bearing Tumor Cell Membrane Proteins to Stimulate LAK Cells to Secrete Interferon- γ and Tumor Necrosis Factor- α " Cellular Immunology, 134:96-110, 1991.
- Chong, A., Ybarrondo, B., Grimes, W., Hersh, E., Scuderi, P. "Phenotypic Analyses of Lymphokine-Activated Killer Cells that Release Interferon γ and tumor necrosis factor α " Cancer Immunology Immunotherapy, 31:255-259, 1990.
- Dantzler, W., Wright, S., Brokl, O. "Tetraethylammonium Transport by Snake Renal Brush-Border Membrane Vesicles" European Journal of Physiology, 418:325-332, 1991.
- Davenport, C., Alexander, A., Gmitro, A. "Optimal Fluorescence Imaging of Atherosclerotic Human Tissue" SPIE Proceedings, 1425:16-27, 1991.
- Dawson, B., Johnson, P., Goldberg, S., Ulreich, J. "Cardiac Teratogenesis of Trichloroethylene and Dichloroethylene in a Mammalian Model" Journal of the American College of Cardiology, 16(5):1304-1309, November 1990.
- Dillenberg, J., Gerston, E., Riggs, L. "Fluoride Supplementation...for the Life of Your Practice" A Resource Guide.

Publications Reported for FY 1990-91

- Dugger, K., Galgiani, J., Ampel, N., Sun, S., Magee, D., Harrison, J., Law, J. "An Immunoreactive Apoglycoprotein Purified from *Coccidioides Immitis*" Infection and Immunity, 59(7):2245-2251, July 1991.
- Eguchi, H., McCuskey, P., McCuskey, R. "Kupffer Cell Activity and Hepatic Microvascular Events after Acute Ethanol Ingestion in Mice" Hepatology, 13(4):751-757, April 1991.
- French, E., Ferkany, J., Abreu, M., Levenson, S. "Effects of Competitive *N*-Methyl-*D*-Aspartate Antagonists on Midbrain Dopamine Neurons: An Electrophysiological and Behavioral Comparison to Phencyclidine" Neuropharmacology, 1991.
- Friedman, R., Paulaitis, S., McMillan, J. "Development of a Rapid Diagnostic Test for Pertussis: Direct Detection of Pertussis Toxin in Respiratory Secretions" Journal of Clinical Microbiology, 27(11):2466-2470, November 1989.
- Fuller, D., Carper, S., Clay, L., Chen, J., Gerner, E. "Polyamine Regulation of Heat-Shock-Induced Spermidine *N*¹-Acetyltransferase Activity" Biochemistry Journal, 267:601-605, 1990.
- Galgiani, J., Grace, G., Lundergan, L. "New Serologic Tests for Early Detection of Coccidioidomycosis" The Journal of Infectious Diseases, 163:671-674, 1991.
- Gardner, D., Shimizu, N. "TPA Induces Repression of EGF Receptor Gene Expression" Federation of European Biochemical Societies, 269(2):288-291, September 1990.
- Garewal, H., Gerner, E., Sampliner, R., Roe, D. "Ornithine Decarboxylase and Polyamine Levels in Columnar Upper Gastrointestinal Mucosae in Patients with Barrett's Esophagus" Cancer Research, 48:3288-3291, June 1988.
- Garewal, H., Sampliner, R., Gerner, E., Steinbronn, K., Alberts, D., Kendall D. "Ornithine Decarboxylase Activity in Barrett's Esophagus: A Potential Marker for Dysplasia" Gastroenterology, 94:819-821, 1988.
- Gerris, K., Putnam, C., Laird, H. "Prolactin-Stimulated Mitogenesis in the NB2 Rat Lymphoma Cell: Lack of Protoporphyrin IX Effects" Life Sciences, 47:1647-1653, August 1990.
- Gignac, S., Buschle, M., Roberts, M., Pettit, G., Hoffbrand, A., Drexler, H. "Differential Expression of TRAP Isoenzyme in B-CLL Cells Treated With Different Inducers" Leukemia and Lymphoma, 3:19-29, 1990.
- Gmitro, A., Alexander, A., Davenport, C. "Optimal Illumination Wavelength for Fluorescence Spectroscopy of Atheromatous Plaque" SPIE Proceedings, 1201:544-551, 1990.
- Harari, P., Fuller, D., Carper, S., Croghan, M., Meyskens, F., Shimm, D., Gerner, E. "Polyamine Biosynthesis Inhibitors Combined with Systemic Hyperthermia in Cancer Therapy" International Journal on Radiation Oncology Biological Physiology, 19:89-96, 1990.
- Harari, P., Fuller, D., Gerner, E. "Heat Shock Stimulates Polyamine Oxidation by Two Distinct Mechanisms in Mammalian Cell Cultures" International Journal on Radiation Oncology Biological Physiology, 16:451-457, 1989.
- Harari, P., Tome, M., Fuller, D., Carper, S., Gerner, E. "Effects of Diethyldithiocarbamate and Endogenous Polyamine Content on Cellular Responses to Hydrogen Peroxide Cytotoxicity" Biochemistry Journal, 260:487-490, 1989.

