

Ferid Murad, M.D., Ph.D.

9/05

OFFICE ADDRESS:

Department of Integrative Biology
and Pharmacology
University of Texas Medical School-Houston
P.O. Box 20708
Houston, TX 77225
(713) 500-7509
FAX: (713) 500-0790, E-mail: Ferid.Murad@uth.tmc.edu

HOME ADDRESS:

3324 Nottingham
West University Place
Houston, TX 77005
Phone: (713) 664-3509

Date of Birth: September 14, 1936
Place of Birth: Whiting, Indiana
Citizenship: United States
Marital Status: Married, 1958, Carol A. Leopold
Children: Christine, Marianne, Carrie, Julie, Joseph

Education:

1954 - 1958 B.A., DePauw University, Greencastle, Indiana
Major - Premedical Science

1958 - 1965 M.D., Western Reserve University, School of Medicine
Cleveland, Ohio

1958 - 1965 Ph.D., Department of Pharmacology, Western Reserve University,
School of Medicine, Cleveland, Ohio

Honorary Degrees:

Honoris Causa, Tirana University, Albania, October, 1999
Doctor of Science, Honoris Causa, Case Western Reserve University, Cleveland, Ohio, May, 2000
Doctor of Science, Honoris Causa, Thomas Jefferson University, Philadelphia, PA, June, 2000
Doctor of Science, Honoris Causa, State University of Ceara, Fortaleza, Brazil, November, 2000
Doctor of Science, Honoris Causa, Luviv State Medical University, Luviv, Ukraine, November, 2001
Doctor of Science, Honoris Causa, Chinese University of Hong Kong, Hong Kong, December, 2002
Doctor of Science, Honoris Causa, DePauw University, Greencastle, Indiana, May 2004
Doctor of Science, Honoris Causa, Charles University, Prague, Czech Republic, June, 2005

Positions Held:

1958 - 1965 Research Fellow, Department of Pharmacology, Western Reserve University,
School of Medicine, Cleveland, Ohio; worked with Drs. T.W. Rall and E.W.
Sutherland.

1965 - 1966 Intern in Internal Medicine, Massachusetts General Hospital, Boston,
Massachusetts, Dr. A. Leaf, Chairman of Internal Medicine.

1966 - 1967 Resident in Internal Medicine, Massachusetts General Hospital, Boston,
Massachusetts, Dr. A. Leaf, Chairman of Internal Medicine.

1967 - 1969 Clinical Associate and Senior Assistant Surgeon, Public Health Service,
National Heart and Lung Institute, Molecular Disease Branch, Section on
Metabolism, Bethesda, Maryland; worked with Dr. M. Vaughan.

- 1969 - 1970 Senior Staff Fellow, National Heart and Lung Institute, Molecular Disease Branch, Section on Metabolism, Bethesda, Maryland; worked with Dr. M. Vaughan.
- 1970 - 1975 Associate Professor, Departments of Internal Medicine and Pharmacology, University of Virginia, School of Medicine, Charlottesville, Virginia.
- 1975 - 1981 Professor, Departments of Internal Medicine and Pharmacology, University of Virginia, School of Medicine, Charlottesville, Virginia
- 1971 - 1981 Director, Clinical Research Center, University of Virginia, School of Medicine, Charlottesville, Virginia.
- 1973 - 1981 Director, Division of Clinical Pharmacology, Department of Internal Medicine, University of Virginia, School of Medicine, Charlottesville, Virginia
- 1981 - 1989 Professor, Departments of Internal Medicine and Pharmacology, Stanford University, Stanford, California
- 1981 - 1986 Chief of Medicine, Palo Alto Veterans Administration Medical Center, Palo Alto, California
- 1984 - 1986 Associate Chairman, Department of Medicine, Stanford University, Stanford, California
- 1986 - 1988 Acting Chairman, Department of Medicine, Stanford University, Stanford California
- 1986 - 1988 Acting Division Chief, Division of Respiratory Medicine, Department of Medicine, Stanford University, Stanford, California
- 1988 - 1990 Divisional Vice President, Pharmaceutical Discovery, Abbott Laboratories, Abbott Park, Illinois
- 1988 - 1996 Professor (Adjunct), Department of Pharmacology, Northwestern University Medical School, Chicago, Illinois
- 1990 - 1992 Vice President, Pharmaceutical Research & Development, and Corporate Officer, Abbott Laboratories, Abbott Park, Illinois
- 1992 - 1996 Consultant
- 1993 - 1995 CEO/President, Molecular Geriatrics Corporation, Lake Bluff, Illinois
- 1996 - 1997 Professor (Adjunct) Department of Cell and Molecular Biology, Northwestern University, School of Medicine, Chicago, Illinois
- 1997 - 1999 Professor and Director, Division of Clinical Pharmacology, Departments of Medicine and Integrative Biology and Pharmacology, University of Texas-Houston, Medical School, Houston, Texas
- 1997 - 2005 Professor and Chairman, Department of Integrative Biology and Pharmacology, University of Texas-Houston, Medical School, Houston, Texas

- 1997 - present Professor - University of Texas-Houston, Graduate School of Biomedical Sciences, Houston, Texas
- 1998 - present Professor - Department of Medicine, University of Texas – Houston School of Medicine, Houston, Texas.
- 1998 - present John S. Dunn Distinguished Chair in Physiology and Medicine
- 1998 – present Regental Professor, University of Texas - Houston
- 1999 - present Director, Institute of Molecular Medicine, University of Texas – Houston School of Medicine, Houston, Texas.
- 1999 – present Professor (Adjunct) Dept. Medical Biochemistry, Ohio State University, Columbus, Ohio

Medical Licensure:

Ohio
Massachusetts
Virginia
California
Texas

Societies:

Phi Beta Kappa (1959)
Alpha Omega Alpha (1963)
American Federation for Clinical Research (1969)
American Society for Pharmacology and Experimental Therapeutics (1970)
Albemarle Medical Society (1970)
American Association for the Advancement of Science (1970)
Endocrine Society (1971)
Southern Society for Clinical Investigation (1973)
American College of Clinical Pharmacology (1974)
American Society of Biological Chemists (1974)
American Society for Clinical Investigation (1975)
New York Academy of Sciences (1975)
Fellow, American College of Physicians (1976)
Association for Clinical Research Center Program Directors (1977 - 1981)
National Institutes of Health Alumni Association (1977)
Association of American Physicians (1981)
Association of Veterans Administration Chiefs of Medicine (1981)
Western Association of Physicians (1982)
American Heart Association - Council on Basic Science (1984)
Member, National Academy of Sciences (1997)
Member – American Physiological Society (1998)
Member, Institute of Medicine of the National Academy of Sciences (1998)
Member, American Academy of Arts and Sciences (2000)
Fellow, Cardiovascular Section of the American Physiological Society
Foreign Member – Macedonian Academy of Sciences and Arts (2000)
Foreign Member – Albanian Academy of Sciences (2000)
Honorary Member, Kosovo Academy of Arts and Sciences (2000)
Honorary Member, World Innovation Foundation (2005)

Honors and Awards:

Alfred S. Maschke Award for Clinical Excellence (Western Reserve University, 1965)
Mosby Book Award (Western Reserve University, 1965)
Diplomate of the National Board of Medical Examiners (1966)
Research Career Development Award (NIAMD, 1972 - 1977)
Diplomat of the American Board of Internal Medicine (1974)
American Heart Association - Ciba Award Recipient (1988)
Albert and Mary Lasker Award for Basic Research, (1996)
Nobel Prize in Physiology or Medicine (1998)
Award from Chairman Yassar Arafat, 1998
Resolution from the City of Houston, Texas (1998)
Resolution from the State of Texas (1998)
Resolution from the United States House of Representatives (1998)
Old Gold Award, DePauw University (1999)
Life of Quality Award for Sheltering Arms (1999)
Honor of the Nation Award from the President of Albania (1999)
Sagamore Wabash Award, The Highest honor from the Governor of Indiana (1999)
The Albanian American National Council Award (1999)
Distinguished Alumnus Award, Case Western Reserve University School of Medicine (1999)
Golden Plate Award from the American Academy of Achievement (1999)
Honorary Citizen, Gostivar, Macedonia (1999)
Resolution from Lake County, Indiana (1999)
Honorary Director, Epithelial Cell Biology Res. Ctr Chinese Univ. of Hong Kong (2000 to present)
Macedonian Medal of St. Apostle Paul (2000)
Consulting Editor, News in Physiological Sciences (2000)
Baxter Award for Distinguished Research in the Biomedical Sciences Association of American Medical Colleges (AAMC) (2000)
Pictured on a postage stamp from Albania
Science and Technology Consultant, Shenzhen, China (2000)
Honorary Professor, Soochow University, Suzhou, China (2002)
Honorary Professor, Shanghai Second Medical University (2002)
Honorary Professor; Shanghai University of Traditional Medicine (2003)
Scientific Steering Committee China Nat. Center for Biotechnology (2002-05)
Scientific Steering Committee National Institute of Biological Science, Beijing (2002-05)
Honorary Board Member – World High Tech Society (2002-present)
Honorary Member, Islamic Academy of Sciences (2003)
Honorary Member, World Innovation Foundation (2004)
Fellow, European Academy of Sciences (2004)
Honorary Member, The National Society of High School Scholars (2004)
Member, International Advisory Board for Shanghai Xuhui District (2004)
Santiago Grisolia Award – Valencia, Spain (2005)
Editorial Board, Cell Biology International (2005-)
American Society Clinical Pharmacology Research Prize (2005)
Jury Member Premios Rey Jaime I Prize of Spain (2005)
Whiting High School Wall of Fame (2005)

Committees/Memberships/Named Lectureships:

Research Advisory Committee, Virginia Heart Association (1971 - 1975)
Editorial Board Member, Journal of Cyclic Nucleotide Research (1974 - 1988)
Various NIH site visits and special study sections (1971 - 1988)
Co-editor, Journal of Cyclic Nucleotide Research (1978 - 1982)
Member of Task Force in the NIH Evaluation of Research Needs in Endocrinology and Metabolic Diseases (1978 - 1979)
Ad hoc reviewer and site visitor for American Cancer Society (1979)

Ad hoc member NIH Molecular Cytology Study Section (1979)
Ad hoc member NIH Pathology Study Section (1979)
Editorial Board Member, Journal of Biological Chemistry (1979 - 1984)
Vice Chairman - Cyclic Nucleotide Gordon Conference (June, 1980)
Ad hoc member NIH Endocrinology Training Grant Study Section (1980)
Ad hoc member NIH Pharmacology Study Section (1980)
Editorial Board Member, Analytical Biochemistry (1980 - 1983)
Pfizer Lecturer - St. Louis University (1980)
Pfizer Lecturer - Clinical Research Inst. of Montreal (1981), Stanford (1981), Rutgers (1981)
Chairman - Cyclic Nucleotide Gordon Conference (June, 1981)
Ad hoc member American Cancer Society Study Section (1982)
Ad hoc grant reviewer, Veterans Administration (1982)
Ad hoc grant reviewer, National Science Foundation (1982)
Pfizer Lecturer - University of Virginia (1983)
Ad hoc member, American Cancer Society Study Section (1984)
Co-editor - The Pharmacological Basis of Therapeutics, seventh edition (1985)
Member NIH - Pharmacology Study Section (1984 - 1987)
Associate Editor - Journal of Applied Cardiology (1986 - 1992)
Council Member - Western Association of Physicians (1986 - 1989)
Journal of Clinical Investigation - Editorial Committee (1986 - 1987)
Pfizer Lecturer - Washington University (1986)
Member - California University - Wide Task Force on AIDS (1987 - 1988)
Associate Editor - Journal of Clinical Investigation (1987 - 1988)
Co-editor - Advances in Pharmacology (1990 - present)
Editorial Advisory Board - The Journal of R&D Management (1990-1992)
National Inst. of Health, NIDDK Board of Scientific Counselors (1990-94) (Chairman, 1993-1994)
Member - American Federation Clinical Research Foundation - Board of Directors (1991-1993)
Annual Bashour Lecture - Southwestern University, Dallas (1992)
Editorial Board - Endothelium (1992-present)
Co-chairman First International Conf. Biochemistry and Molecular Biology of Nitric Oxide, UCLA, (July, 1994)
Chairman Nitric Oxide and Cyclic GMP Signaling Workshop, 9th International Conf. on Second Messengers and Phosphoproteins, Nashville, (October, 1995)
Co-chairman Second International Conf. Biochemistry and Molecular Biology of Nitric Oxide, UCLA, (July, 1996)
Board of Directors, Tripos, Inc., (Biopharmaceutical Co.), (1996 - present)
Co-chairman International Conference on Nitric Oxide, Brazil, March, 1999
Scientific Advisor – Texas Biotechnology, Inc (1998 – present)
Annual Potter Lecture, Thomas Jefferson University (1998)
Annual Kauffman Lecture, University of Colorado (1998)
Editorial Board – General Pharmacology: The Vascular System (1998 – present)
Board Member – Cardiovascular Center, University of Virginia (1999 – present)
Board Member, Albanian International Scholarship Foundation (1998 – present)
Board of Directors – Neuronautics, Inc. (Biopharmaceutical Co.) (1999 – present)
Annual Crispell Lecture, University of Virginia (1999)
Annual William R. Martin Lecture, University of Kentucky (1999)
Commencement Addresses, Kincaid High Sch., St. John's High Sch., Whiting High School (1999)
Annual Graduate Research Forum Lecture, University of Toronto (1999)
Annual Kukovitz Lecture, University of Graz (1999)
Annual Rehffuss Lecture, Thomas Jefferson University (1999)
Scientific Advisory Board, Medinox (1999 to present)
President's Lecture, Chico State University (1999)
Founders Lecture, Assoc. Acad. Surgeons, Philadelphia (1999)
Annual Nathan Greenfield Lecture, Case Western Reserve University (1999)

Annual Priscilla White Lecture – Joslin Clinic and Dept. Medicine Harvard University Boston (2000)
Annual Sir Henry Dale Lecture – Johns Hopkins University (2000)
Evans Research Seminar, Boston University (2000)
Scientific Advisory Board Member, Arginox (2000 to present)
Hugh Davson Distinguished Lectureship, FASEB meeting (2000)
Benjamin Zweifach Memorial Lectureship, University of California, San Diego (2000)
Melvin Calvin Lecture, Michigan Technological University (2000)
Commencement Address, Case Western Reserve University, School of Medicine (2000)
Commencement Address, Thomas Jefferson University (2000)
Member, Scientific Advisory Board, Vasopharm (2000)
Member, Macedonian American Committee (2000)
Member of Executive Board of Assoc. of Sciences, Albanian Doctors in Macedonia (2000)
Member, Science and Technology Advisory Committee, DePauw University (2000)
Board Member Asian Pacific Holding Company of Hong Kong (2000 to present)
Honorary Board Member, National Albanian American Council (2001)
Roy E. Moon Distinguished Lectureship, Angelo State University (2001)
Board of Directors, Immuno-Rx, Inc. (2001-present)
Member, Scientific Advisory Board, Preventis, Inc. (2001-present)
Board of Directors, Kosova Foundation for Medical Development (2001-present)
Earl W. Sutherland Lectureship, Vanderbilt University (2001)
Sigma Xi Lecture, University of Northern Iowa (2001)
Member, Board of Patrons, Oxford International Biomedical Centre (2001)
Board of Directors, High Life, Inc. (2001-present)
Ehters lecture, Mayo Clinic (2001)
Honorary Board of Directors, National Albanian American Council (2001)
Member, Scientific Advisory Board, Biocapital II (2002-present)
Michaelides Lecture – International Meeting, Clinical Cardiology, Greece (2002)
Honorary Member, Hellenic Cardiological Society (2002)
International Research Advisory Bd of U. Health Network, Toronto, Canada (2002 – present)
Scientific Advisory Board, Nano Materia, Inc. (2002-present)
Klaus Hoffmann Lecture, University of Pittsburgh (2002)
Scientific Advisory Board, Juventis (2002-present)
Board of Directors, Sophia Laboratories (2002-2004)
Scientific Advisory Board, Oxon Medica (2002-present)
Board of Trustees, Case Western Reserve University (2002-present)
Scientific Advisory Board, Equity4Health Venture Fund (2003-present)
Member, American Federation for Medical Research (2003-present)
Scientific Advisory Board, Lumen Therapeutics, LLC (2003-present)
Member – International Raoul Wallenberg Foundation and the Angelo Roncalli International Committee (2003 – present)
Scientific Advisory Board, PLx, Inc. (2003 – present)
Board of Directors, NIOXX (2003 - present)
Annual Michael Brady Lecture, University of Iowa, October, 2003
American Hall of Fame Committee member (2003 – present)
Lecturer International Peace Foundation
Member Albanian Scholarship Foundation Assembly
Member Board of Directors Foundation for Medical Development (2004-present)
Scientific Advisory Board, PTV Sciences, L.P. (2004-present)
Member Advisory Board of International Peace Foundation (2004 – present)
Board of Directors, Chun-Li Biotech. (2004-present)
Editorial Board of Cell Biology International (2005-present)
R.P. Zimmerman Lecture, Memorial Medical Center, Johnstown, PA (2005)
Editorial Board, “Open Access”, Advanced Studies on the Foundation of Knowledge (2005-present)

Medical Center and University Committees: (1970 - 1981, University of Virginia)

Clinical Research Center Advisory Committee (1971 - 1981)
Clinical Research Committee (1971 - 1976)
Drug and Pharmacy Committee (1971 - 1981)
Diabetes-Endocrinology Research Center Advisory Committee (1974 - 1981)
Medical Center Hour Committee (1975 - 1979)
Search Committee member for Department of Pathology Chairman (1976)
Search Committee member for Director of Cardiology (1975 - 1977)
Long Range Planning Committee for the Med. Ctr: co-chair of Research Section (1976-1981)
Member of University Committee for distribution of the Pratt bequest (1976 - 1981)
Search Committee member for Director of Clinical Pathology laboratories (1976 - 1977)
Member Planning Committee for a Combined Research Building (1976)
Faculty Promotions and Tenure Committee for the School of Medicine (1976 - 1981)
Member Medical School Instrumentation Center Committee (1977 - 1981)
Director – Postdoc. research training program in Diabetes and hormone action (1978 - 1981)
Member - Medical Scientist Training Program (M.D., Ph.D.) Committee (1978 - 1981)
Member - Faculty Forum for Scientific Research (1979 - 1981)
Member - Computer Technology Services Advisory Committee (1979 - 1981)
Member - Appointments Committee of the Center for Advanced Studies (1979 - 1981)
Chairman - Student Promotion Appeals Committee (1980)
Chairman - Hartford Fellowship Selection Committee (1981)

Medical Center and University Committees: (1981 to 1988, Stanford University)

Chairman - Research and Development Committee, Palo Alto Veterans Administration Medical Center (1981 - 1982)
Member - Deans Committee, Veterans Administration Medical Center (1981 - 1987)
Member - Budget and Space Committee, Veterans Administration Medical Center (1981 - 1986)
Member - Medical Scientists Training Program Committee (1982 - 1986)
Member - Search Committee for Chief of Rehabilitation Medicine (1982 - 1983)
Chairman - Search Committee for Chief of Pulmonary Division (1982 - 1985)
Member - Housestaff Selection Committee, Department of Medicine (1982 - 1985)
Member - Research & Development Committee, Veterans Admin. Med.Center (1981-1986)
Member - Hospital Space Committee, Veterans Administration Medical Center (1982 - 1983)
Chairman - Kovitz Visiting Scientist Committee (1982 - 1988)
Faculty Advisor for Freshman & Sophomore undergraduate students (1982 - 1984)
Member - Senate of the Academic Council, Stanford University (1983 - 1985)
Member - Institute of Biological & Clinical Investigation Committee, Stanford Univ. (1983 - 1987)
Member - Hewlett Award Committee (1983 - 1988)
Member - Various Department & Medical School promotion committees
Chairman - Department of Medicine Committee on Clinical Excellence (1983 - 1985)
Member - various Department of Medicine Search Committees
Member - Search Committee for Director of Rehabilitation Medicine (1984 - 1985)
Member - Steering Committee for the Kaiser Family Foundation Study on the Future of the Academic Medical Center (1985 - 1987)
Member - Stanford Hughes Institute Advisory and Selection Committee (1984 - 1988)
Member - Dean's Advisory Committee on Faculty Awards (1985 - 1988)
Professional Standards Board, Veterans Administration Medical Center (1986 - 1987)
Member - Dean's Faculty Budget Review Committee (1986 - 1988)
Member - Dean's Executive Committee (1986 - 1987)
Member - Faculty Practice Program Committee (1986 - 1987)
Member - Hospital Directors Council (1986 - 1987)
Member - Medical Service Steering Committee (1986 - 1987)
Member - Medical Staff Board (1986 - 1988)

Member - Search Committee for Chairman of the Department of Genetics (1987 - 1988)

Abbott Laboratories: (1988 to 1992)

Vice-President, Pharmaceutical Division, 1988-1990

Corporate Officer and V.P. Pharmaceutical R&D, 1990 - 1992

V.P. of Pharmaceutical Discovery programs (1988 to 1992); approximately 430 staff and \$67 million budget

Directed pharmaceutical research and development programs (1990 to 1992) including Discovery, Clinical Development, Regulatory, Drug Safety and Product Development; approximately 1500 staff and \$300 million budget

Brought forward more than 25 new chemical entities from Discovery as clinical candidates for clinical development and/or out-licensing. Numerous IND's, NDA's, and SNDA's filed.

Anticipate many NDA's to be filed during the next 5-7 year period as a result of this effort.

Developed programs for NIH extramural funding and/or research collaborations with funding of approximately \$3 million per year

Developed a post-doctoral training program with 20-30 trainees in Discovery

Continued to direct my own research project in nitric oxide-cyclic GMP with 15-20 staff and about \$750,000 per year of extramural NIH grant support

Molecular Geriatrics Corporation: (1993 to 1995)

CEO and President, 1993 - 1995

A co-founder of the biopharmaceutical company focused on the therapeutics and diagnostics of Alzheimer's Disease and other neurodegenerative diseases. Raised approximately \$15 million in private investments and grant support. Designed laboratory and office facilities and recruited about 50 scientists and staff. Developed various university and NIH collaborations and corporate partnership and world-wide licensing agreement with Upjohn Company for the development and commercialization of an Alzheimer's Disease therapeutic agent.

Medical Center and University Committees: (1997-present, University of Texas)

Member - Dean's Academic Council (1997 – present)

Member - Dean's Strategic Advisory Group (1997)

Member - Dean's Committee of Basic Science Chairs (1997 – present)

Member – Graduate Faculty, Graduate School of Biomedical Sciences (1997 – present)

Member – Search Committee, Director of Division of Pulmonary Medicine (1997 –1998)

Member - Search Committee, Chief of Clinical Cardiology (1998-2000)

Member – Intellectual Property Committee (1997 – 2001)

Chairman – Search Committee for Director of Institute of Molecular Medicine (1998 –1999)

Member - M.D./Ph.D. Board (1998-present).

Member – Advisory Board for Clinical Research Curriculum (2000 - present)

Member – External Advisory Board, U. of TX MD Anderson Cancer Ctr, Melanoma SPORE, (2000-present)

Member – Search Committee for Director for University Clinical Research Center (2001-2002)

Member – IMM Project Building Committee – (2002 – present)

Member – Liaison Committee on Medical Education Subcommittee on Graduate Education (2002- present)

Member – Search Committee for Executive Vice President for Research (2002 – present)

Member – Architectural Advisory Committee for the Institute of Molecular Medicine (2002 – present)

Member – Ground Rules Committee and Steering Committee for Biotech Park – (2002 – present)

Member – Search Committee Center for Membrane Biology (2002 – present)

Member – Various Search Committees for the Institute of Molecular Medicine (1998-present)

Patents and Licenses:

1. Ferid Murad and John Lewicki. Two-site immunoassays using monoclonal antibodies of different classes or subclasses and test kits for performing same. U.S. Patent Number 4,474,892; October 2, 1984; Foreign patent pending.
2. Ferid Murad, Dale Leitman and Cesar Molina. A sensitive assay for atrial natriuretic factor and related peptides using cultured cells and a kit for same, 1985.
3. Ferid Murad, James F. Kerwin, Jr., and Lee Gorsky. Guanidino compounds as regulators of nitric oxide synthase. U.S. Patent Number 5,380,945; January 10, 1995.
4. Iraidia Sharina, Joshua Krumenacker, Emil Martin and Ferid Murad. Genomic organization of the mouse and human soluble guanylyl cyclase genes. (Provisional patent, Sept., 2000).
5. Ka Bian, Norman Weisbrodt and Ferid Murad. Trichinella-derived specific down regulation of inducible nitric oxide synthase. (Atty DKT: UTSH250USP1, Oct., 2000).
6. Emil Martin and Ferid Murad. Treatment or prevention of cGMP-dependent pathophysiology with a mutant variant of soluble guanylyl cyclase (Provisional Patent, February, 2003)
7. Murad F, Nedospasov A., Natalya B, Pimonoin T, Martin E. Methods of detecting nitrotyrosine and aminotyrosine residues of peptides and proteins.

P U B L I C A T I O N S

Papers, Chapters and Books:

1. Murad, F., Chi, Y.M., Rall, T.W., Sutherland, E.W.: The effect of catecholamines and choline esters on the formation of adenosine 3', 5'-phosphate by preparations from cardiac muscle and liver. **J. Biol. Chem.** 237:1233-38, 1962.
2. Murad, F.: A study of agents which influence the formation and action of adenosine 3', 5'-monophosphate. Dissertation, Western Reserve University, Graduate School, 1965.
3. Murad, F.: Immuno-hemolytic anemia during therapy with methyl dopa. **J. Amer. Med. Assoc.** 203:149-50, 1968.
4. Murad, F., Vaughan, M.: Effect of glucagon on rat heart adenylyl cyclase. **Biochem. Pharmacol.** 18: 1053-59, 1969.
5. Murad, F., Strauch, B.S., Vaughan, M.: The effect of gonadotropins on testicular adenylyl cyclase. **Biochim. Biophys. Acta.** 177: 591-98, 1969.
6. Vaughan, M., Murad, F.: Adenylyl cyclase activity in particles from fat cells. **Biochemistry** 8: 3092-99, 1969.
7. Murad, F., Rall, T.W., Vaughan, M.: Conditions for the formation, partial purification and assay of an inhibitor of adenosine 3', 5'-monophosphate. **Biochim. Biophys. Acta.** 192: 430-45, 1969.
8. Murad, F., Brewer, H.B., Vaughan, M.: Effect of thyrocalcitonin on adenosine 3', 5'-monophosphate formation by rat kidney and bone. **Proc. Nat. Acad. Sci.** 65: 446-53, 1970.

9. Murad, F., Manganiello, V., Vaughan, M.: Effects of guanosine 3', 5'-monophosphate on glycerol production and accumulation of adenosine 3', 5'-monophosphate during incubation of fat cells. **J. Biol. Chem.** 245: 3352-60, 1970.
10. Stossel, T., Murad, F., Mason, R., Vaughan, M.: Regulation of glycogen metabolism in polymorphonuclear leukocytes. **J. Biol. Chem.** 245: 6228-34, 1970.
11. Murad, F., Manganiello, V., Vaughan, M.: A simple sensitive protein binding assay for guanosine 3', 5'-monophosphate. **Proc. Nat. Acad. Sci.** 68: 736-39, 1971.
12. Manganiello, V., Murad, F., Vaughan, M.: Effects of lipolytic and antilipolytic agents on cyclic 3', 5'-adenosine monophosphate in fat cells. **J. Biol. Chem.** 246: 2195-02, 1971.
13. Murad, F., Gilman, A.G.: Adenosine 3', 5'-monophosphate and guanosine 3', 5'-monophosphate: A simultaneous protein binding assay. **Biochim. Biophys. Acta.** 252: 397-400, 1971.
14. Murad, F., Pak, C.: Urinary excretion of adenosine 3', 5'-monophosphate and guanosine 3', 5'-monophosphate. **New Eng. J. Med.** 286: 1382-87, 1972.
15. Mendoza, S., Murad, F., Handler, J., Orloff, J.: Refractoriness of toad bladder to stimulation of sodium transport. **Amer. J. Physiol.** 223: 104-09, 1972.
16. Murad, F.: Cyclic AMP: A mediator of hormone response and its clinical application. **Virginia Monthly** 99: 1197-1201, 1972.
17. Murad, F., Weitzman, R.: Effects of parathyroid hormone and calcitonin on cyclic AMP metabolism. **Proceedings of the Fourth International Congress of Endocrinology** 273: 468-73, 1972.
18. Murad, F.: Clinical applications of cyclic nucleotide levels. In: Pharmacology and the Future of Man, **Proceedings of the Fifth International Congress of Pharmacology** 5: 233-44, 1972, S. Karger, Basel.
19. Murad, F.: Beta-blockade of epinephrine induced cyclic AMP accumulation in heart, liver, fat and trachea. **Biochim. Biophys. Acta.** 304: 181-87, 1973.
20. Thomas, E.W., Murad, F., Looney, W.B., Morris, H.P.: Adenosine 3', 5'-monophosphate and guanosine 3', 5'-monophosphate: Concentrations in Morris hepatomas of different growth rates. **Biochim. Biophys. Acta.** 297: 564-67, 1973.
21. Middler, S., Pak, C.Y., Murad, F., Bartter, F.: Thiazide diuretics and calcium metabolism. **Metabolism** 22: 139-46, 1973.
22. Murad, F., Weitzman, R.: Hormonal regulation of cyclic AMP. **Seminars in Drug Treatment** 3: 189-202, 1973.
23. Murad, F.: Principles of drug interactions. **Consultant**, Vol. 14, No. 9, pp. 56-59, September, 1974.
24. Murad, F.: Clinical studies and applications of cyclic nucleotides. **Advances in Cyclic Nucleotide Research**, Vol. 3, pp. 335-383, 1973, G.A. Robison and P. Greengard, Eds., Raven Press, New York.

25. Murad, F.: Techniques for the formation, partial purification and assay of a cyclic AMP inhibitor. Methods in Enzymology: Hormone Action Part C Cyclic Nucleotides, Vol. 38, pp. 273-283, 1974, J. Hardman and B. O'Malley, Eds., Academic Press, New York.
26. Gilman, A.G., Murad, F.: Assay of cyclic nucleotides by receptor protein binding displacement. Methods in Enzymology: Hormone Action Part C Cyclic Nucleotides, Vol. 38, pp. 49-61, 1974, J. Hardman and B. O'Malley, Eds., Academic Press, New York.
27. Kimura, H., Thomas, E., Murad, F.: Effects of decapitation, ether and pentobarbital on guanosine 3', 5'-phosphate and adenosine 3', 5'-phosphate levels in rat tissues. **Biochim. Biophys. Acta.** 343: 519-28, 1974.
28. Kimura, H., Murad, F.: Nonenzymatic formation of cyclic GMP from GTP. **J. Biol. Chem.** 249: 329-31, 1974.
29. Murad, F., Kimura, H.: Cyclic nucleotide levels in incubations of guinea pig trachea. **Biochim. Biophys. Acta.** 343: 275-86, 1974.
30. Kimura, H., Murad, F.: Evidence for two different forms of guanylate cyclase in rat heart. **J. Biol. Chem.** 249: 6910-19, 1974.
31. Murad, F.: Mechanism of action of some bronchodilators: Cyclic nucleotide metabolism in tracheal preparations. **Amer. Review of Resp. Dis.** 110: 111-18, 1974.
32. Gilman, A.G., Murad, F.: Hormones and hormone antagonists. In, The Pharmacological Basis of Therapeutics, 5th Edition, pp. 1369-1371, 1975, Ed., L.S. Goodman and A. Gilman, the Macmillan Co., New York.
33. Gilman, A.G., Murad, F.: Adenohypophyseal hormones and related substances. In, The Pharmacological Basis of Therapeutics, 5th Edition, pp. 1372-1397, 1975, Ed., L.S. Goodman and A. Gilman, The Macmillan Co., New York.
34. Gilman, A.G., Murad, F.: Thyroid and antithyroid drugs. In, The Pharmacological Basis of Therapeutics, 5th Edition, pp. 1398-1422, 1975, Ed., L.S. Goodman and A. Gilman, The Macmillan Co., New York.
35. Murad, F., Gilman, A.G.: Estrogens and progestins. In, The Pharmacological Basis of Therapeutics 5th Edition, pp. 1423-1450, 1975, Ed., L.S. Goodman and A. Gilman, The Macmillan Co., New York.
36. Murad, F., Gilman, A.G.: Androgens and anabolic steroids. In, The Pharmacological Basis of Therapeutics, 5th Edition, pp. 1451-1471, 1975, Ed., L.S. Goodman and A. Gilman, The Macmillan Co., New York.
37. Murad, F., Moss, W., Johanson, A., Selden, R.: Urinary excretion of cyclic AMP and cyclic GMP in normal children and those with cystic fibrosis. **J. Clin. Endocrin. Metab.** 40: 552-59, 1975.
38. McLean, M.J., Lapsley, R.A., Shigenobu, K., Murad, F., Sperelakis, N.: High cyclic AMP levels in young chick embryonic hearts. **Developmental Biology** 42: 196-201, 1975.
39. Kimura, H., Murad, F.: Two forms of guanylate cyclase in mammalian tissues and possible mechanisms for their regulation. **Metabolism** 24: 439-45, 1975.