Publications Reported for FY 1990-91

- Jalava, A., Heikkila, J., Akerlind, G., Pettit, G., Akerman, K. "Effects of Bryostatins 1 and 2 on Morphological and Functional Differentiation of Sh-SY5Y Human Neuroblastoma Cells" Cancer Research, 50:3422-3428, June 1990.
- Jeevanandam, M., Ali, R., Young, D., Schiller, W. "Effect of Nutritional Therapy on Polyamine Metabolism in Severely Traumatized Patients" Nutrition, 7(1):39-44, January/February 1991.
- Jeevanandam, M., Hsu, Y., Ramias, L., Schiller, W. "Mild Orotic Aciduria and Uricosuria in Severe Trauma Victims" American Journal of Clinical Nutrition, 53:1242-1248, 1991.
- Jeevanandam, M., Ramias, L., Schiller, W. "Altered Plasma Free Amino Acid Levels in Obese Traumatized Man" Metabolism, 40(4):385-390, April 1991.
- Jeevanandam, M., Ramias, L., Schiller, W. "Elevated Urinary C-Peptide Excretion in Multiple Trauma Patients" The Journal of Trauma, 31(3):334-341, 1991.
- Jeevanandam, M., Ramias, L., Schiller, W. "Nutritional Influence on the Plasma and Urine-Free Alkaline Ribonuclease Levels in Severe Trauma Victims" Journal of Parenteral and Enteral Nutrition, 15(3):241-246, 1991.
- Jeevanandam, M., Young, D., Schiller, W. "Obesity and the Metabolic Response to Severe Multiple Trauma in Man" Journal for Clinical Investigations, 87:262-269, January 1991.
- Kantoci, D., Pettit, G., Wardlaw, T. "Efficient Separation of Dolaproine Stereoisomers by Optimization of a Three Component Chromatographic Solvent System" Journal of Liquid Chromatography, 13(20):3915-3923, 1990.
- Katib, A., Mohammad, R., Mohamed, A., Pettit, G., Sensenbrenner, L. "Conversion of High Grade Lymphoma Tumor Cell Line to Intermediate Grade with TPA and Bryostatin 1 as Determined by Polypeptide Analysis on 2D Gel Electrophoresis" Hematological Oncology, 8:81-89, 1990.
- Keef, K., Kreulen, D. "Comparison of Central Versus Peripheral Nerve Pathways to the Guinea Pig Inferior Mesenteric Ganglion Determined Electrophysiologically after Chronic Nerve Section" Journal of the Autonomic Nervous System, 29:95-112, 1990.
- Keef, K., Kreulen, D. "Peripheral Nerve Pathways to Neurons in the Guinea Pig Inferior Mesenteric Ganglion Determined Electrophysiologically after Chronic Nerve Section" Journal of the Autonomic Nervous System, 29:113-128, 1990.
- Keller, P., Drayer, B., Fram, E., Williams, K., Dumoulin, C., Souza, S. "MR Angiography with Two-Dimensional Acquisition and Three-Dimensional Display" Radiology 173:527-532, 1989.
- Kern, K., Lancaster, L., Goldman, S., Ewy, G. "The Effect of Coronary Artery Lesions on the Relationship Between Coronary Perfusion Pressure and Myocardial Blood Flow During Cardiopulmonary Resuscitation in Pigs" American Heart Journal 120(2):324-333, August 1990.
- Konkel, M., Babakhani, F., Joens, L. "Invasion-Related Antigens of *Campylobacter jejuni*" The Journal of Infectious Diseases, 162:888-895, 1990.
- Lewin, N., Pettit, G., Kamano, Y., Blumberg, P. "Binding of [26-³H]-Epi-Bryostatin 4 to Protein Kinase C" Cancer Communications, 3(3):67-70, 1991.

Publications Reported for FY 1990-91

Lilly, M., Brown, C., Pettit, G., Kraft, A. "Bryostatin 1: A Potential Anti-Leukemic Agent for Chronic Myelomonocytic Leukemia" Leukemia, 5(4):283-287, 1991.

Lilly, M., Tompkins, C., Brown, C., Pettit, G., Kraft, A. "Differentiation and Growth Modulation of Chronic Myelogenous Leukemia Cells by Bryostatin" Cancer Research, 50:5520-5525, September 1990.

Litwin, S., Litwin, C., Raya, T., Warner, A., Goldman, S. "Contractility and Stiffness of Noninfarcted Myocardium After Coronary Ligation in Rats" Circulation 83(3):1028-1037, March 1991.

Litwin, S., Raya, T., Anderson, P., Daugherty, S., Goldman, S. "Abnormal Cardiac Function in the Streptozotocin-Diabetic Rat" The Journal of Clinical Investigation, 86:481-488, August 1990.

Lloyd, T., Marvin, W. "Contractile Response to Sympathetic Innervation in Neonatal Ventricular Cardiomyocytes of the Spontaneously Hypertensive Rat" Pediatric Research, 30(2):207-210, 1991.

Loescher, L., Meyskens, F. "Chemoprevention of Human Skin Cancers" Seminars in Oncology Nursing, 7(1):45-52, February 1991.

McCuskey, R., Eguchi, H., McCuskey, P., Urbaschek, R., Urbaschek, B. "Some Effects of Ethanol on Kupffer Cell Function and Host Defense Mechanisms in the Liver" Frontiers of Mucosal Immunology, 2:187-192, 1991.

McCuskey, R., McCuskey, P., Eguchi, H., Crichton, E., Urbaschek, R., Urbaschek, B., "In Vivo Microscopy of the Liver Following Acute Administration of Ethanol" Alcohol, Immunomodulation and AIDS, 341-350, 1990.

McGuire, M., Fields, R., Nyomba, B., Raz, I., Bogardus, C., Tonks, N., Sommercorn, J. "Abnormal Regulation of Protein Tyrosine Phosphatase Activities in Skeletal Muscle of Insulin-Resistant Humans" Diabetes, 40:939-942, July 1991.

Meehan, A., Kreulen, D. "Electrophysiological Studies on the Interaction of 5-Hydroxytryptamine with Sympathetic Transmission in the Guinea Pig Inferior Mesenteric Artery and Ganglion" The Journal of Pharmacology and Experimental Therapeutics, 256(1):82-87, 1991.

Moore, L., Beyer, E., Burt, J. "Characterization of Gap Junction Channels in A7r5 Vascular Smooth Muscle Cells: The American Physiological Society, 0363-6143:C975-C981, 1991.

Morkin, E., Bahl, J., Flink, I., Markham, B., Tsika, R. "Molecular Analysis of Human and Rat α -Myosin Heavy Chain Genes" Molecular Biology of the Cardiovascular System Chapter 3, 45-51, 1990.

Mufson, E., Brady, D., Carey, R. "Reduced Nicotinamide Adenine Dinucleotide Phosphate-Diaphorase (NADPH-d) Histochemistry in the Hippocampal Formation of the New World Monkey (*Saimiri sciureus*)" Brain Research, 516:237-247, 1990.

Mufson, E., Brady, D., Kordower, J. "Tracing Neuronal Connections in Postmortem Human Hippocampal Complex With the Carbocyanine Dye DiI" Neurobiology of Aging, 2:649-653, 1990.

Parola, A., Laird, H. "The Bovine Peripheral-Type Benzodiazepine Receptor: A Receptor With Low Affinity for Benzodiazepines" Life Sciences 48:757-764, December 1990.