40. Murad, F.: What you should know before prescribing an oral contraceptive. **Consultant** 15 (3): 187-88, 1975.
41. Taylor, A., Murad, F., Owen, J.: Drug Interactions. Annual Review of Allergy, 1974, Ed., C.A. Frazier, Medical Examination Publishing, Inc., Flushing, New York.
42. Murad, F.: Role of cyclic nucleotides and feedback systems to regulate cyclic AMP accumulation and action. Proceedings of the First Portonovo Conference, (1974): 107-14, 1978, Cofese, Palermo.
43. Kimura, H., Murad, F.: Localization of particulate guanylate cyclase in plasma membranes and microsomes of rat liver. **J. Biol. Chem.** 250: 4810-17, 1975.
44. Kimura, H., Murad, F.: Increased particulate and decreased soluble guanylate cyclase activity in regenerating liver, fetal liver, and hepatoma. **Proc. Natl. Acad. Sci.** 72: 1965-69, 1975.
45. Curnow, R.T., Carey, R.C., Taylor, A., Johanson, A., Murad, F.: Somatostatin inhibition of insulin and gastrin hypersecretion in pancreatic islet cell carcinoma. **N. Eng. J. Med.** 292: 1385-86, 1975.
46. Kimura, H., Murad, F.: Subcellular localization of guanylate cyclase. **Life Sciences** 17: 837-44, 1975.
47. Murad, F., Kimura, H., Hopkins, H., Looney, W., Kovacs, C.: Increased urinary excretion of cyclic GMP in rats bearing Morris hepatoma 3924A. **Science** 190: 58-60, 1975.
48. Murad, F., Weitzman, R., Taylor, A.: Use of Cyclic Nucleotides to Evaluate Calcium Disorders. In, Clinical Aspects of Cyclic Nucleotides, Ed., L. Volicer, Spectrum Pub., Inc., New York, pp. 1-18, 1977.
49. Criss, W.E., Murad, F.: Cyclic Nucleotide Metabolism in Tumors. In, Clinical Aspects of Cyclic Nucleotides, Ed., L. Volicer, Spectrum Publications, Inc., New York, 1977, pp. 429-48.
50. Kimura, H., Mittal, C.K., Murad, F.: Activation of guanylate cyclase from rat liver and other tissues with sodium azide. **J. Biol. Chem.** 250: 8016-22, 1975.
51. Kimura, H., Mittal, C.K., Murad, F.: Increases in cyclic GMP levels in brain and liver with sodium azide, an activator of guanylate cyclase. **Nature** 257: 700-02, 1975.
52. Mittal, C.K., Kimura, H., Murad, F.: Requirement for a macromolecular factor for sodium azide activation of guanylate cyclase. **J. Cyclic Nucl. Res.** 1: 261-69, 1975.
53. Kimura, H., Murad, F.: Sodium azide-induced magnesium guanylate cyclase activity. Proc. of the First Japanese Cyclic Nucleotide Conf., July 7-8, 1976, pp. 22-25.
54. Criss, W.E., Murad, F., Kimura, H., Morris, H.P.: Properties of guanylate cyclase in adult rat liver and several Morris hepatomas. **Biochim. Biophys. Acta.** 445: 500-08, 1976.
55. Criss, W.E., Murad, F.: Urinary excretion of guanosine 3', 5'-monophosphate and adenosine 3', 5'-monophosphate in rats bearing transplantable liver and kidney tumors. **Cancer Res.** 36: 182-84, 1976.
56. Criss, W.E., Murad, F., Kimura, H.: Properties of guanylate cyclase from rat kidney cortex and transplantable kidney tumors. **J. Cyclic Nucl. Res.** 2: 11-19, 1976.

57. Kimura, H., Mittal, C.K., Murad, F.: Appearance of magnesium guanylate cyclase activity in rat liver with sodium-azide activation. **J. Biol. Chem.** 251: 7769-73, 1976.
58. Arnold, W.P., Murad, F.: Some properties of guanylate cyclase in mammalian broken cell preparations. Proc. of the Brooklodge Pulmonary Conference, April, 1976, in Lung Cells in Disease, Ed., A. Bouhuys, Elsevier/North Holland Press, 1976, 281-84.
59. Murad, F.: Cyclic GMP metabolism in transplantable tumors. Proceedings of the 25th Annual Conference of the Rutgers Bureau of Biological Res. In, Cyclic Nucleotides and the Regulation of Cell Growth, Ed., M. Abou-Sabe, Dowden Hutchinson and Ross, Inc., Stroudsburg, Pa., 1976, 191-206.
60. Murad, F., Kimura, H., Mittal, C.K., Arnold, W.P.: Guanylate Cyclase: Properties and regulation. Proc. of the V Int. Congress of Endocrinology, Hamburg, July, 1976, Excerpta Medica.
61. Larner, J., Takeda, Y., Brewer, H.B., Huang, L.C., Hazen, R., Brooker, G., Murad, F., Roach, P.: Studies on glycogen synthase and its control by hormones. In Metabolic Interconversion of Enzymes, Ed., S. Shaltiel, Springer-Verlag, pp. 71-85, 1976.
62. Katsuki, S., Murad, F.: Regulation of cyclic 3', 5'-adenosine monophosphate and cyclic 3', 5'-guanosine monophosphate levels and contractility in bovine tracheal smooth muscle. **Molecular Pharmacology** 13: 330-41, 1977.
63. Mittal, C.K., Murad, F.: Formation of adenosine 3', 5'-monophosphate by preparations of guanylate cyclase from rat liver and other tissues. **J. Biol. Chem.** 252: 3136-40, 1977.
64. Ichihara, K., Larner, J., Kimura, H., Murad, F.: Activation of liver guanylate cyclase by bile salts and contaminants in crude secretin and pancreozymin preparations. **Biochim. Biophys. Acta.** 481: 734-40, 1977.
65. Murad, F.: Intrauterine devices containing progesterone. **Drug Therapy**: 5-7, May, 1977.
66. Katsuki, S., Arnold, W., Mittal, C.K., Murad, F.: Stimulation of guanylate cyclase by sodium nitroprusside, nitroglycerin and nitric oxide in various tissue preparations and comparison to the effects of sodium azide and hydroxylamine. **J. Cyclic Nucl. Res.** 3: 23-35, 1977.
67. Mittal, C.K., Kimura, H., Murad, F.: Purification and properties of a protein required for sodium azide activation of guanylate cyclase. **J. Biol. Chem.** 252: 4348-90, 1977.
68. Arnold, W.P., Mittal, C.K., Katsuki, S., Murad, F.: Nitric oxide activates guanylate cyclase and increases guanosine 3', 5'-monophosphate levels in various tissue preparations. **Proc. Nat. Acad. Sci. USA** 74: 3203-07, 1977.
69. Katsuki, S., Arnold, W.P., Mittal, C.K., Murad, F.: Stimulation of formation and accumulation of cyclic GMP by smooth muscle relaxing agents. Proc. of the 2nd Japanese Cyclic Nucleotide Conference, July 7 - 9, 1977, pp. 44-50.
70. Mittal, C.K., Murad, F.: Activation of guanylate cyclase with superoxide dismutase and hydroxyl radical, a physiological regulator of cyclic GMP formation. **Proc. Nat. Acad. Sci.** 74: 4360-64, 1977.

71. Katsuki, S., Arnold, W.P., Murad, F.: Effect of sodium nitroprusside, nitroglycerin and sodium azide on levels of cyclic nucleotides and mechanical activity of various tissues. **J. Cyclic Nucl. Res.** 3: 239-47, 1977.
72. Murad, F.: Utility and interpretation of urinary cyclic AMP in primary and pseudohypo-parathyroid disorders. **World Journal of Surgery** 1: 532-34, 1977.
73. Arnold, W.P., Aldred, R., Murad, F.: Cigarette smoke activates guanylate cyclase and increases cyclic GMP levels in tissues. **Science** 198: 934-36, 1977.
74. Curnow, R.T., Carey, R.M., Taylor, A.M., Johanson, A., Murad, F.: Inhibition of luteinizing hormone release by somatostatin. **Southern Med. J.** 70: 871, 1977.
75. Mittal, C.K., Murad, F.: Properties and oxidative regulation of guanylate cyclase. **J. Cyclic Nucl. Res.** 3: 381-91, 1977.
76. Murad, F., Aurbach, G.D.: Cyclic GMP in metabolism: Interrelationship of biogenic amines, hormones and other agents. In, The Year in Metabolism 1976-1977, N. Freinkel, Ed., Plenum Medical Book Co., New York, pp. 1-32, 1978.
77. Bergman, M.J., Guerrant, R.L., Murad, F., Richardson, S.N., Weaver, D., Mandell, G.L.: The interaction of polymorphonuclear neutrophils with Escherichia Coli: Effect of enterotoxin on phagocytosis, killing, chemotaxis and cyclic AMP. **J. Clin. Invest.** 61: 227-34, 1978.
78. Murad, F., Mittal, C.K., Arnold, W.P., Katsuki, S., Kimura, H.: Guanylate cyclase: Activation by azide, nitro compounds, nitric oxide, and hydroxyl radical and inhibition by hemoglobin and myoglobin. **Adv. Cyclic Nucl. Res.** 9: 145-58, 1978.
79. Mittal, C.K., Arnold, W.P., Murad, F.: Characterization of protein inhibitors of guanylate cyclase activation from rat heart and bovine lung. **J. Biol. Chem.** 253: 1266-71, 1978.
80. Murad, F., Mittal, C.K., Arnold, W.P., Ichihara, K., Braughler, E., El-Zayat, M.: Properties and regulation of guanylate cyclase: Activation by azide, nitro compounds and hydroxyl radical and effects of heme containing proteins. Proc. of the NATO Adv. Study Inst. on Cyclic Nucleotides, Italy, 1977, in Molecular Biology and Pharmacology of Cyclic Nucleotides, Eds., G. Folca and R. Paoletti, Elsevier, Amsterdam, pp. 33-42, 1978.
81. Hughes, J., Murad, F., Chang, B., Guerrant, R.: The role of cyclic GMP in the mechanism of action of the heat-stable enterotoxin of E. Coli. **Nature** 271: 755-56, 1978.
82. Murad, F., Mittal, C.K., Arnold, W.P., Braughler, J.M.: Effect of nitro-compound smooth muscle relaxants and other materials on cyclic GMP metabolism. Proc. of the 7th International Congress of Pharmacology, Paris, France, July, 1978, in Advances in Pharmacology and Therapeutics, Vol. 3 Ions, Cyclic Nucleotides, Cholinergy, Ed., J.C. Stocklet, Pergamon Press, New York, pp. 123-32, 1978.
83. Garbers, D., Murad, F.: Guanylate cyclase assay methods. **Adv. Cyclic Nucl. Res.** 10: 57-67, 1979.
84. Murad, F.: Over the Counter Drugs. **Drug Therapy**, 1979.
85. Mittal, C.K., Braughler, J.M., Ichihara, K., Murad, F.: Synthesis of adenosine 3', 5'-monophosphate by guanylate cyclase a new pathway for its formation. **Biochim. Biophys. Acta.** 585: 333-42, 1979.

86. Braughler, J.M., Mittal, C.K., Murad, F.: Purification of soluble guanylate cyclase from rat liver. **Proc. Natl. Acad. Sci., USA** 76: 219-22, 1979.
87. Ichihara, K., Murad, F.: Guanylate cyclase activity in rat liver and other tissues with starvation and streptozotocin-induced diabetes mellitus. **Arch. Biochem. Biophys.** 194: 292-98, 1979.
88. Neer, E., Murad, F.: Separation of soluble adenylate and guanylate cyclases from the mature rat testis. **Biochim. Biophys. Acta.** 583: 531-34, 1979.
89. Murad, F., Arnold, W.P., Mittal, C.K., Braughler, J.M.: Properties and regulation of guanylate cyclase and some proposed functions for cyclic GMP. **Adv. Cyclic Nucl. Res.** 11: 175-204, 1979.
90. Ichihara, K., El-Zayat, M., Mittal, C.K., Murad, F.: Fatty acid activation of guanylate cyclase from fibroblasts and liver. **Arch. Biochem. Biophys.** 197: 44-51, 1979.
91. Larner, J. Roach, P.J., Huang, L.C., Brooker, G., Murad, F., Hazen, R.: Hormonal control of glycogen metabolism. In Hormones and Energy Metabolism, Eds., I.M. Klachko, R.R. Anderson and M. Heimberg, Plenum, New York, pp. 103-23, 1979.
92. Braughler, J.M., Mittal, C.K., Murad, F.: Effects of thiols, sugars and proteins on nitric oxide activation of guanylate cyclase. **J. Biol. Chem.** 254: 12450-54, 1979.
93. Murad, F., Haynes, R.C.: Hormones and Hormone Antagonists in The Pharmacological Basis of Therapeutics, sixth edition, Eds., L.S. Goodman, A. Gilman and A.G. Gilman, Macmillan, New York, pp. 1367-69, 1980.
94. Murad, F., Haynes, R.C.: Adenohypophyseal hormones and related substances, Chapter 59, in The Pharmacological Basis of Therapeutics, sixth edition, Eds., L.S. Goodman, A. Gilman and A.G. Gilman, Macmillan, New York, pp. 1369-96, 1980.
95. Haynes, R.C., Murad, F.: Thyroid and antithyroid drugs, Chapter 60, in The Pharmacological Basis of Therapeutics, sixth edition, Eds., L.S. Goodman, A. Gilman and A.G. Gilman, Macmillan, New York, pp. 1397-1419, 1980.
96. Murad, F., Haynes, R.C.: Estrogens and progestins, Chapter 61, in The Pharmacological Basis of Therapeutics, sixth edition, Eds., L.S. Goodman, A. Gilman and A.G. Gilman, Macmillan, New York, pp. 1420-47, 1980.
97. Murad, F., Haynes, R.C.: Androgens and anabolic steroids, Chapter 62, in The Pharmacological Basis of Therapeutics, sixth edition, Eds., L.S. Goodman, A. Gilman and A.G. Gilman, Macmillan, New York, pp. 1448-65, 1980.
98. Haynes, R.C., Murad, F.: Adrenocorticotrophic hormones: Adrenocortical steroids and their synthetic analogs. Inhibitors of adrenocortical steroid biosynthesis, Chapter 63, in The Pharmacological Basis of Therapeutics, sixth edition, Eds., L.S. Goodman, A. Gilman and A.G. Gilman, Macmillan, New York, pp. 1466-96, 1980.
99. Haynes, R.C., Murad, F.: Agents affecting calcification: Calcium parathyroid hormone, calcitonin vitamin D, and other compounds, Chapter 65, in The Pharmacological Basis of Therapeutics, sixth edition, Eds., L.S. Goodman, A. Gilman and A.G. Gilman, Macmillan, New York, pp. 1524-50, 1980.

100. Guerrant, R.L., Hughes, J.M., Chang, B., Robertson, D.C., Murad, F.: Activation of intestinal guanylate cyclase by heat stable enterotoxin of Escherichia Coli: Studies of tissue specificity, potential receptors and intermediates. **J. Infect. Dis.** 142: 220-28, 1980.
101. Thorner, M.O., Hackett, J.T., Murad, F., MacLeod, R.M.: Calcium rather than cyclic AMP as the physiological intracellular regulator of prolactin release. **Neuroendocrinology** 31: 390-402, 1980.
102. Brooker, G., Murad, F.: Automated Gamma-Flo radioimmunoassay of urinary cyclic AMP. **Clin. Chem.** 26: 1738-40, 1980.
103. Greenberg, R.N., Murad, F., Chang, B., Robertson, D.C., Guerrant, R.L.: Inhibition of Escherichia. Coli. heat-stable enterotoxin by indomethacin and chlorpromazine. **Infect. and Immun.** 29: 908-13, 1980.
104. Lewicki, J.A., Brandwein, H.J., Waldman, S.A., Murad, F.: Purified guanylate cyclase: Characterization, iodination, and preparation of monoclonal antibodies. **J. Cyclic Nucl. Res.** 6: 283-96, 1980.
105. Brandwein, H.J., Lewicki, J.A., Murad, F.: Reversible inactivation of guanylate cyclase by mixed disulfide formation. **J. Biol. Chem.** 256: 2958-62, 1981.
106. Dohi, T., Murad, F.: Effects of pyruvate and other metabolites on cyclic GMP levels in incubations of rat hepatocytes and kidney cortex. **Biochim. Biophys. Acta.** 673: 14-25, 1981.
107. Murad, F., Lewicki, J.A., Brandwein, H.J., Mittal, C.K., Waldman, S.A.: Guanylate cyclase: Purification, properties, free radical activation, radiolabelling, and preparation of hybridoma antibodies. **Adv. Cyclic Nucl. Res.** 14: 229-39, 1981.
108. Brandwein, H.J., Lewicki, J.A., Murad, F.: Production and characterization of monoclonal antibodies to soluble guanylate cyclase. **Proc. Nat. Acad. Sci.** 78: 4241-45, 1981.
109. Mittal, C.K., Murad, F.: Guanylate Cyclase: Regulation of Cyclic GMP Metabolism in Handbook of Experimental Pharmacology. Ed., J.A. Nathanson and J.W. Keabian, Springer-Verlag, Berlin, Vol. 58-I, pp. 225-60, 1982.
110. Murad, F.: Regulation and Roles of Cyclic Nucleotides, in Pathophysiology of Anoxia, and Ischemia. Eds., R.A. Crowley and B.F. Trump, Williams and Wilkins, Baltimore, MD, pp. 147-53, 1982.
111. Greenberg, R.N., Guerrant, R.L., Chang, B., Robertson, D.C., Murad, F.: Inhibition of E. Coli heat-stable enterotoxin effects of intestinal guanylate cyclase and fluid secretion by quinacrine. **Biochem. Pharm.** 31: 2005-09, 1982.
112. Lowance, D.T., Murad, F., Darrow, W.R., Bonus, L.: Bioequivalence of a slow-release potassium tablet and a liquid potassium supplement. **Intl. J. Clin. Pharm. Ther. and Toxic.** 20: 204-08, 1982.
113. Ariano, M., Lewicki, J.A., Brandwein, H.J., Murad, F.: Immunohistochemical localization of guanylate cyclase within neurons of rat brain. **Proc. Nat. Acad. Sci. USA.** 79: 1316-20, 1982.
114. Greenberg, R.N., Murad, F., Guerrant, R.L.: Lanthanum chloride inhibition of the secretory response to E. Coli heat-stable enterotoxin. **Infect. and Immun.** 35: 483-88, 1982.