Pettit, G. "Chiral Modifications of Dolastatin 10: The Potent Cytostatic Peptide (19aR)-Isodolastatin 10" Journal of Medicinal Chemistry, 33:3132-3133, 1990.

Publications Reported for FY 1990-91

- Pettit, G., Clewlow, P., Dufresne, C., Doubek, D., Cerny, R., Rutzler, K. "Antineoplastic Agents. 193. Isolation and Structure of the Cyclic Peptide Hymenistatin 1" Canadian Journal of Chemistry, 68(5):708-711, 1990.
- Pettit, G., Gao, F., Sengupta, D., Coll, J., Herald, C., Doubek, D., Schmidt, J., Van Camp, J., Rudloe, J., Nieman, R. "Isolation and Structure of Bryostatins 14 and 15" Tetrahedron, 47(22):3601-3610, 1991.
- Pettit, G., Herald, C., Leet, J., Gupta, R., Schaufelberger, D., Bates, R., Clewlow, P., Doubek, D., Manfredi, K., Rutzler, K., Schmid, J., Tackett, L., Ward, F., Bruck, M., Camou, F. "Antineoplastic Agents. 168. Isolation and Structure of Axinohydantoin" Cancer Journal of Chemistry, 68:1621-1624, 1990.
- Pettit, G., Herald, D., Cragg, G., Rideout, J., Brown, P. "Antineoplastic Agents, 178. Isolation and Structure of Lychnostatins 1 and 2 From the South American *Lychnophora Antillana*" Journal of Natural Products, 53(2):382-390, March-April 1990.
- Pettit, G., Herald, D., Gao, F., Sengupta, D., Herald, C. "Antineoplastic Agents. 200. Absolute Configuration of the Bryostatins" The Journal of Organic Chemistry, 56:1337-1340, 1991.
- Pettit, G., Rideout, J., Hasler, J. "Isolation of Geodiatoxins 2-4 From the Marine Sponge *Geodia Mesotriaena*" Comprehensive Biochemical Physiology, 96C(2):305-306, 1990.
- Prior, D. "Control of Central and Peripheral Targets by a Multifunctional Peptidergic Interneuron" Biology Bulletin 180:295-300, April 1991.
- Rance, N., Young, W. "Hypertrophy and Increased Gene Expression of Neurons Containing Neurokinin-B and Substance-P Messenger Ribonucleic Acids in the Hypothalami of Postmenopausal Women" Endocrinology, 128(5):2239-2247, 1991.
- Raya, T., Fonken, S., Lee, R., Daugherty, S., Goldman, S., Wong, P., Timmermans, P., Morkin, E. "Hemodynamic Effects of Direct Angiotensin II Blockade Compared to Converting Enzyme Inhibition in Rat Model of Heart Failure" American Journal of Hypertension, 4:334S-340S, 1991.
- Raya, T., Gay, R., Goldman, S. "Selective Vasopressin Inhibition in Rats with Heart Failure Decreases Afterload and Results in Venodilatation" The Journal of Pharmacology and Experimental Therapeutics, 255(3):1015-1020, October 1989.
- Rockow, J., Lloyd, T., Donnerstein, R. "Postprandial Changes in Oxygen Saturation in Patients with Bidirectional Cavopulmonary Shunts" The American Journal of Cardiology, 68:267-268, July 1991.
- Rogers, J., McGeer, P. "Neuroimmune Mechanisms of Alzheimer's Disease Pathogenesis" Frontiers of Alzheimer Research, 243-249, 1991.
- Seftor, R., Seftor, E., Grimes, W., Liotta, L., Stetler-Stevenson, W., Welch, D., Hendrix M. "Human Melanoma Cell Invasion is Inhibited *in vitro* by Swainsonine and Deoxymannojirimycin With a Concomitant Decrease in Collagenase IV Expression" Melanoma Research, 1:43-54, 1991.
- Shah, G., Laird, H., Russell, D. "Identification and Characterization of a Prolactin-Like Polypeptide Synthesized by Mitogen-Stimulated Murine Lymphocytes" International Immunology, 3(4):297-304, 1991.
- Singh, S., Pettit, G. "Antineoplastic Agents, 195. Isolation and Structure of Aceratioside from *Aceratium Megalospermum*" Journal of Natural Products, 53(5):1187-1192, September/October 1990.

Publications Reported for FY 1990-91

Stuntz, M., Champsi, J., Witte, M., Witte, C., Way, D., Finley, P., Hersh, E., Gschwind, C. "Lymphagogue Effect of Acute and Chronic Interleukin-2 in the Dog" Progress in Lymphology-XII, 511-513, 1990.

Stuntz, M., Witte, M., Witte, C., Way, D., Champsi, J., Finley, P. "Effect of Interleukin-2 on Microvascular Liquid and Protein Transport in the Rat Small Intestine" Lymphology, 23:149-154, 1990.

Thorpe, D., Morkin, E. "The Carboxyl Region Contains the Catalytic Domain of the Membrane Form of Guanylate Cyclase" The Journal of Biological Chemistry, 265(25):14717-14720, September 1990.

Welch, D., Bisi, J., Miller, B., Conaway, D., Seftor, E., Yohem, K., Gilmore, L., Seftor, R., Nakajima, M., Hendrix, M. "Characterization of a Highly Invasive and Spontaneously Metastatic Human Malignant Melanoma Cell Line" International Journal on Cancer, 47:227-237, 1991.

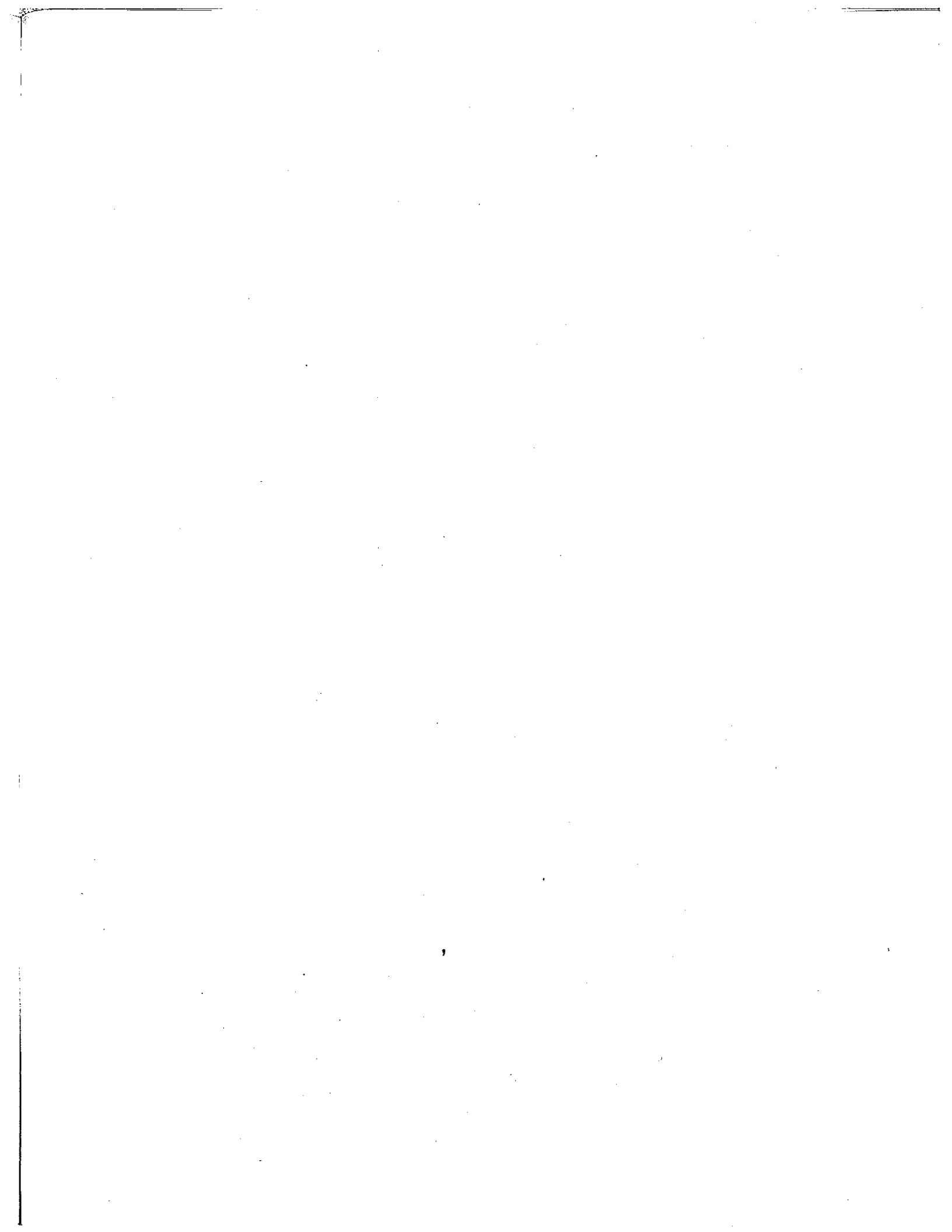
Welsford, I., Prior, D. "Modulation of Heart Activity in the Terrestrial Slug *Limax Maximus* by the Feeding Motor Program, Small Cardioactive Peptides and Stimulation of Buccal Neuron B1" Journal of Experimental Biology 155:1-19, 1991.