115. Brandwein, H.J., Lewicki, J.A., Waldman, S.A., Murad, F.: Effect of GTP analogues on purified soluble guanylate cyclase. **J. Biol. Chem.** 257: 1309-11, 1982.
116. Lewicki, J.A., Brandwein, H.J., Mittal, C.K., Arnold, W.P., Murad, F.: Properties of purified soluble guanylate cyclase activated by nitric oxide and sodium nitroprusside. **J. Cyclic Nucl. Res.** 8: 17-25, 1982.
117. Rapoport, R.M., Draznin, M., Murad, F.: Sodium nitroprusside-induced protein phosphorylation in intact rat aorta is mimicked by 8-bromo-cyclic GMP. **Proc. Nat. Acad. Sci. USA** 79: 6470-74, 1982.
118. Waldman, S.A., Lewicki, J.A., Brandwein, H.J., Murad, F.: Partial purification and characterization of particulate guanylate cyclase from rat liver after solubilization with trypsin. **J. Cyclic Nucl. Res.** 8: 359-70, 1982.
119. Rapoport, R.M., Murad, F.: Agonist-induced endothelial-dependent relaxation in rat thoracic aorta may be mediated through cyclic GMP. **Circ. Res.** 52: 352-57, 1983.
120. Lewicki, J.A., Chang, B., Murad, F.: Quantification of guanylate cyclase concentrations by a direct double determinant tandem immunoradiometric assay. **J. Biol. Chem.** 258: 3509-15, 1983.
121. Rapoport, R.M., Murad, F.: Effect of ouabain and alterations in potassium concentration on relaxation induced by sodium nitroprusside. **Blood Vessels** 20: 255-64, 1983.
122. Waldman, S.A., Lewicki, J.A., Chang, L., Murad, F.: Highly purified particulate guanylate cyclase from rat lung: Characterization and comparison with soluble guanylate cyclase. **Molec. and Cell Biochem.** 57: 155-66, 1983.
123. Rapoport, R.M., Draznin, M.B., Murad, F.: Endothelium-dependent vasodilator-and nitrovasodilator-induced relaxation may be mediated through cyclic GMP formation and cyclic GMP-dependent protein phosphorylation. **Trans. Assoc. Amer. Phys.** 96: 19-30, 1983.
124. Rapoport, R.M., Draznin, M.B., Murad, F.: Endothelium dependent relaxation in rat aorta may be mediated through cyclic GMP-dependent protein phosphorylation. **Nature** 306: 274-76, 1983.
125. Fiscus, R.R., Rapoport, R.M., Murad, F.: Endothelium-dependent and nitrovasodilator-induced activation of cyclic GMP-dependent protein kinase in rat aorta. **J. Cyclic Nucl. and Protein Phosphor. Res.** 9: 415-25, 1983.
126. Rapoport, R.M., Murad, F.: Endothelium-dependent and nitrovasodilator-induced relaxation of vascular smooth muscle: Role for cyclic GMP. **J. Cyclic Nucl. and Protein Phosphor. Res.** 9: 281-96, 1983.
127. Waldman, S.A., O'Hanley, P.D., Falkow, S., Schoolnik, G.K., Murad, F.: A simple, sensitive and specific assay for heat-stable enterotoxin from E. Coli. **J. Infect. Dis.** 149: 83-89, 1984.
128. Waldman, S.A., Sinacore, M.S., Lewicki, J.A., Chang, L.Y., Murad, F.: Selective activation of particulate guanylate cyclase by a specific class of porphyrins. **J. Biol. Chem.** 259: 4038-42, 1984.
129. Rapoport, R.M., Murad, F.: Effect of cyanide on nitrovasodilator-induced relaxation, cyclic GMP accumulation and guanylate cyclase activation in rat aorta. **Europ. J. Pharm.** 104: 61-70, 1984.

130. Pearl, R.G., Rosenthal, M.H., Murad, F., Ashton, J.P.A.: Aminophylline potentiates sodium nitroprusside-induced hypotension in the dog. **Anesthesiology** 61: 712-15, 1984.
131. Winkvist, R.M., Faison, E.P., Waldman, S.A., Schwartz, K., Murad, F., Rapoport, R.M.: Atrial natriuretic factor elicits an endothelium independent relaxation and activates particulate guanylate cyclase in vascular smooth muscle. **Proc. Nat. Acad. Sci.** 81: 7661-64, 1984.
132. Waldman, S.A., Rapoport, R.M., Murad, F.: Atrial natriuretic factor selectively activates particulate guanylate cyclase and elevates cyclic GMP in rat tissues. **J. Biol. Chem.** 259: 14332-334, 1984.
133. Rapoport, R.M., Draznin, M.B., Murad, F.: Mechanisms of adenosine triphosphate-, thrombin-, and trypsin-induced relaxation of rat thoracic aorta. **Circ. Res.** 55: 468-79, 1984.
134. Garipepy, J., O'Hanley, P.D., Waldman, S.A., Murad, F., Schoolnik, G.K.: A common antigenic determinant found in two functionally unrelated classes of cysteine-rich toxins. **J. Expt'l. Med.** 160: 1253-58, 1984.
135. Winkvist, R.J., Faison, E.P., Napier, M., Vanden, R., Waldman, S.A., Murad, F., Rapoport, R.M.: The effects of atrial natriuretic factor on vascular smooth muscle. In Vascular Neuroeffector Mech., J.A. Beaven, editor, Elsevier/North Holland, Amsterdam 349-53, 1984.
136. Murad, F., Rapoport, R.M., Fiscus, R.R.: Role of cyclic GMP in relaxations of vascular smooth muscle. **J. of Card. Pharm.** 7, Supplement 3, S111-18, 1985.
137. Waldman, S.A., Rapoport, R.M., Fiscus, R.R., Murad, F.: Effects of anriopeptin on particulate guanylate cyclase from rat adrenal. **Biochim. Biophys. Acta.** 845: 298-303, 1985.
138. Rapoport, R.M., Schwartz, K., Murad, F.: Effect of Sodium-Potassium-pump inhibitors and membrane depolarizing agents on sodium nitroprusside-induced relaxation and cyclic Guanosine Monophosphate accumulation in rat aorta. **Circ. Res.** 57: 164-70, 1985.
139. Gilman, A.G., Goodman, L.S., Rall, T.W., Murad, F. (editors) The Pharmacological Basis of Therapeutics, seventh edition, Macmillan, New York, 1985.
140. Murad, F., Haynes, R.C.: Hormones and Hormone Antagonists. In The Pharmacological Basis of Therapeutics, seventh edition, Eds., A.G. Gilman, L.S. Goodman, T.W. Rall and F. Murad, Macmillan, New York, pp. 1360-62, 1985.
141. Murad, F., Haynes, R.C.: Adenohypophyseal hormones and related substances, Chapter 59, in The Pharmacological Basis of Therapeutics, seventh edition, Eds., A.G. Gilman, L.S. Goodman, T.W. Rall and F. Murad, Macmillan, New York, pp. 1362-88, 1985.
142. Haynes, R.C., Murad, F.: Thyroid and antithyroid drugs, Chapter 60, in The Pharmacological Basis of Therapeutics, seventh edition, Eds., A.G. Gilman, L.S. Goodman, T.W. Rall and F. Murad, Macmillan, New York, pp. 1389-11, 1985.
143. Murad, F., Haynes, R.C.: Estrogens and progestins, Chapter 61, in The Pharmacological Basis of Therapeutics, seventh edition, Eds., A.G. Gilman, L.S. Goodman, T.W. Rall and F. Murad, Macmillan, New York, pp. 1412-39, 1985.
144. Murad, F., Haynes, R.C.: Androgens and anabolic steroids, Chapter 62, in The Pharmacological Basis of Therapeutics, seventh edition, Eds., A.G. Gilman, L.S. Goodman, T.W. Rall and F. Murad, Macmillan, New York, pp. 1412-39, 1985.

145. Haynes, R.C., Murad, F.: Adrenocorticotrophic hormones: Adrenocortical steroids and their synthetic analogs. Inhibitors of adrenocortical steroid biosynthesis, Chapter 63, in The Pharmacological Basis of Therapeutics, seventh edition, Eds., A.G. Gilman, L.S. Goodman, T.W. Rall and F. Murad, Macmillan, New York, pp. 1459-89, 1985.
146. Haynes, R.C., Murad, F.: Agents affecting calcification: Calcium parathyroid hormone, calcitonin vitamin D, and other compounds, Chapter 65, in The Pharmacological Basis of Therapeutics, seventh edition, Eds., A.G. Gilman, L.S. Goodman, T.W. Rall and F. Murad, Macmillan, New York, pp. 1517-43, 1985.
147. Murad, F. Gilman, A.G.: Drug Interactions, Appendix III, in The Pharmacological Basis of Therapeutics, seventh edition, Eds., A.G. Gilman, L.S. Goodman, T.W. Rall and F. Murad, Macmillan, New York, pp. 1734-50, 1985.
148. Rapoport, R.M., Schwartz, K., Murad, F.: Effects of Na⁺, K⁺-pump inhibitors and membrane depolarizing agents on acetylcholine-induced endothelium-dependent relaxation and cyclic GMP accumulation in rat aorta. **Eur. J. Pharm.** 110: 203-09, 1985.
149. Rapoport, R.M., Waldman, S.A., Schwartz, K., Winquist, R.J., Murad, F.: Effects of atrial natriuretic factor, sodium nitroprusside and acetylcholine on cyclic GMP and relaxation in rat aorta. **Eur. J. Pharm.** 115: 219-29, 1985.
150. Fiscus, R.R., Rapoport, R.M., Waldman, S.A., Murad, F.: Atriopeptin II elevates cyclic GMP, activates cyclic GMP-dependent protein kinase and causes relaxation in rat thoracic aorta. **Biochim. Biophys. Acta.** 846: 179-84, 1985.
151. Leitman, D.C., Waldman, S.A., Rapoport, R.M., Murad, F.: Specific atrial natriuretic factor receptors mediate increased cyclic GMP accumulation in cultured bovine aortic endothelial and smooth muscle cells. **Trans. Assoc. Amer. Phys.** 98: 243-52, 1985.
152. Waldman, S.A., Chang, L.Y., Murad, F.: A two-step procedure for obtaining highly purified particulate guanylate cyclase from rat lung. **Prep. Biochem.** 15: 103-19, 1985.
153. Murad, F.: Effects of phosphodiesterase inhibitors and the role of cyclic nucleotides in smooth muscle relaxation. In Antiasthma Xanthines and Adenosine, Eds., K.E. Andersson and C.G.A. Persson, Excerpta Medica, Amsterdam, pp. 10-15, 1985.
154. Leitman, D.C., Murad, F.: Comparison of binding and cyclic GMP accumulation by atrial natriuretic peptides in endothelial cells. **Biochim. Biophys. Acta.** 885: 74-9, 1986.
155. Leitman, D.C., Fiscus, R.R., Murad, F.: Forskolin, phosphodiesterase inhibitors and cyclic AMP analogs inhibit proliferation of cultured bovine aortic endothelial cells. **J. Cell Physiol.** 127: 237-43, 1986.
156. Murad, F.: Cyclic guanosine monophosphate as a mediator of vasodilation. **J. Clin. Invest.** 78: 1-5, 1986.
157. Kuno, T., Kamisaki, Y., Waldman, S.A. Gariieppy, J., Schoolnik, G.K., Murad, F.: Characterization of the receptor for heat-stable enterotoxin from E. Coli in rat intestine. **J. Biol. Chem.** 261: 1470-76, 1986.
158. Murad, F., Waldman, S.A., Fiscus, R.R., Rapoport, R.M.: Regulation of cyclic GMP synthesis and the interactions with calcium. **J. Card. Pharm.** Supplement 8: S57-60, 1986.

159. Waldman, S.A., Kuno, T., Kamisaki, Y., Chang, L.Y., Garipepy, J., O'Hanley, P.D., Schoolnik, G.K., Murad, F.: Intestinal receptor for heat-stable enterotoxin of E. Coli is tightly coupled to a novel form of particulate guanylate cyclase. **Infect. and Immun.** 51: 320-26, 1986.
160. Kuno, T., Andresen, J.W., Kamisaki, Y., Waldman, S.A., Chang, L.Y., Saheki, S., Leitman, D.C., Nakane, M., Murad, F.: Co-purification of an atrial natriuretic factor receptor and particulate guanylate cyclase from rat lung. **J. Biol. Chem.** 261: 5817-23, 1986.
161. Leitman, D.C., Andresen, J.W., Kuno, T., Kamisaki, Y., Chang, J., Murad, F.: Identification of multiple binding sites for atrial natriuretic factor by affinity cross-linking in cultured endothelial cells. **J. Biol. Chem.** 261: 11650-55, 1986.
162. Kamisaki, Y., Saheki, S., Nakane, M., Palmieri, J., Kuno, T., Chang, B., Waldman, S.A., Murad, F.: Soluble guanylate cyclase from rat lung exists as a heterodimer. **J. Biol. Chem.** 261: 7236-41, 1986.
163. Bennett, B., Hayward, D., Murad, F.: Effects of the D and L stereoisomers of isoidide dinitrate on relaxation and cyclic GMP accumulation in rat aorta and comparison to glyceryl trinitrate. **J. of App. Card.** 1: 203-90, 1986.
164. Waldman, S.A., Rapoport, R.M., Ginsburg, R., Murad, F.: Desensitization to nitroglycerin in vascular smooth muscle from rat and human. **Biochem. Pharm.** 35: 3525-31, 1986.
165. Rapoport, R.M., Winkquist, R.J., Baskin, E.P., Baison, E.P., Waldman, S.A., Murad, F.: Effects of atriopeptins on relaxation and cyclic GMP levels in rat and rabbit aorta. **Eur. J. Pharm.** 120: 123-26, 1986.
166. Rapoport, R.M., Ginsburg, R., Waldman, S.A., Murad, F.: Effects of atriopeptins on relaxation and cyclic GMP levels in human coronary artery *in vitro*. **Eur. J. Pharm.** 124: 193-96, 1986.
167. Draznin, M.B., Rapoport, R.M., Murad, F.: Myosin light chain phosphorylation in contraction and relaxation of intact rat thoracic aorta. **Int'l. J. Biochem.** 18: 917-28, 1986.
168. Kamisaki, Y., Waldman, S.A., Murad, F.: The involvement of catalytic site thiol groups in the activation of soluble guanylate cyclase by sodium nitroprusside. **Arch. Biochem. Biophys.** 251: 709-14, 1986.
169. Leitman, D.C., Andresen, J.W., Kuno, T., Kamisaki, Y., Chang, J., Murad, F.: Identification of two binding sites for atrial natriuretic factor in endothelial cells: Evidence for a receptor subtype coupled to guanylate cyclase. **Trans. Assoc. Phys.** 99: 104-13, 1986.
170. Fiscus, R.R., Robles, B.T., Waldman, S.A., Murad, F.: Atrial natriuretic factors stimulate accumulation and efflux of cyclic GMP in C6-2B rat glioma and PC-12 rat pheochromocytoma cell cultures. **J. Neurochem.** 48: 522-528, 1987.
171. Leitman, D.C., Agnost, V.L., Tuan, J.J., Andresen, J.W., Murad, F.: Atrial natriuretic factor and sodium nitroprusside increase cyclic GMP in cultured rat lung fibroblasts by activating different forms of guanylate cyclase. **Biochem.** 244: 69-74, 1987.
172. Rapoport, R.M., Waldman, S.A., Ginsburg, R., Molina, C.R., Murad, F.: Effects of glyceryl trinitrate on endothelium-dependent and -independent relaxation and cyclic GMP levels in rat aorta and human coronary artery. **J. Card. Pharm.** 10: 82-89, 1987.

173. Leitman, D.C., Murad, F.: Atrial natriuretic factor receptor heterogeneity and stimulation of particulate guanylate cyclase and cyclic GMP accumulation. **Endocrin. and Metab. Clin. in No. Amer.** 16: 79-105, 1987.
174. Molina, C., Andresen, J.W., Rapoport, R.M., Waldman, S.A., Murad, F.: The effects of in vivo nitroglycerin therapy on endothelium-dependent and -independent relaxation and cyclic GMP accumulation in rat aorta. **J. Card. Pharm.**, 10: 371-378, 1987.
175. Murad, F., Waldman, S.A., Molina, C.R., Bennett, B.M., Leitman, D.C.: Regulation and role of guanylate cyclase-cyclic GMP in vascular relaxation. **Proceedings of the Second International Symposium on Cellular Endocrinology**. Mech. of Signal Transduction by Hormones and Growth Factors, Alan R. Liss, New York, 1987.
176. Waldman, S.A., Murad, F.: Cyclic GMP synthesis and function. **Pharm. Rev.** 39: 163-96, 1987.
177. Schroeder, H., Leitman, D.C., Hayward, L.D., Bennett, B.M., Murad, F.: Cultured rat lung fibroblasts as a model for organic nitrate-induced cyclic GMP accumulation and activation of guanylate cyclase. **J. App. Card.** 2: 301-11, 1987.
178. Murad, F., Leitman, D.C., Bennett, B.M., Molina, C.R., Waldman, S.A.: Regulation of guanylate cyclase by atrial natriuretic factor and the role of cyclic GMP in vasodilation. **Amer. J. Med. Sci.** 249: 139-143, 1987.
179. Murad, F.: Role of cyclic GMP in the mechanism of action of nitrovasodilators, atrial peptides and other agents. **Proc. Third Symposium on Nitrates, Excerpta Medica, Ltd.**, 1987.
180. Murad, F., Waldman, S., Molina, C., Bennett, B. and Leitman, D. Regulation and role of guanylate cyclase-cyclic GMP in vascular relaxation. *Progress in Clinical and Biological Research* 249: 65-76, 1987.
181. Fiscus, R., Murad, F.: A procedure for investigating cyclic GMP-dependent protein kinase activation in intact tissues. In Methods in Enzymology: Hormone Action, Cyclic Nucleotide Action and Degradation, J.D. Corbin and R.A. Johnson, Eds., Academic Press Vol. 159, 150-159, 1988.
182. Rapoport, R.M., Murad, F.: The role of cyclic GMP in endothelium-dependent relaxation of vascular smooth muscle. In Endothelium-Derived Vasoactive Factors, Ed., P. Vanhoutte, Humana Press, New Jersey, pp 219-239, 1988.
183. Rapoport, R.M., Murad, F.: Effects of ethacrynic acid and cystamine on sodium nitroprusside induced relaxation, cyclic GMP levels and guanylate cyclase activity in rat aorta. **Gen. Pharm.** 19: 61-65, 1988.
184. Murad, F.: Round Table on Cyclic GMP and atrial natriuretic factor. **Adv. Cyc. Nucl. and Pro. Phosphor. Res.** 21: 101-103, 1988.
185. Schroeder, H., Leitman, D.C., Bennett, B.M., Waldman, S.A., Murad, F.: Glyceryl trinitrate induced desensitization of guanylate cyclase in cultured rat lung fibroblasts. **J. Pharm. and Exper. Ther.** 245: 413-418, 1988.
186. Bennett, B.M., Schroeder, H., Hayward, L.D., Murad, F.: Effect of in vitro organic nitrate tolerance on relaxation, cyclic GMP accumulation and guanylate cyclase activation by glyceryl trinitrate and the enantiomers of isodidide dinitrate. **Circ. Res.** 63: 693-701, 1988.