Witte, C., Witte, M., Pond, G. "Preeminence of Lesser Splanchnic Blood Flow in Selected Patients with Generalized Portal Hypertension" HPB Surgery, 2:233-251, 1990.

Witte, M., Witte, C., Way, D. "Medical Ignorance, AIDS-Kaposi's Sarcoma Complex, and the Lymphatic System" The Western Journal of Medicine, 153:17-23, July 1990.

APPENDIX H

**Survey of
Principal Investigators' National Grants**



Arizona Disease Control Research Commission

SURVEY OF PRINCIPAL INVESTIGATORS' NATIONAL GRANTS

As of June 7, 1991

PI/ Institution	1986-87		1987-88		1988-89		1989-90		1990-91		TOTAL
	Amount	Source	Amount	Source	Amount	Source	Amount	Source	Amount	Source	
Akporiaye NAU			\$398,000	NIH							\$398,000
Barber U of A							\$597,576	NIH			\$597,576
Beggs U of A							\$143,821	NIH			\$143,821
Bernstein U of A	\$95,000 (1985-86) \$50,000	ACS ACS	\$55,000	ACS	\$55,000	ACS	\$65,000	ACS			\$320,000
Bloom U of A							\$44,786	CFF			\$44,786
Bogardus NIH					\$90,000	ADA					\$90,000
Brannon U of A					\$374,722	NIH					\$374,722
Braun U of A							\$237,000	NSF			\$237,000
Burd U of A	\$6,000 \$20,000	NIH PVT	\$397,479 \$89,625	NIH WF	\$20,000	NIH	\$5,903	NIH	\$49,564	NIH	\$588,571
Burke ASU					\$40,639	WHO					\$40,639
Burt U of A	\$350,000	NIH			\$167,000 \$313,292	NIH NIH					\$830,292
Buseck ASU									\$495,000	NSF	\$495,000
Carter BNI					\$25,000	RP					\$25,000
Cusanovich U of A	\$865,000	NIH	\$200,000	ONR	\$186,000 \$114,000	NSF ONR					\$1,365,000
Dart U of A									\$90,000 \$5,000	BWC EMF	\$95,000
Duffy U of A					\$658,928	NIH					\$658,928
Egen U of A					\$78,675	TAI					\$78,675
Gaigiani U of A					\$69,000	VA			\$463,395	NIH	\$532,395
Goldberg U of A							\$118,000	EPA/NIH			\$118,000
Grimes U of A									\$45,000	NIH	\$45,000
Harrison U of A									\$30,000	CRFA	\$30,000
Hill U of A/ASU					\$360,000	NIH					\$360,000
Howard U of A					\$567,227	NIH					\$567,227
Jacobs ASU			\$450,000	NIH					\$488,402	NIH	\$938,402
Jeevanandam St. Joseph's							\$14,000	RL	\$30,000	RL	\$44,000
Korc U of A			\$750,000	NIH	\$650,000	NIH					\$1,400,000
Levine U of A									\$450,000	NIH	\$450,000
MacDonald SWBRI									\$665,000	NIH	\$665,000
Martinez U of A							\$1,521,000	NIH			\$1,521,000
Markle NAU					\$96,890	NIH					\$96,890
McCuskey U of A					\$3,738,503	NIH					\$3,738,503
McMullen U of A									\$15,000 \$15,000	DRF WF	\$30,000
Meister U of A			\$64,000	ALMF	\$44,000	MOD	\$150,000	WKKF			\$258,000

Arizona Disease Control Research Commission

SURVEY OF PRINCIPAL INVESTIGATORS' NATIONAL GRANTS

As of June 7, 1991

PI/ Institution	1986-87		1987-88		1988-89		1989-90		1990-91		TOTAL
	Amount	Source	Amount	Source	Amount	Source	Amount	Source	Amount	Source	
Meltzer U of A							\$500,000	NIH			\$500,000
Montgomery U of A					\$246,000	DVA					\$246,000
Moore U of A									\$670,299	NCNR	\$670,299
Morkin U of A					\$2,744,795	NIH \$260,000 VA \$50,000 VA	\$60,000				\$3,114,795
Mufson IBR					\$586,741	NIH \$83,762 AHAF					\$670,503
Nagle U of A							\$200,000	ACS			\$200,000
Petit ASU	\$156,580 NIH \$226,472 NIH		\$205,909 NIH \$167,558 NIH \$119,854 NIH		\$210,332 USAMRIID \$212,717 NIH \$390,074 NIH \$121,231 NIH		\$118,821 NIH \$210,164 USAMRIID \$500,086 NIH		\$115,000 NIH		\$2,754,798
Price U of A									\$13,000	ELF	\$13,000
Prior NAU							\$360,000	NIH			\$360,000
Rogers IBR					\$470,000	NIH					\$470,000
Salmon U of A	\$2,376,017 NIH \$279,068 CC \$600,630 NIH		\$90,000 ACS \$621,903 NIH \$5,000 ACS/NIH		\$228,451 NIH \$315,004 NIH \$16,000 WWCCF \$240,274 NIH \$82,304 TL \$153,354 SD \$54,545 CC \$10,000 CPC \$1,024,892 NIH \$724,545 NIH \$297,279 NIH		\$363,992 NIH \$87,000 LSA \$7,287 ACS/NIH \$7,000 ACS/NIH \$9,000 ACS/NIH \$4,000 ACS/NIH \$180,000 ACS \$50,000 EPF \$48,700 SPR \$96,640 BWC \$65,000 CPC \$20,000 ASTRO \$206,477 NIH \$80,000 ACS \$83,622 NIH \$194,714 NIH \$24,000 AC \$184,731 NIH \$25,000 CF \$124,907 NIH \$227,728 NIH \$284,694 NIH		\$167,263 NIH \$1,324,011 NIH \$63,418 NIH \$130,524 NIH \$75,787 NIH \$104,362 SD \$91,212 SD \$1,904,483 NIH \$1,518,205 NIH		\$14,873,023
Samplner VA Med Ctr	\$195,000	NIH									\$195,000
Schumacher U of A							\$386,090	NIH			\$386,090
Smith ASU			\$482,900	NIH	\$81,923	ACS	\$288,700	NIH			\$853,523
Smothers U of A							\$90,000	NIH	\$18,500	NIH	\$108,500
Spetzler BNI	\$605,794	NIH			\$107,388	MP \$68,500 CGP	\$20,000	CS			\$801,682
Sterling U of A	\$150,000	EPA	\$167,000	EPA					\$950,000	NIH \$175,000 AWWA	\$1,442,000
Towe ASU					\$127,000	NSF					\$127,000
Udall U of A					\$3,738	RL					\$3,738
Unger U of A							\$80,000	MMI \$80,000 AMI			\$160,000
Valenzuela U of A							\$5,000	GC	\$120,000	PC	\$125,000
Van Wyck U of A	\$135,000	VA \$646,450 AI									\$781,450