187. Murad, F., Leitman, D.C., Bennett, B.M., Molina, C.R., Waldman, S.A.: Role of guanylate cyclase and cyclic GMP in the actions of ANF. In **Proceedings of the Second World Congress on Biologically Active Atrial Peptides**, New York, May 1987. *Advances in Atrial Peptide Research*, Vol. II, 53-60, Ed., J.H. Laragh and B. Brenner, Raven Press, New York, 1988.
188. Leitman, D.C., Andressen, J.W., Catalano, R.M., Waldman, S.A., Tuan, J.J., Murad, F.: Atrial natriuretic peptide binding, cross-linking and stimulation of cyclic GMP accumulation and particulate guanylate cyclase activity in cultured cells. **J. Biol. Chem.** 263: 3720-28, 1988.
189. Murad, F.: The mechanism of relaxation of EDRF: Similarities of the effects of EDRF and nitrovasodilators on cyclic GMP formation and vascular relaxation. **Proc. of the Tenth Int'l. Congress of Pharm.**, 1988.
190. Murad, F.: Atrial natriuretic peptide, endothelium-dependent vasodilators and nitrovasodilators: Role of guanylate cyclase and cyclic GMP in their actions. In **Proc. of XIIth European Symposium on Hormones and Cell Regulation**, Vol. 165, J. Libbey & Co., Ltd., France., pp. 3-12, 1988.
191. Leitman, D.C., Agnost, V.L., Catalano, R.M., Schroeder, H., Waldman, S.A., Bennett, B.M., Tuan, J.J., Murad, F.: Atrial natriuretic peptide, oxytocin and vasopressin increase cyclic Guanosine 3', 5'-monophosphate in LLC-PK₁ kidney epithelial cells. **Endocrinology**, 122, 1478-85, 1988.
192. Myers, B.D., Petersen, C., Molina, C., Tomlanovich, S.J., Newton, L., Nitkin, R., Sandler, H., Murad, F.: Role of cardiac atria in the human renal response to changing plasma volume. **Amer. J. Physiol.** 254: F562-573, 1988.
193. Molina, C.R., Fowler, M.B., McCrary, S., Peterson, C., Myers, B.D., Schroeder, J.S., Murad, F.: Hemodynamic, renal and endocrine effects of atrial natriuretic peptide infusion in severe heart failure. **J. Amer. Col. Card.** 12: 175-186, 1988.
194. Murad, F.: The role of cyclic GMP in the mechanism of action of nitrovasodilators, endothelium-dependent agents and atrial natriuretic peptide. **Biochemical Society Transactions** 16, 490-92, 1988.
195. Song, D.L., Kohse, K., Murad, F.: Brain natriuretic factor: Augmentation of cellular cyclic GMP, activation of particulate guanylate cyclase and receptor binding. **FEBS Lett.** 1, 125-29, 1988.
196. Nakane, M., Saheki, S., Kuno, T., Ishii, K., Deguchi, T., Murad, F.: Molecular cloning of a cDNA coding for 70 kilodalton subunit of soluble guanylate cyclase from rat lung. **Biochem. Biophys. Res. Commun.** 157: 1139-1147, 1988.
197. Waldman, S.A., Murad, F.: Biochemical mechanisms underlying vascular smooth muscle relaxation: The guanylate cyclase-cyclic GMP system. **J. Cardiovasc. Pharmacol.** 12: Suppl. 5, S115-S118, 1988.
198. Leitman, D.C., Molina, C.R., Waldman, S.A., Murad, F.: Atrial natriuretic peptide receptors and the guanylate cyclase-cyclic GMP system. **Proc. of the UCLA Symposium on Atrial Natriuretic Factor** in *Biological and Molecular Aspects of Atrial Factors*, UCLA Symposia on Molecular and Cellular Biology, 81: 36-59, 1988.
199. Murad, F., Leitman, D., Waldman, S., Chang, C.H., Hirata, M., Kohse, K.: Effects of nitrovasodilators, endothelium-dependent vasodilators and atrial peptides on cGMP. **Proc. Cold Spring Harbor Symposium on Quantitative Biology, Signal Transduction**, 53: 1005-1009, 1988.

200. Bennett, B.M., Molina, C.R., Waldman, S.A., Murad, F.: Cyclic nucleotides and protein phosphorylation in vascular smooth muscle relaxation. In Physiology and Pathophysiology of the Heart, Ed., N. Sperelakis, Kluwer Academic Publishers, Boston, pp. 825-846, 1989.
201. Rapoport, R.M., Ashraf, M., Murad, F.: Effects of melittin on endothelium-dependent relaxation and cyclic GMP levels in rat aorta. **Circ. Res.** 64: 463-473, 1989.
202. Ishii, K., Murad, F.: ANP relaxes bovine tracheal smooth muscle and increases cGMP. **Amer. J. Physiol.: Cell Physiol.** , 25: C495-C500, 1989.
203. Waldman, S.A., Rapoport, R.M., Fiscus, R.R., Leitman, D.C., Chang, L.Y., Murad, F.: Regulation of particulate guanylate cyclase by atriopeptins: Relation between peptide structure, receptor binding and enzyme kinetics. **Biochim. Biophys. Acta**, 999, 157-162, 1989.
204. Waldman, S.A., Leitman, D.C., Chang, L.Y., Murad, F.: Comparison of particulate guanylate cyclase in cells with and without atrial natriuretic peptide receptor binding activity. **Mol. Cell Biochem.**, 90, 19-26, 1989.
205. Hirata, H., Chang, C.H., Murad, F.: Stimulatory effects of atrial natriuretic factor on phosphoinositide hydrolysis in cultured bovine aortic smooth muscle cells. **Biochem. Biophys. Acta.** 1010: 346-351, 1989.
206. Murad, F.: Modulation of the guanylate cyclase-cGMP system by vasodilators and the role of free radicals as second messengers. **Proc. of the NATO Advanced Studies Institute on Vascular Endothelium: Receptors and Transduction Mechanisms.** Porto Carros, Greece, June, 1988, in Vascular Endothelium, eds. J.D. Catravas, C.N. Gillis and U.S. Ryan, pp 157-164, Plenum Pub., 1989.
207. Bennett, B.M., Leitman, D.C., Schroder, H., Kawamoto, J.H., Nakatsu, K., Murad, F.: Relationship between biotransformation of glyceryl trinitrate and cyclic GMP accumulation in various cultured cell lines. **J. Pharmacol. Expt'l. Therap.** 250: 316-323, 1989.
208. Murad, F.: Mechanisms for hormonal regulation of the different isoforms of guanylate cyclase. **Proc. of the 40th Mosbach Colloquium on Molecular Mechanisms of Hormone Action**, eds. Y, Gehring, E. Helmreich and G. Schultz, Springer, Heidelberg, April 1989. pp 186-194, 1989.
209. Ishii, K., Gorsky, L., Förstermann, U., Murad, F.: Endothelium-derived relaxing factor (EDRF): The endogenous activator of soluble guanylate cyclase in various types of cells. **J. Applied Cardiology**, 4, 505-512, 1989.
210. Waldman, S.A., Murad, F.: Atrial natriuretic peptides: Receptors and second messengers. **BioEssays**, 10, 16-19, 1989.
211. Förstermann, U., Ishii, K., Gorsky, L.D., Murad, F.: The cytosol of N1E-115 neuroblastoma cells synthesizes an EDRF-like substance that relaxes rabbit aorta. Naunyn Schmiedbergs **Arch. Pharmacol.**, 340: 771-774, 1989.
212. Leitman, D.C. , Murad, F.: Structure and function of atrial natriuretic peptide receptor subtypes. **Atrial Natriuretic Peptides**, Chapter 7, pp. 77-93. Eds., R. Quirion and W.K. Samson, CRC Press, 1990.

213. Chang, C.H., Kohse, K.P., Chang, B., Hirata, M., Jiang, B., Douglas, J., Murad, F.: Characterization of ATP-stimulated guanylate cyclase activation in rat lung membranes. **Biochem Biophys Acta** 1052: 159-165, 1990.
214. Hirata, M., Kohse, K., Chang, C.H., Ikebe, T., Murad, F.: Mechanism of cyclic GMP inhibition of inositol phosphate formation in rat aorta segments and cultured bovine aortic smooth muscle cells. **J. Biol. Chem.**, 265: 1268-1273, 1990.
215. Murad, F.: Drugs used in the treatment of angina: organic nitrites, calcium channel blockers and β -adrenergic antagonists. In Pharmacological Basis of Therapeutics, VIII Edition, chapter 32; eds. A.G. Gilman, T.W. Rall, A. Nies and P. Taylor, pp.764-783, 1990.
216. Murad, F.: Hormones and Hormone Antagonists. In Pharmacological Basis of Therapeutics, VIII Edition, Section XV, eds. A.G. Gilman, T.W. Rall, A. Nies and P. Taylor, pp.1332-1333, 1990.
217. Kuret, J., Murad, F.: Adenohypophyseal hormones and related substances. In Pharmacological Basis of Therapeutics, VIII Edition, Chapter 56, eds. A.G. Gilman, T.W. Rall, A. Nies and P. Taylor, pp. 1334-1360, 1990.
218. Murad, F., Kuret, J.: Estrogens and progestins. In **Pharmacological Basis of Therapeutics**, chapter 58, eds. A.G. Gilman, T.W. Rall, A. Nies and P. Taylor, pp. 1384-1412, 1990.
219. Murad, F., Ishii, K.: Hormonal regulation of the different isoforms of guanylate cyclase: EDRF is a ubiquitous activator of soluble guanylate cyclase. **Proc. of the First Internat. Symp. on Endothelium-Derived Vasoactive Factors**. Philadelphia, PA, 1989. eds. G.M. Rubanyi and P. Vanhoutte, Karger, Basel, pp. 151-165, 1990.
220. Fiscus, R.R., Kim, D.D., Wong, Y., Maslowski, R.J., Robles, B.T., Kuno, T., Murad, F.: Atrial natriuretic peptide causes calcium-dependent increases in cyclic GMP levels in discrete regions of rat brain. **J. Neurochem.**, 1990.
221. Saheki, S., Kuno, T., Takeuchi, N., Murad, F.: Radiation inactivation target size analysis of soluble guanylate cyclase. **Biochim. Biophys. Acta** 1051: 306-309, 1990.
222. Ishii, K., Chang, B., Kerwin, J.F., Huang, Z.J., Murad, F.: N^T-Nitro-L-Arginine: A potent inhibitor of Endothelium-derived relaxing factor formation. **Europ. J. Pharmacol.** 176: 219-223, 1990.
223. Murad, F., Ishii, K., Gorsky, L., Förstermann, U., Kerwin, J.F., Heller, M.: Endothelium-derived relaxing factor is a ubiquitous intracellular second messenger and extracellular paracrine substance for cyclic GMP synthesis. **Proc. of the International Meeting on Nitric Oxide from L-Arginine: A Bioregulatory System**. London, September, 1989, eds., S. Moncada and E.A. Higgs, Chapter 32, pp 301-315, 1990.
224. Murad, F., Ishii, K., Förstermann, U., Gorsky, L., Kerwin, J., Pollock, J., Heller, M.: EDRF is an intracellular second messenger and autacoid to regulate cyclic GMP synthesis in many cells. **Proc. of the VII International Conf. on Cyclic Nucleotides, Calcium and Protein Phosphorylation. Adv. Cyclic Nucl. Res.** 24: 441-448, 1990.
225. Gorsky, L., Förstermann, U., Ishii, K., Murad, F.: Production of an EDRF-like activity in the cytosol of N1E-115 neuroblastoma cells. **FASEB Journal**, 4: 1494-1500, 1990.

226. Förstermann, U., Gorsky, L., Pollock, J., Ishii, K., Schmidt, H.H.H.W., Heller, M., Murad, F.: Hormone induced biosynthesis of Endothelium-derived relaxing factor-Nitric oxide-like material in N1E-115 neuroblastoma cells requires calcium and calmodulin. **Molecular Pharmacology**, 38, 7-13, 1990.
227. Ishii, K., Kerwin, J., Murad, F.: N^W-nitro-L-arginine: A potent inhibitor of the L-arginine-dependent soluble guanylate cyclase activation pathway in LLC-PK₁ cells. **Canadian J. Pharmacol.**, 68: 749-751, 1990.
228. Förstermann, U., Gorsky, L., Pollock, J., Schmidt, H.H.H.W., Heller, M., Murad, F.: Regional distribution of EDRF/NO synthesizing enzyme in rat brain. **Biochem. Biophys. Res. Commun.**, 168, 727-732, 1990.
229. August, T., Anders, M.W., Murad, F., Nies, A., editors. **Advances in Pharmacology**, Academic Press, Inc., Vol. 21, pp 1-302, 1990.
230. Nakane, M., Arai, K., Saheki, S., Kuno, T., Buechler, W., Murad, F.: Molecular cloning and expression of cDNAs coding for soluble guanylate cyclase from rat lung. **Journal of Biol. Chem.**, 265: 16841-16845, 1990.
231. Murad, F., Pollock, J.S., Schmidt, H.H.H.W., Förstermann, U., Ishii, K., Heller, M., Gorsky, L.: Characterization and purification of a rat brain enzyme which catalyzes the formation of an EDRF-like factor from L-arginine. **Eur. J. Pharmacol.**, 183, 647-648, 1990.
232. Förstermann, U., Gorsky, L., Pollock, J.S., Schmidt, H.H.H.W., Ishii, K., Heller, M., Murad, F.: Subcellular localization and regulation of the enzymes responsible for EDRF synthesis in endothelial cells and N1E 115 neuroblastoma cells. **Eur. J. Pharmacol.**, 183, 1625-1626, 1990.
233. Horio, Y., Murad, F.: Solubilization of guanylate cyclase from bovine rod outer segments and effects of Ca⁺⁺ and nitro compounds. **Journal of Biol. Chem.**, 266: 3411-3415, 1991.
234. Waldman, S.A., Leitman, D.C., Murad, F.: Immunoaffinity purification of soluble guanylate cyclase. Methods in Enzymology, (Corbin, J.D. and Johnson, R.A., Eds., Academic Press), 195, 391-396, 1991.
235. Leitman, D.C., Waldman, S.A., Murad, F.: Identification of atrial natriuretic peptide receptors in cultured cells. Methods in Enzymology, (Corbin, J.D. and Johnson, R.A., Eds., Academic Press), 195, 436-446, 1991.
236. Waldman, S.A., Leitman, D.C., Murad, F.: Co-purification of an atrial natriuretic peptide receptor and particulate guanylate cyclase. Methods in Enzymology, (Corbin, J.D. and Johnson, R.A., Eds., Academic Press), 195, 397-404, 1991.
237. Leitman, D.C., Chang, C.H., Kohse, K.P., Hirata, M., Song, D.L., Waldman, S.A., Murad, F.: Signal transduction pathways of atrial natriuretic peptide receptor subtypes. **Proc. of the Internat. Symposium on ANP, 1988** Kyoto, Japan, (eds. H. Matsuo and H. Imusa) pp. 149-164, 1991.
238. Ishii, K., Chang, B., Kerwin, J.F., Wagenaar, F.L., Huang, Z.J., Murad, F.: Formation of EDRF in porcine kidney epithelial LLC-PK₁ cells: An Intra- and intercellular messenger for activation of soluble guanylate cyclase, **J. Pharmacol. Expt'l. Therap.** 256: 38-43, 1991.
239. Fiscus, R.R., Zhou, H.L., Wong, Y., Hon, C.D., Ali, S., Joyce, C.D., Murad, F.: Calcitonin gene-related peptide-induced cyclic AMP, cyclic GMP and vasorelaxant responses in rat thoracic aorta are antagonized by EDRF blockers. **Neuropeptides** 20, 133-143, 1991.

240. Förstermann, U., Pollock, J., Schmidt, H.H.H.W., Heller, M., Murad, F.: Calmodulin-dependent endothelium-derived relaxing factor/nitric oxide synthase activity is present in the particulate and cytosolic fractions of bovine aortic endothelial cells. **Proc. Nat. Acad. Sci.**, 88, 1788-1792, 1991.
241. Schmidt, H.H.H.W., Pollock, J., Nakane, M., Gorsky, L., Förstermann, U., Heller, M., Murad, F.: Purification of a soluble isoform of guanylyl cyclase-activating-factor synthase. **Proc. Nat. Acad. Sci.** 88, 365-369, 1991.
242. Chen, J., Chang, B., Williams, M., Murad, F.: Sodium Nitroprusside, a source of nitric oxide, induces degeneration of cultured rat striatal neurons. **Neuro. Report**, 2, 121-123, 1991.
243. Ishii, K., Warner, T., Sheng, H., Murad, F.: Endothelin-1 stimulates cyclic GMP formation in porcine kidney epithelial cells via activation of the L-arginine-dependent soluble guanylate cyclase pathway. **J. Cardiovasc. Pharmacol.** 17 (Suppl. 7), S246-S250, 1991.
244. Sheng, H., Ishii, K., Murad, F.: Generation of an EDRF-like substance in bovine tracheal smooth muscle. **Amer. J. Physiol., Lung Cell Molec. Physiol.**, 260, L489-493, 1991.
245. Ishii, K., Sheng, H., Warner, T., Förstermann, U., Murad, F.: A simple and sensitive bioassay method for detection of EDRF with RFL6 rat lung fibroblasts. **Amer. J. Physiol.**, 261, H598-603, 1991.
246. Förstermann, U., Schmidt, H.H.H.W., Pollock, J.S., Heller, M., Murad, F.: Enzymes synthesizing guanylyl cyclase activating factor (GAF) in endothelial cells, neuroblastoma cells and rat brain. **J. Cardiovasc. Pharmacol.**, 17 (Sup3), 557-564, 1991.
247. Buechler, W.A., Nakane, M., Murad, F.: Expression of soluble guanylate cyclase activity requires both enzyme subunits. **Biochem. Biophys. Res. Commun.**, 174, 351-357, 1991.
248. Mitchell, J.A., Förstermann, U., Warner, T.D., Pollock, J.S., Schmidt, H.H.H.W., Heller, M., Murad, F.: Endothelial cells have a particulate enzyme system responsible for EDRF formation: Measurement by vascular relaxation. **Biochem. Biophys. Res. Commun.**, 176, 1417-1423, 1991.
249. Horio, Y. and Murad, F.: Purification of guanylyl cyclase from bovine rod outer segments. **Biochim. Biophys. Acta**, 1133, 81-88, 1991.
250. Pollock, J.S., Förstermann, U., Mitchell, J.A., Warner, T.D., Schmidt, H.H.H.W., Nakane, M., Murad, F.: Purification and characterization of particulate EDRF synthase from cultured and native bovine aortic endothelial cells. **Proc. Nat. Acad. Sci. USA**, 88, 10480-10484, 1991.
251. Mitchell, J.A., Sheng, H., Förstermann, U., Murad, F.: Characterization of nitric oxide synthases in non-adrenergic, non-cholinergic nerve containing tissue from the rat anococcygenus muscle. **Brit. J. Pharmacol.**, 104, 289-291, 1991.
252. Förstermann, U., Schmidt, H.H.H.W., Pollock, J.S., Sheng, H., Mitchell, J.A., Warner, T.D., Nakane, M., Murad, F.: Isoforms of EDRF/NO synthase: Characterization and purification from different cell types. **Biochem. Pharmacol.**, 42, 1849-1857, 1991.
253. August, J.T., Anders, M.W., and Murad, F., editors, Advances in Pharmacology, Vol. 22, pp 1-374, Academic Press, 1991.

254. Mitchell, J.A., Pollock, J.S., Nakane, M., Warner, T.D., Kerwin, J.F., Wagenaar, F., Förstermann, U., and Murad, F.: Hydroxy-L-arginine is a substrate for the constitutive NO synthase purified from endothelial cells and brain: Comparison with L-arginine. In: *Biology of Nitric Oxide*, S. Moncada, M.A. Marletta, J.B. Hibbs and E.A. Higgs, eds., 2, pp 66-68, 1991.
255. Mitchell, J.A., Kohlhaas, K.L., Warner, T.D., Matsumoto, T., Pollock, J.S., Förstermann, U., and Murad, F.: Simultaneous induction by cytokines of NADPH-dependent diaphorase and NO synthase in endothelium-denuded rat aorta. In: *Biology of Nitric Oxide*, S. Moncada, M.A. Marletta, J.B. Hibbs and E.A. Higgs, eds., 1, pp. 213-215, 1991.
256. Sheng, H., Mitchell, J.A., Nakane, M., Schmidt, H., Pollock, J.S., Warner, T.D., Förstermann, U., and Murad, F.: Characterization of nitric oxide synthase from non-adrenergic non-cholinergic nerves in rat anococcygeus and bovine retractor penis muscle. In: *Biology of Nitric Oxide*, S. Moncada, M.A. Marletta, J.B. Hibbs and E.A. Higgs, eds., 2, pp 119-121, 1991.
257. Pollock, J.S., Mitchell, J.A., Warner, T.D., Schmidt, H., Nakane, M., Förstermann, U., and Murad, F.: Purification of NO synthase from endothelial cells. In: *Biology of Nitric Oxide*, S. Moncada, M.A. Marletta, J.B. Hibbs and E.A. Higgs, eds., 2, pp 108-111, 1991.
258. Förstermann, U., Schmidt, H., Pollock, J.S., Sheng, H., Mitchell, J.A., Warner, T.D., Nakane, M., and Murad, F.: Characterization and classification of constitutive and inducible isoforms of NO synthase in various cells. In: *Biology of Nitric Oxide*, S. Moncada, M.A. Marletta, J.B. Hibbs and E.A. Higgs, eds., 2, pp 21-23, 1991.
259. Nakane, M., Mitchell, J.A., Förstermann, U., Murad, F.: Phosphorylation by calcium calmodulin-dependent protein kinase II and protein kinase C modulates the activity of nitric oxide synthase. **Biochem. Biophys. Res. Com.**, 180, 1396-1402, 1991.
260. Schmidt, H.H.H.W., Murad, F.: Purification and characterization of a human NO synthase. **Biochem. Biophys. Res. Com.**, 181, 1372-1377, 1991.
261. Ishii, K., Warner, T.D., Sheng, H., Murad, F.: Endothelin increases cyclic GMP in LLC-PK₁ porcine kidney epithelial cells via formation of an endothelium-derived relaxing factor-like substance. **J. Pharmacol. Expt'l. Therap.** 259, 1102-1108, 1991.
262. Sheng, H., Mitchell, J., Nakane, M., Schmidt, H., Pollock, J., Warner, T., Förstermann, U. and Murad, F.: Characterization of nitric oxide synthase from nonadrenergic, noncholinergic nerves in rat anococcygeus and bovine retractor penis muscles -- In: *Proceedings of Biology of Nitric Oxide - 2nd International meeting, London*, pp 119-121, 1991.
263. Hu, Z.W., Honda, K., Murad, F., Hoffman, B.: Prolonged exposure to catecholamines enhances sensitivity of vascular smooth muscle to relaxation by sodium nitroprusside and atriopeptin in rat aorta. **J. Pharmacol. Expt'l. Therap.** 260, 756-761, 1992.
264. Yonemara, N., Ishii, K., Murad, F., Raffin, T.: Atriopeptin-induced increases in endothelial cell permeability are associated with elevated cyclic GMP levels. **Amer. J. Physiol. 263: Lung Cellular & Molec. Physiol.** 7, L363-369, 1992.
265. Schmidt, H.H.H.W., Warner, T.D., Förstermann, U., Murad, F.: Regulation and subcellular location of nitric oxide synthases in RAW 264.7 macrophages. **Molec. Pharmacol.** 41, 615-624, 1992.
266. Warner, T.D., Schmidt H.H.H.W., Murad, F.: Interactions of endothelin and EDRF in bovine native endothelial cells: Selective effects of endothelin-3. **Amer. J. Physiol.** 262, H1600-H1605, 1992.

267. Warner, T., Mitchell, J.A., D'Orleans-Juste, P., Ishii, K., Förstermann, U., Murad, F.: Characterization of endothelin-converting enzyme from endothelial cells and rat brain: Detection of the formation of biologically active endothelin-1 by rapid bioassay. **Mol. Pharmacol**, 41, 399-403, 1992.
268. Schmidt, H.H.H.W., Smith, R.M., Nakane, M., Murad, F.: Calcium calmodulin-dependent nitric oxide synthase Type I-- a biopterin-flavo-protein with calcium calmodulin-independent diaphorase and reductase activities. **Biochem.**, 31, 3243-3249, 1992.
269. Förstermann, U., Schmidt, H.H.H.W., Murad, F.: Induced RAW 264.7 macrophages express soluble and particulate nitric oxide synthase: Inhibition by transforming growth factor- β . **Eur. J. Pharmacol.**, 225, 161-165, 1992.
270. Sheng, H., Schmidt, H.H.H.W., Nakane, M., Mitchell, J., Pollock, J., Förstermann, U., Murad, F.: Characterization and localization of nitric oxide synthase in non-adrenergic non-cholinergic nerves from bovine retractor penis muscles. **Brit. J. Pharmacol.**, 106, 768-773, 1992.
271. Schmidt, H.H.H.W., Warner, T., Ishii, K., Sheng, H., Murad, F.: Insulin secretion in pancreatic β cells caused by L-arginine derived nitric oxide. **Science**, 255, 721-723, 1992.
272. Mitchell, J.A., Kohlhaas, K., Matsumoto, T., Pollock, J., Förstermann, U., Warner, T.D., Schmidt, H.H.H.W., Murad, F.: Induction of NADPH dependent diaphorase and NO synthase activity in aortic smooth muscle and cultured macrophages. **Molec. Pharmacol.**, 41, 1163-1168, 1992.
273. Warner, T.D., Budzik, G., Mitchell, J.A., Huang, Z.J., Murad, F.: Detection by bioassay and specific ELISA of phosphoramidon-inhibitable endothelin-converting activity in brain and endothelium. **J. Cardio. Pharm.**, 20, S19-S21, 1992..
274. Schmidt, H.H.H.W., Gagne, G., Nakane, M., Pollock, J., Miller, M., and Murad, F.: Mapping of neural NO synthase in the rat suggests frequent colocalization with NADPH diaphorase but not soluble guanylyl cyclase and novel paraneural functions for nitrinergic signal transduction. **J. Histochem. Cytochem.**, 40, 1439-1456, 1992.
275. August, J.T., Anders, M.W., and Murad, F., editors, Advances in Pharmacology, Vol 23, 1-346, Academic Press, 1992.
276. Murad, F., Förstermann, U., Nakane, M., Schmidt, H.H.H.W., Pollock, J., Sheng, H., Matsumoto, T., Warner, T., Mitchell, J., Tracey, R., Buechler, W.: The nitric oxide-cyclic GMP signal transduction pathway in vascular smooth muscle preparations and other tissues, **Japanese Journal of Pharmacology**, 58, 150-157, 1992.
277. Warner, T., Förstermann, U., Ishii, K., Mitchell, J., Nakane, M., Pollock, J., Schmidt, H.H.H.W., Sheng, H., and Murad, F.: Bioassay for EDRF/NO by accumulation of cyclic GMP in RFL-6 fetal rat lung fibroblasts. **NeuroProtocols**, 1, 117-123, 1992.
278. Hassall, C., Saffrey, M., Belai, A., Hoyle, C., Moules, E., Moss, J., Schmidt, H.H.H.W., Murad, F., Förstermann, U., and Burnstock, G.: Nitric oxide synthase immunoreactivity and NADPH diaphorase activity in a subpopulation of intrinsic neurons of the guinea pig heart, **Neurosci. Lett.**, 143, 65-68. 1992.
279. Saffrey, M., Hassall, C., Hoyle, C., Belai, A., Moss, J., Schmidt, H.H.H.W., Förstermann, U., Murad, F., and Burnstock, G.: Nitric oxide synthase and NADPH diaphorase in cultured myenteric neurons, **Neuroreports**, 3, 333-336, 1992.

280. Belai, A., Schmidt, H.H.H.W., Hoyle, C., Hassall, C., Saffrey, M., Moss, J., Förstermann, U., Murad, F., and Burnstock, G.: Colocalization of nitric oxide synthase and NADPH diaphorase in the myenteric plexus of the rat gut. **Neurosci. Lett.**, 143, 60-64, 1992.
281. Schmidt, H.H.H.W., Warner, T., and Murad, F.: The double-edged role of endogenous nitrogen oxides. **The Lancet**, 339, 986, 1992.
282. Warner, T., Schmidt, H., Kuk, J., Mitchell, J., and Murad, F.: Human brain contains a metalloprotease that converts big endothelin-1 to endothelin-1 and is inhibited by phosphoramidon and EDTA. **Brit. J. Pharmacol.** 106, 505-506, 1992.
283. Sheng, H., Hughes, M., Murad, F., and Briggs, C.: Evidence that nitric oxide mediates the cyclic GMP response to synaptic activity in the rat superior cervical ganglion. **Brain Res.** 597, 343-345, 1992.
284. Matsumoto, T., Mitchell, J., Schmidt, H., Kohlhaas, K., Warner, T., Förstermann, U., and Murad, F.: Nitric oxide synthase in ferret brain: Localization and characterization. **Brit. J. Pharmacol.** 107, 849-852, 1992.
285. Pollock, J., Nakane, M., Förstermann, U., and Murad, F.: Particulate and soluble bovine endothelial nitric oxide synthases are structurally similar proteins yet different from soluble brain nitric oxide synthase. **J. Cardiovasc. Pharmacol.** 20, (S-12), S50-S53, 1992.
286. Schmidt, H.H.H.W., Pollock, J., Nakane, M., Förstermann, U., and Murad, F.: Calcium-calmodulin regulated nitric oxide synthases. **Cell Calcium**, 13, 427-434, 1992.
287. Warner, T., Budzik, G., Mitchell, J., and Murad, F.: Regional differences in endothelin-converting enzyme activity in rat brain: Inhibition by phosphoramidon and EDTA. **Brit. J. Pharmacol.** 106, 123-127, 1992.
288. Pollock, J., Klinghofer, V., Förstermann, U. and Murad, F.: Endothelial nitric oxide synthase is myristylated. **FEBS. Lett.** 309, 402-404, 1992.
289. Wilcox, C., Welch, J., Murad, F., Gross S., Taylor, G., Levi, R. and Schmidt H.: Nitric oxide synthase in macula densa regulates glomerular capillary pressure. **Proc. Nat. Acad. Sci.** 89, 11993-11997, 1992.
290. Schmidt, H.H.H.W., Warner, T., Ishii, K., Sheng, H. and Murad, F.: Role of NO in insulin secretion. **Science**, 1992.
291. Welch, W., Schmidt, H., Murad, F., Gross, S., Taylor, G., Levi, R. and Wilcox, C.: Nitric oxide synthase in macula densa: localization and functional studies -- In: *Biology of Nitric Oxide: Physiologic and Clinical Aspects*. Eds. Moncada, S., Marletta M., Hibbs, J. and Higgs E.A. Portland Press, London, 243-245, 1992.
292. Murad, F., Förstermann, U., Nakane, M., Pollock, J., Schmidt, H.H.H.W., Matsumoto, T., Tracey, W.R., and Buechler, W.: Isoforms of nitric oxide synthase and the nitric oxide-cyclic GMP signal transduction system. **Proc. NATO-ASI Conference on Vascular Endothelium**, Rhodes, Greece, June, 1992, J. Catravas, A. Callow, & U. Ryan, eds., NATO ASI Series, Vol. 257; pp 73-80, Plenum Publishers, 1993.
293. Murad, F., Förstermann, U., Nakane, M., Pollock, J., Tracey, W.R., Matsumoto, T. and Buechler, W.: The nitric oxide-cyclic GMP signal transduction system for intracellular and intercellular communication. **Adv. Second Messenger Phosphoprotein Res.** 28, 101-109, 1993.

294. Nakane, M., Schmidt, H.H.H.W., Pollock, J., Förstermann, U. and Murad, F.: Cloned human brain, nitric oxide synthase is highly expressed in skeletal muscle. **FEBS. Lett.** 316, 175-180, 1993.
295. Pollock, J., Nakane, M., Buttery, L., Martinez, A., Springall, D., Polak, J., Förstermann, U. and Murad, F.: Characterization and localization of endothelial nitric oxide synthase using specific monoclonal antibodies. **Amer. J. Physiol.** 265, C1379-C1387, 1993.
296. Mitchell, J.A., Kohlhaas, K.L., Sorrentino, R., Warner, T.D., Murad, F. and Vane, J.R.: Induction of calcium-independent nitric oxide synthase in the rat mesentery: Possible role in the hypotension associated with sepsis. **Brit. J. Pharmacol.** 109, 265-270, 1993.
297. Sheng, H., Gagne, G., Matsumoto, T., Miller, M., Förstermann, U. and Murad, F.: Nitric oxide synthase in bovine superior cervical ganglion. **J. Neurochem.** 61, 1120-1126, 1993.
298. Murad F.: Nitric Oxide. In: Amer. Heart Assoc. Hypertension Primer, J. Isso and H. Black, eds., pp 27-28, 1993.
299. Murad, F.: The nitric oxide-cyclic GMP signal transduction system for intracellular and intercellular communication. In: Recent Progress Hormone Res. Ed: Bardin, C.W., Academic Press, San Diego, 49, pp 239-248, 1994.
300. Wendland, B., Schweizer, F., Ryan, T., Nakane, M., Murad, F., Smith, S., Scheller, R. and Tsien, R.: Existence of nitric oxide synthase in rat hippocampal pyramidal cells. **Proc. Nat. Acad. Sci.** 90, 2151-2155, 1994.
301. Murad, F., editor. Cyclic GMP Synthesis, Metabolism and Function, In: Adv. in Pharmacol., Vol. 26, pp 1-335, Academic Press, 1994.
302. Murad, F.: Introduction and some historical comments. In: Cyclic GMP Synthesis, Metabolism and Function, Adv. in Pharmacol., Vol. 26, F. Murad, ed., Academic Press, Chapter 1, pp 1-5, 1994.
303. Nakane, M. and Murad, F.: Cloning of guanylyl cyclase isoforms. In: Cyclic GMP Synthesis, Metabolism and Function, Adv. in Pharmacol., Vol. 26, F. Murad, ed., Academic Press, Chapter 2, pp 7-18, 1994.
304. Murad, F.: Regulation of cytosolic guanylyl cyclase by nitric oxide: The nitric oxide-cyclic GMP signal transduction system. In: Cyclic GMP Synthesis, Metabolism and Function, Adv. in Pharmacol, Vol. 26, F. Murad, ed., Academic Press, Chapter 3, pp 19-33, 1994.
305. Leitman, D., Waldman, S. and Murad, F.: Regulation of particulate guanylyl cyclase by natriuretic peptides and E.Coli enterotoxin. In: Cyclic GMP Synthesis, Metabolism and Function, Adv. in Pharmacol., Vol. 26, F. Murad, ed., Academic Press, Chapter 4, pp 67-86, 1994.
306. Warner, T., Mitchell, J., Sheng, H. and Murad, F.: Effects of cyclic GMP on smooth muscle relaxation. In: Cyclic GMP Synthesis, Metabolism and Function, Adv. in Pharmacol., Vol. 26, F. Murad, ed., Academic Press, Chapter 8, pp 171-194, 1994.
307. Hirata, M. and Murad, F.: Inter-relationships of cyclic GMP, inositol phosphates and calcium. In: Cyclic GMP Synthesis, Metabolism and Function, Adv. in Pharmacol., Vol. 26, F. Murad, ed., Academic Press, Chapter 11, pp 195-216, 1994.