Arizona Disease Control Research Commission

SURVEY OF PRINCIPAL INVESTIGATORS' NATIONAL GRANTS

As of June 7, 1991

PI/ Institution	1986-87		1987-88		1988-89		1989-90		1990-91		TOTAL
	Amount	Source	Amount	Source	Amount	Source	Amount	Source	Amount	Source	
Volz U of A					\$89,000	DMC	\$85,000	DPI			\$174,000
Witte, M. U of A			\$125,405	WHO	\$430,831	NIH			\$45,830	WHO	\$612,066
Wright U of A					\$10,000	AMA					
Wright U of A					\$227,356	NSF		\$802,086	NIH		\$1,029,442
Yamamura U of A							\$390,000	NIH	\$220,000	NIH	\$610,000
TOTAL	\$6,757,011		\$4,389,633		\$17,316,912		\$9,447,525		\$10,548,255		\$48,459,336

NOTES:

1. Data entries are for the fiscal year in which the grant award was made. Actual funding may enter the state in varying intervals over the course of a 3 to 5 year grant award.
2. There are 136 current and former principal investigators for the 1991 survey. Ninety-three percent of the current and former principal investigators still live in Arizona. The 127 current and former principal investigators still residing in Arizona were included the 1991 survey. One former principal investigator (Russell) is deceased and seven have left the state (Duffy, Howard, Hurd, Katz, Kearfott, Korc and Meltzer). One principal investigator (Santosham) is from out-of-state, but the project is entirely based in Arizona.
3. The names of the principal investigators' institutions abbreviated in the chart are as follows:

ASU	Arizona State University
BNI	Barrow Neurological Institute
IBR	Institute for Biogerontology Research
NIH	National Institutes of Health-Intramural Division-Phoenix Indian Medical Center
NAU	Northern Arizona University
SWBRI	Southwest Biomedical Research Institute
St. Joseph's	St. Joseph's Hospital and Medical Center
U of A	University of Arizona
VA Med Ctr	Veteran's Administration Medical Center-Tucson
4. Dr. Duffy's grant from the NIH is as co-investigator. Dr. Salmon's grants include the following associates: Drs. Trent, Lam, Powell, Majda, Cress, Bellamy, Scuderi, Alberts, Leong, Hersch, Taylor, Cetas and Bowden. Dr. McCuskey's grant is for both the Alcohol Research Center and Dr. McCuskey's independent research.

5. The names of the national funding sources abbreviated in the chart are as follows (all grants from the National Cancer Institute, NCI, are included under the National Institutes of Health, NIH):

AC	American Cyanamid	CGP	Ciba-Geigy Pharmaceuticals
ACS	American Cancer Society	CPC	Centocor Pharmaceutical Company
ADA	American Diabetes Association	CRFA	Center Research Foundation of America
AHAF	American Health Assistance Fdn	CS	Cryomedical Sciences, Inc.
AI	Amgen, Inc.	DMC	DePuy Manufacturing Company
ALMF	A L Mailman Foundation	DPI	DePuy, Inc.
AMA	American Medical Association	DRF	Deafness Research Foundation
AMI	Advance Magnetics, Inc.	DVA	Department of Vetran's Affairs
ASTRO	American Society for Therapeutic Radiology and Oncology	ELF	ELF Aquatrain
AWWA	American Water Works Association	EMF	Emergency Medicine Foundation
BWC	Burroughs Wellcome Company	EPA	Environmental Protection Agency
CC	Cetus Corporation	EPF	Elsa Pardee Foundation
CF	Concern Foundation	GC	Genentech Corporation
CFF	Cystic Fibrosis Foundation	LSA	Leukemia Society of America
		MMI	Mallinckrodt Medical, Inc.

SURVEY OF PRINCIPAL INVESTIGATORS' NATIONAL GRANTS

As of June 7, 1991

NOTES:

5. (continued)

MOD	March of Dimes	SPR	Schering-Plough Research
MP	Miles Pharmaceuticals	TAI	Therapeutic Antibodies, Inc.- Nashville
NCNR	National Center for Nursing Research	TL	Teijin Limited
NIH	National Institutes of Health	USAMRIID	United States Army Medical Research Institute on Infectious Diseases
NSF	National Science Foundation	VA	Veterans' Administration
ONR	Office of Naval Research	WF	Whitehall Foundation
PC	PhysioControl Corporation	WHO	World Health Organization
PVT	Private	WKKF	W.K. Kellogg Foundation
RL	Ross Laboratories	WWCCF	Wendy Will Case Cancer Foundation
RP	Roche Pharmaceuticals		
SD	Sterling Drug		