308. Murad, F.: Future Directions. In: Cyclic GMP Synthesis, Metabolism and Function, Adv. in Pharmacol., Vol. 26, F. Murad, ed., Academic Press, Chapter 14, pp 321-324, 1994.
309. Tracey, R., Pollock, J., Murad, F., Nakane, M. and Förstermann, U.: Identification of an endothelial-like Type III nitric oxide synthase in LLC PK₁ kidney epithelial cells. **Amer. J. Physiol.** 226, C22-C28, 1994.
310. Murad, F.: The nitric oxide-cyclic GMP signal transduction system. **Proc. of the Fourth Intl. Symp. on Endothelium-Derived Factors and Vascular Functions**, Tokyo, Dec., 1993, T. Masaki, ed., Excerpto Medica, pp 29-37, 1994.
311. Murad, F.: The role of nitric oxide in modulating guanylyl cyclase. **Neurotransmission**, Vol. X, 1-4, 1994.
312. Murad, F.: The nitric oxide-cyclic GMP signal transduction system. In: Proc. of the Medicine Group Therapeutic Adv. Meeting, 1994.
313. August, T., Anders, M.W. and Murad, F., editors, Advances in Pharmacology, Volumes 21-34, Academic Press.
314. Sheng, H., Ishii, K., Förstermann, U. and Murad, F.: Mechanism of bradykinin-induced cyclic GMP accumulation in bovine tracheal smooth muscle. **Lung**, 173, 373-383, 1995.
315. Murad, F.: The nitric oxide-cyclic GMP signal transduction system. In: Proc. of the 38th OHOLO Conference on Biochemical, Pharmacological and Clinical Aspects of Nitric Oxide, Eilat, Israel, April, 1994, (B.A. Weissman, N. Allan, & S. Shapiro, eds.), Plenum, 1995.
316. Xie, J., Roddy, P., Rife, T., Murad, F., and Young, A.: Two closely linked but separate promoters for human neuronal nitric oxide synthase gene transcription. **Proc. Natl. Acad. Sci.** 92, 1242-1246, 1995.
317. Buechler, W.A., Singh, S., Aktas, J., Muller, S., Murad, F., and Gerzer, R.: High level expression of biologically active soluble guanylyl cyclase using the baculovirus system is strongly heme-dependent. Advances in Pharmacology, Volume 34, pp.293-303, Academic Press, 1995.
318. McDonald, L.J. and Murad, F.: Nitric oxide and cyclic GMP signaling. Advances in Pharmacology, Volume 34, pp. 263-275, Academic Press, 1995.
319. Young, A.P., Murad, F., Vaessin, H., Xie, J., and Rife, T.: Transcription of the human neuronal nitric oxide synthase gene in the CNS is mediated by multiple promoters. Advances in Pharmacology, Volume 34, pp. 91-112, Academic Press, 1995.
320. Papapetropoulos, A., Marczin, N., Mora, G., Milici, A., Murad, F., and Catravas, J.: Regulation of vascular smooth muscle soluble guanylate cyclase activity, mRNA and protein levels by cyclic AMP-elevating agents. **Hypertension**. 26:696-704, 1995.
321. Ignarro, L. and Murad, F. (eds), Nitric Oxide: Biochemistry, Molecular Biology, and Therapeutic Implications. **Advances in Pharmacology**, 34:1-516, Academic Press, 1995.
322. Papapetropoulos, A., Go, C., Murad, F., and Catravas, J.: Mechanisms of tolerance to sodium nitroprusside in cultured rat aortic smooth muscle cells. **Brit. J. Pharmacol.** 117:147-155, 1996.

323. Papapetropoulos, A., Abou-Mohamed, G., Marczin, N., Murad, F., Caldwell, R., and Catravas, J. Down regulation of nitrovasodilator-induced cyclic GMP accumulation in cells exposed to endotoxin and interleukin - 1B. **Brit. J. Pharmacol.** 118:1359-1366, 1996.
324. McDonald, L. and Murad, F.: Nitric oxide and cyclic GMP signaling. **Proc. Soc. Expt'l. Biol. and Medicine**, 211:1-6, 1996.
325. Murad, F.: Signal transduction using nitric oxide and cyclic guanosine monophosphate. **J. Amer. Med. Assoc.** 276: 1189-1192, 1996.
326. Murad, F. What are the molecular mechanisms for the antiproliferative effects of nitric oxide and cyclic GMP in vascular smooth muscle? **Circulation** 95, 1101-1103, 1997.
327. Zanardo, R., Costo, E., Ferreira, H., Antunes, E., Martins, A., Murad, F., and de Nucci, G. Pharmacological and immunohistochemical evidence for a functional nitric oxide synthase system in rat peritoneal eosinophils. **Proc. Nat. Acad. Sci. USA** 94, 14111-14114, 1997.
328. August, J.T., Anders, M.W., Murad, F., Coyle, J.T., editors: Advances in Pharmacology, volumes 35-43, **Academic Press**, 1996-1998.
329. Murad, F. Nitric oxide signaling: Would you believe that a simple free radical could be a second messenger, autocoid, paracrine substance, neurotransmitter and hormone? **Recent Progress in Hormone Research**, 53, 43-60, 1998.
330. Kamisaki, Y., Wada, K., Bian, K., Balabanli, B., Davis, K., Martin, E., Behbod, F., Lee, Y-C., and Murad, F. An enzyme activity in rat tissues that modifies nitrotyrosine-containing proteins. **Proc. Nat. Acad. Sci. USA** 95, 11584-11589, 1998.
331. Murad, F. and Webb, C. Nitric Oxide. Chapter 19. Amer. Heart Assoc. Hypertension Primer. Eds. J. Issa and H. Black, pp. 44-46, 1998.
332. Murad, F. Nitric oxide synthases in RBI Handbook of Receptor Classification and Signal Transduction, editor K. J. Watling, 3rd edition, pp. 148-149, 1998.
333. Murad, F. Discovery of some of the biological effects of nitric oxide and its role in cellular signaling. Nobel Lecture, Bioscience Reports 19, 133-154, 1999; Les Prix Nobel, The Nobel Prizes, 1998, pp. 273-307, 1999.
334. Bian, K., Davis, K., Kuret, J., Binder, L., and Murad, F. Nitrotyrosine formation with endotoxin-induced kidney injury detected by immunocytochemistry. **Amer. J. Physiology: Renal Physiology** 277: F33-F40, 1999.
335. Murad, F. Discovery of some of the biological effects of nitric oxide and its role in cell signaling. (Die Entdeckung einiger biologischer Wirkungen von Stickstoffmonoxid und seiner Rolle für die Zellkommunikation (Nobel-Vortrag), **Angewandte Chemie** 38, 1857-1868, 1999.
336. Kamisaki, Y., Martin, E., and Murad, F. Protein nitration and regulation in physiological functions, Zikken – Igaku, **Experimental Medicine**, Yodosha Co. Ltd., Tokyo, 17: No. 8, 918-923, 1999.
337. Murad, F. Cellular signaling with nitric oxide and cyclic GMP. In Proc. of the Basic and Clinical Aspects of Nitric Oxide meeting, March, 1999, Iguacu, Brazil. **Brazilian J. of Medical and Biological Research** 32: 1317-1327, 1999.

338. Balabanli, B., Kamisaki, Y., Martin, E., and Murad, F. Requirements for heme and thiols for the nonenzymatic modification of nitrotyrosine. **Proc. Nat. Acad. Sci. USA** 96, 13136-13141, 1999.
339. Martin, E., Davis, K., Bian, K., Lee, Y.C., and Murad, F. Cellular signaling with NO and cyclic GMP. **Seminars in Perinatology** 24, 2-6, 2000.
340. Kildsgaard, J., Hollmann, T.J., Matthews, K.W., Bian, K., Murad, F., and Wetsel, R.A. Cutting edge: targeted disruption of the C3a receptor gene demonstrates a novel protective anti-inflammatory role for C3a in endotoxin-shock. **J. Immunol.** 165, 5406-5409, 2000.
341. Sharina, I., Krumenacker, J., Martin, E., and Murad, F. Genomic organization of alpha₁ and beta₁ subunits of mammalian soluble guanylyl cyclase genes. **Proc. Nat. Acad. Sci.** 97, 10878-10883, 2000.
342. Lee, Y.C., Martin, E. and Murad, F. Human recombinant soluble guanylyl cyclase: Expression, purification, and regulation. **Proc. Nat. Acad. Sci.** 97, 10763-10768, 2000.
343. Chen, Z.J., Miao, Z.H., Chang, G.D., Hughes, B., Vetter, M., Dulin, N., Murad, F., Douglas, J. and Chang, C.H. Molecular cloning of a regulatory protein for membrane-bound guanylyl cyclase GCA **Biochem Biophys Res Commun** 278(1):106-11, 2000.
344. Murad, F. Discovery of some of the biological effects of nitric oxide and its role in cell signaling. Science and technology development: A retrospective view over the past century and a perspective look into the future. pp. 86-96. Editor in Chief: Lu, Yongxiang, **ShangHai Education Press**, ShangHai, 2000.
345. Ishii, N., Patel, K.P., Lane, P.H., Taylor, T., Bian, K., Murad, F., Pollock, J.S., and Carmines, P.K. Nitric oxide synthesis and oxidative stress in the renal cortex of rats with diabetes mellitus. **J. Amer. Soc. Nephrology** 12, 1630-1639, 2001.
346. Bian, K., and Murad, F. Diversity of endotoxin-induced nitrotyrosine formation in macrophage – endothelium rich tissue. **Free Radical Biology and Medicine** 31, 421-429, 2001.
347. Mendes, R.V., Martins, A.R., de Nucci, G., Murad, F., and Soares, F.A. Expression of nitric oxide synthase isoforms and nitrotyrosine immunoreactivity by B-cell non-Hodgkin's lymphomas and multiple myeloma. **Histopathology.** 39, 172-178, 2001.
348. Krumenacker, J., Hyder, S. and Murad, F. Estradiol rapidly inhibits soluble guanylyl cyclase expression in rat uterus. **Proc. Nat. Acad. Sci.** 98, 717-722, 2001.
349. Mailman, D., Guntuku, S., Bhuiyan, B. and Murad, F. Organ sites of LPS-induced nitric oxide production in the anesthetized rat. **Nitric Oxide: Biology and Chemistry.** 5, 243-251, 2001.
350. Davis, K., Martin, E., Turko, I. and Murad, F. Novel effects of nitric oxide, **Annual Review of Pharmacology and Toxicology.** 41, pp. 203-236, 2001.
351. Marcondes, S., Turko, I., and Murad, F. Nitration of succinyl Co-A:3-oxoacid CoA transferase in rats following endotoxin administration. **Proc. Nat. Acad. Sci.** 98, 7146-7151, 2001.
352. Seminara, A.R., Krumenacker, J.S., and Murad, F. Signal transduction with nitric oxide, guanylyl cyclase and cyclic GMP. Nitric Oxide: Basic Research and Clinical Applications, NATO Science Series, 317, 5-22, 2001.

353. Murad, F. Nitric oxide synthases in RBI Handbook of Receptor Classification and Signal Transduction, editor Keith Watling, 4th edition, pp. 176-177, 2001.
354. Hanafy, K., Krumenacker, J.S. and Murad, F. Nitric oxide, nitrotyrosine and cyclic GMP in signal transduction. Proceedings of the Vascular Biology Conference, Cracow, Poland, May, 2001. **Medical Science Monitor**, 7 (4), 801-819, 2001.
355. Turko, I., Marcondes, S., and Murad, F. Diabetes-associated nitration of tyrosine and inactivation of succinyl-CoA:3-oxoacid CoA transferase. **Physiol. Amer. J. Physiol., Heart Circ** 281, H2289-H2294, 2001.
356. Krumenacker, J.S., Hanafy, K.A. and Murad, F. Regulation of nitric oxide and soluble guanylyl cyclase. Proc. of the Symposium on Neuroprotection and the Eye. San Antonio, Texas, March, 2001. **Brain Research Bulletin** 62, 505-515, 2004
357. Martin, E., Lee, Y.C., and Murad, F. YC-1 activation of human soluble guanylyl cyclase has both heme-dependent and heme-independent components. **Proc. Nat. Acad. Sci.** 98, 12938-12942, 2001.
358. Bian, K., Zhong, M., Harari, Y., Weisbrodt, N., and Murad, F. Down regulation of inducible nitric oxide synthase by an IL4R α /Stat6-dependent and T-cell independent pathway during parasite-induced gut inflammation. **Mol. Pharmacol.** 59(4):939-47, 2001.
359. Turko, I., and Murad, F. Protein nitration in cardiovascular diseases. **Pharmacological Reviews** 54, 619-634, 2002.
360. Bian, K., and Murad, F. Nitric oxide (NO) – Biogenesis, regulation, and relevance to human diseases. **Frontiers in Bioscience** 8, 264-278, 2003.
361. Adewuya, O., Irie, Y., Bian, K., Onigu-Otite, E., and Murad, F. Mechanism of vasculitis and aneurysms in a mouse model of Kawasaki Disease: Role of nitric oxide. **Nitric Oxide: Biology and Chemistry** 8, 15-25, 2003.
362. Murad, F. The excitement and rewards of research with our discovery of some of the biological effects of nitric oxide. **Circulation Research** 92:339-41, 2003.
363. Irie, Y., Saeki, M., Kamisaki, Y., Martin, E., and Murad, F. Histone H1.2 is a substrate for denitrase, an activity that reduces nitrotyrosine immunoreactivity in protein. **Proc. Nat. Acad. Sci.** 100, 5634-5639, 2003.
364. Bian, K., Gao, Z., Weisbrodt, N., and Murad, F. The nature of heme/iron-induced protein tyrosine nitration. **Proc. Nat. Acad. Sci.** 100, 5712-5717, 2003.
365. Turko, I., and Murad, F. Quantitative protein profiling in heart mitochondria from diabetic rats. **J. Biol. Chem.** 278, 35844-35849, 2003.
366. Turko, I., Li, L., Aulak, K., Stuehr, D., Chang, R., and Murad, F. Protein tyrosine nitration in the mitochondria from diabetic mouse heart. **J. Biol. Chem.** 278, 33972-33977, 2003.
367. Martin, E., Sharina, I., Kots, A., and Murad, F. A constitutively activated mutant of human soluble guanylyl cyclase. Implication for the mechanism of soluble guanylyl cyclase activation. **Proc. Nat. Acad. Sci.** 100, 9208-9213, 2003.

368. Jurasz, P., Alonso, D., Castro-Blanco, S., Radomski, M.W. and Murad, F. Generation and role of angiotensin in human platelets. **Blood**. 102(9): 3217-23, 2003.
369. Sharina I, Martin E, Thomas, A., Davis, K. and Murad F. CCAAT binding factor regulates expression of the β_1 subunit of soluble guanylyl cyclase gene in the BE2 human neuroblastoma cell line. **Proc. Nat. Acad. Sci.** 100 (20), 11523-8, 2003.
370. Ruiz-Stewart, I., Tiyyagura, S.R., Kazerounian, S., Pitari, G.M., Schulz, S., Martin, E., Murad, F., and Waldman, S.A. Guanylyl cyclase is an ATP sensor coupling nitric oxide signaling to cell metabolism. **Proc. Nat. Acad. Sci.** 101, 37-42, 2004.
371. Hanafy KA, Martin, E. and Murad F. CCT η : A novel soluble guanylyl cyclase interacting protein. **J. Biol. Chem.** 279, 46946-46953, 2004.
372. Murad F. Some highlights of a 47 year career in research. **Cellular and Molecular Life Sciences** 62, 1-3, 2005.
373. Martin, E., Czamecki K, Jayaraman, V., Murad, F. and Kincaid, J.R. Resonance Raman and infrared spectroscopic studies of high-output forms of human soluble guanylyl cyclase. **J. Amer. Chem. Soc.** 127, 4625-4631, 2005.
374. Bian, K., Zhang, M., Harari, Y., Lai, M., Weisbrodt, N. and Murad, F. Helminth regulation of host IL-4R α /Stat 6 signaling: Mechanism underlying NOS-2 inhibition by *Tripinella spiralis*. **Proc. Nat. Acad. Sci.** 102, 3936-3941, 2005.
375. Bian, K., Yong, M., Harari, Y., Lai, M., Weisbrodt, N. and Murad, F. Helminth regulation of host IL-4R α /Stat6 signaling. Mechanism underlying NOS-2 inhibition by *trichinella spiralis*. **Proc. Nat. Acad. Sci.** 102(11) 3936-41, 2005.
376. Deng, W., Li, C., Liao, L., Zhao, Z., Ge, W., You, S., Deng, H., Zhao, R., and Murad, F. Bone marrow-derived cells give rise to skin cells and regenerate skin tissue. Engrafted bone marrow-derived flk-(1+) mesenchymal stem cells regenerate skin tissue. **Tissue Eng.** 11(1-2), 110-9, 2005.
377. Martin E, Berka V, Tsai AL and Murad F. Soluble guanylyl cyclase: The nitric oxide receptor. **Methods in Enzymology** 396, 478-492, 2005
378. Turko IV and Murad F. Mapping sites of tyrosine nitration by matrix-assisted laser desorption/ionization mass spectroscopy. **Methods in Enzymology** 396, 266-275, 2005.
379. Krumenacker J, Katsuki S, Kots A, and Murad F. Differential expression of genes involved in cGMP-dependent nitric oxide signaling in murine embryonic stem cells (ES) and ES cells-derived cardiomyocyte precursors. **Nitric Oxide** (In Press), 2005.
380. Krumenacker, J., Kots, A., and Murad, F. Effects of c-Jun kinase inhibitor anthrax[1,9-cd] prazole-6(2H)-one (SP600125) on soluble guanylyl cyclase α_1 gene regulation and cGMP synthesis. **Amer. J. Physiol-Cell Physiology**. (In Press).
381. Bian, K. and Murad, F. Nitric oxide biology and atherosclerosis. **Atherosclerosis Research**. (In Press).
382. Murad, F. Looking into the future advances of medical research. **Houston Medical Magazine**. (In Press).

383. Martin, E., Sharina, I., Seminara AR., Krumenacker, J. and Murad, F. Nitric oxide cell signaling mediated by aGMP in **Nitric oxide, Cell signaling and Gene Expression**. (In Press).
384. Adewuya O, and Murad F. Kawasaki syndrome. **Encyclopedia Reference of Molecular Mechanisms of Disease**. (In Press).
385. Bian, K., Murad, F. Nitric oxide biology and atherosclerosis. **Atherosclerosis Research**. (In Press)
386. Gocman, C., Buyahnacor, H., Kots, A., Murad, F., Kiroglu O and Kuman E. The relaxant activity of 4, 7-dimethyl-1, 2, 5-oxadiazolo [3, 4-d] piridazine 1, 5, 6-tioxide in the mouse corpus cavernosum. **J. of Pharmacology and Exp. Therapeutics** (Accepted), 2005.
387. Murad, F., and R. Barber. A hypothesis about cellular signaling with nitric oxide in the earliest life forms in evolution. **Nitric Oxide** (Submitted)
388. Sullivan, J.C., Loomis, E.D., Collins, M., Murad, F., Imig, J.D., Inscho, E.W., and Pollock, J.S. Effect of age on vascular reactivity and oxidative stress in mesenteric arteries from male and female rats. *AJP: Regulatory*. **Amer. J. Physiol.** (Submitted).
389. Rossini, L., Martin, E., Zhong, M., and Murad, F. Nitration of inducible nitric oxide synthase tyrosine residues in RAW 264.7 macrophages. **Pharmacological Res.** (Submitted).
390. Kots A, Postnikov, A., Betin, V, Bulgaria, T., Martin, E. and Murad F. Hsp 90 binds to soluble guanylyl cyclase and protects it from inhibition. **J. Biol. Chem.** (Submitted).
391. Lee, YC, Murad, F and Martin E. Putative dimerization domain of soluble guanylyl cyclase mediates the activation signal. **J. Biol. Chem.** (Submitted).
392. Nedopasov, A., Beda, N., Pimenova, T., Martin, E., and Murad, F. Diazotyrosine as a derivatized product of nitrotyrosine and aminotyrosine residues of peptides and proteins. **Proc. Nat. Acad. Sci.**, (Submitted).
393. Turko,I.V, Thompson, L. and Murad F. Protein profiling in liver peroxisomes from WY 14643-treated rats. Mass spectrometry-based relative quantification of proteins using stable isotope labeling with d₀ and d₃ acrylamides. **Mol. Phar.** (Submitted).
394. Yoneda, M., Wada, K., Fujita, K., Kirikoshi, H., Saitoh, S., Nakane, D., Blumberg, R., Kamisaki, Y., Murad, F., and Nakajimo, A. Strong involvement of nitric oxide derivatives on the pathogenesis of nonalcoholic steatohepatitis. **Lancet** (Submitted).
395. Bian, K., Li, J., Ren, Z., Zhang, A., Murad, F., and McCutcheon, I. Activation of Stat 3 and Stat 1 DNA binding in human meningioma cells by GP 130 cytokines and insulin-like growth factor-1. **Tumor Biology** (Submitted).
396. Zhu, H., Bian, K., Murad, F., Y.I. Geng (editor). Nitric oxide accelerated the recovery from burn wound. **J. of Investigative Dermatology** (Submitted).
397. Seminara, A.R., Sharina, I.G., Jarvis, W.D., and Murad, F. Nitric oxide-induced expression of MAPK-ERK kinase kinase 1 (MEKK1) in activated murine macrophages. (**Proc. Nat. Acad. Sci.**) (In preparation).

Abstracts and Presentations at National and International Meetings (excludes numerous university and industry seminars and lectures)

1. Murad, F., Rall, T.W., Sutherland, E.W.: Formation of adenosine 3', 5'-phosphate by particulate preparations of ventricular muscle. **Fed. Proc.** 19:192, 1960.
2. Murad, F.: An inhibitor of adenosine 3', 5'-phosphate in heart and liver extracts. **Fed. Proc.** 24: 150, 1965.
3. Murad, F.: Effect of glucagon on heart. **New Eng. J. Med.** 279: 434-435, 1968.
4. Manganiello, V., Murad, F., Vaughan, M.: Effect of cyclic 3', 5'-GMP on lipolysis in fat cells. **Fed. Proc.** 28: 876, 1969.
5. Murad, F., Manganiello, V., Vaughan, M.: Effect of cyclic 3', 5'-GMP on cyclic 3', 5'-AMP levels in fat cells. **J. Clin. Invest.** 48: 59a, 1969.
6. Murad, F., Brewer, H.B., Vaughan, M.: Effects of thyrocalcitonin on cyclic AMP formation by rat kidney. **Clin. Res.** 17: 591, 1969.
7. Murad, F., Manganiello, V., Vaughan, M.: Hormone effects of cyclic 3', 5'-AMP accumulation and lipolysis during fat cell incubations. **Clin. Res.** 18: 461, 1970.
8. Stossel, T., Murad, F., Vaughan, M.: Regulation of glycogenolysis in polymorphonuclear leukocytes. **Clin. Res.** 18: 417, 1970.
9. Murad, F.: Factors which influence the accumulation and action of cyclic AMP. Presented at the Gordon Conference on "Cyclic AMP", August, 1970.
10. Simopoulos, A., Pak, C.Y., Kattwinkel, J., Murad, F., di Sant-Agnese, P., Bartter, F.: Calcium metabolism and parathyroid function in cystic fibrosis. Presented at the American Pediatric Society Meeting, May, 1971.
11. Murad, F.: Diagnostic application of cyclic nucleotide levels. Presented at the Gordon Conference on "Cyclic AMP", June, 1971.
12. Murad, F.: Is there a role for extracellular cyclic nucleotides in clinical medicine? Presented at the Gordon Conference on "Chemistry, Physiology and Structure of Bones and Teeth", June, 1971.
13. Murad, F., Pak, C.Y., Thomas, E.: Urinary excretion of cyclic 3', 5'-AMP as a diagnostic test for altered parathyroid function. Presented at the Intl. Conference on Physiology and Pharmacology of Cyclic AMP, Milan, Italy, July, 1971.
14. Middler, S., Pak, C., Murad, F., Bartter, F.: Thyrocalcitonin and calcium infusions in the treatment of osteoporosis. The 53rd Annual Meeting of the Endocrine Society, San Francisco, California, June, 1971.
15. Murad, F., Shen, L.C., Lerner, J.: Effect of glucagon on rat diaphragms. **Fed. Proc.** 31: 889, 1972.
16. Murad, F., Thomas, E., Lapsley, R.: Practolol, propranolol and dichloroisoproterenol blockade of epinephrine .

17. Thomas, E., Murad, F., Looney, W.: Cyclic AMP and cyclic GMP levels in Morris hepatomas of various growth rates. Presented at the meeting of the American Society for Cell Biology at St. Louis, Missouri, November, 1972. **Jour. of Cell Biol.** 55: 259a, 1972.
18. Murad, F., Pak, C.Y.: Clinical application of cyclic AMP levels. Presented at the Fifth Int. Congress on Pharmacology, San Francisco, California, July, 1972.
19. Murad, F., Weitzman, R., Pak, C.Y.: Urine levels of cyclic AMP and cyclic GMP in parathyroid disorders. Presented at the 164th National American Chemical Society, New York, August, 1972.
20. Simopoulos, A., Taussig, L., Murad, F., Arnaud, C.D., di Sant-Agnese, P., Kattwinkel, J., Bartter, F.: Parathyroid function in patients with cystic fibrosis. **Ped. Res.** 6: 355, 1972.
21. Weitzman, R., Murad, F.: Effects of aminophylline, chlorpropamide and parathyroid extract on plasma and urinary cyclic AMP in pseudohypoparathyroidism. **Clin. Res.** 21: 89, 1973.
22. Weitzman, R., Murad, F.: Effects of phosphodiesterase inhibition on urine cyclic AMP and phosphate after parathyroid extract in pseudohypoparathyroidism. **Clin. Res.** 21: 58, 1973.
23. Moss, W., Johanson, A., Selden, R., Murad, F.: Urinary excretion on cyclic nucleotides in children. **Clin. Res.** 21: 45, 1973.
24. Murad, F.: Cyclic AMP levels in tracheal preparations: Effects of epinephrine, theophylline and prostaglandin E₁. **Clin. Res.** 21: 73, 1973.
25. Weitzman, R., Murad, F., Owen, J.: Cyclic nucleotide metabolism in pseudohypoparathyroidism. 55th Annual Meeting of the Endocrine Society, Chicago, Illinois, June 20-22, 1973.
26. Kimura, H., Thomas, E., Murad, F.: Effects of decapitation, ether and pentobarbital on cyclic AMP and cyclic GMP levels in rat tissues. **Fed. Proc.** 32: 680, 1973.
27. Murad, F.: Clinical studies and application of cyclic AMP. Presented at the 25th National Meeting of the American Association of Clinical Chemists, July, 1973, New York.
28. Murad, F.: Clinical studies with cyclic nucleotides. Presented at the 27th Post Graduate Assembly in Anesthesiology, New York, December 9-11, 1973.
29. Murad, F., Kimura, H.: Cyclic GMP levels in incubations of guinea pig tracheal rings. **Clin. Res.** 22: 47a, 1974.
30. Kimura, H., Murad, F.: Evidence for two forms of guanylate cyclase in rat heart. **Fed. Proc.** 33: 179, 1974.
31. Kimura, H., Murad, F.: Guanylate cyclase activity in various rat tissues. **Fed. Proc.** 33: 385, 1974.
32. Lerner, J., Huang, L.C., Brooker, G., Murad, F., Miller, T.B.: Inhibitor of protein kinase formed in insulin treated muscle. **Fed. Proc.** 33: 261, 1974.
33. Muffleman, D.W., Mundy, J.C., Schrank, J.P., Murad, F.: The effect of exercise on cyclic AMP and cyclic GMP in human plasma and urine. **Clin. Res.** 22: 476a, 1974.

34. Murad, F.: Mechanism of action of some bronchodilators: Cyclic nucleotide metabolism in tracheal preparations. Presented at the Scientific Basis of Respiratory Therapy Conference, Philadelphia, May 1, 1974.
35. Murad, F.: Different forms of guanylate cyclase. Presented at the Gordon Conference on Cyclic AMP, June 1974.
36. Murad, F.: Role of cyclic nucleotides as "Second Messengers." Presented at the First Portonovo Conference, Ancona, Italy, September, 1974.
37. Murad, F.: Feedback systems to regulate cyclic AMP accumulation and action. Presented at the First Portonovo Conference, Ancona, Italy, September, 1974.
38. Kimura, H., Murad, F.: Two forms of guanylate cyclase in several rat tissues. Presented at the Second International Conference on Cyclic AMP, Vancouver, Canada, July, 1974, in Adv. Cyclic Nucl. Res. **5**: 822, 1975.
39. Kimura, H., Murad, F.: Subcellular distribution of guanylate cyclase in rat liver. **Fed. Proc.** **34**: 616, 1975.
40. Murad, F., Kimura, H.: Altered subcellular distribution of guanylate cyclase in regenerating and fetal liver and in hepatoma. **Fed. Proc.** **34**: 232, 1975.
41. Murad, F., Kimura, H., Hopkins, H.A., Looney, W.B.: Correlation of changes in urinary cyclic GMP with changes in tumor volume of hepatoma 3924A following chemotherapy and radiotherapy. **Proc. Amer. Assoc. Cancer Res.** **16**: 138, 1975.
42. Murad, F.: Use of cyclic nucleotides to evaluate calcium disorders. Proceedings of the American Pharmaceutical Association Meeting, San Francisco, April, 1975, **5**: 115, 1975.
43. Kimura, H., Mittal, C.K., Murad, F.: Activation of guanylate cyclase with sodium azide. **Clin. Res.** **23**: 324a, 1975.
44. Kimura, H., Mittal, C.K., Murad, F.: Sodium azide activation of guanylate cyclase. Proc. Internat. Pharmacol. Meeting, Helsinki, Finland, July, 1975.
45. Lerner, J., Huang, L.C., Hagen, R., Brooker, G., Murad, F.: Mechanism of insulin action on glycogenesis. Presented at the 35th Annual Meeting of the Amer. Diabetes Assoc., June, 1975, **Diabetes** **24** (Suppl. 2): 394, 1975.
46. Murad, F.: Regulation of guanylate cyclase. Presented at the Gordon Conference on Cyclic AMP, June, 1975.
47. Curnow, R.T., Carey, R.M., Taylor, A., Johanson, A., Murad, F.: Depression of serum insulin by somatostatin. **New Eng. J. Med.** **293**: 723, 1975.
48. Criss, W.E., Murad, F.: Regulation of guanylate cyclase from normal and neoplastic liver and kidney tissues. Tenth International Congress of Biochemistry, Hamburg, Germany, July, 1976.
49. Criss, W.E., Murad, F.: Increased urinary excretion of cyclic GMP in rats bearing transplantable liver and kidney tumors. **Clin. Res.** **24**: 31a, 1976.
50. Criss, W.E., Murad, F., Kimura, H.: Altered subcellular distribution and properties of guanylate cyclase from transplantable liver and kidney tumors. **Clin. Res.** **24**: 51a, 1976.

51. Kimura, H., Mittal, C.K., Murad, F.: Magnesium dependent guanylate cyclase after sodium azide. **Fed. Proc.** 35: 424, 1976.
52. Murad, F.: Some clinical applications of cyclic nucleotides. Proc. of Amer. Assoc. for Clin. Chem. 28th National Meeting, August, 1976.
53. Arnold, W.P., Kimura, H., Murad, F.: Properties of guanylate cyclase in bovine pulmonary structures. **Clin. Res.** 24: 463A, 1976.
54. Murad, F.: Cyclic GMP metabolism in transplantable tumors. Presented at the 25th Annual Conference on Rutgers Bureau of Biological Res., April, 1976.
55. Katsuki, S., Murad, F.: Cyclic GMP and cyclic AMP levels during contraction and relaxation of bovine tracheal smooth muscle. **The Pharmacologist** 18: 220, 1976.
56. Murad, F.: Some clinical studies with cyclic nucleotides. Presented at the Gordon Conference on Cyclic AMP, June, 1976.
57. Murad, F.: Guanylate: Properties and Regulation. Presented at the V Intl. Congress of Endocrinology, Hamburg, Germany, July, 1976.
58. Mittal, C.K., Murad, F.: Formation of cyclic AMP by guanylate cyclase preparations after activation with sodium azide. **Clin. Res.** 25: 49a, 1977.
59. Ichihara, K., Larner, J., Kimura, H., Murad, F.: Activation of liver guanylate cyclase by bile salts and contaminants in crude secretin and pancreozymin preparations. **Clin. Res.** 25: 32a, 1977.
60. Katsuki, S., Murad, F.: Effects of sodium nitroprusside, nitroglycerin and sodium azide on cyclic GMP levels in various tissues. **Clin. Res.** 25: 32A, 1977.
61. Katsuki, S., Arnold, W., Mittal, C.K., Murad, F.: Stimulation of guanylate cyclase in various tissues by sodium nitroprusside, nitroglycerin, hydroxylamine and sodium azide. **Clin. Res.** 25: 58a, 1977.
62. Mittal, C.K., Kimura, H., Murad, F.: Properties of a protein factor required for sodium azide activation of guanylate cyclase. **Fed. Proc.** 36: 737, 1977.
63. Murad, F.: A novel scheme for guanylate cyclase activation. Presented at the Gordon Conf. on Cyclic Nucleotides, July, 1977.
64. Murad, F.: Regulation of guanylate cyclase. Presented at the Third Intl. Conference on Cyclic Nucleotides, New Orleans, July, 1977.
65. Murad, F.: Guanylate Cyclase: Some of its properties and regulation. Presented at the NATO Advanced Study Institute on Cyclic Nucleotides, Milan, Italy, Sept., 1977.
66. Guerrant, R.L., Hughes, J.M., Murad, F.: Role of cyclic GMP in ST-associated diarrhea. Presented at the CDC meeting on Cholera, Sept., 1977.
67. Mittal, C.K., Murad, F.: Formation of cyclic AMP by guanylate cyclase preparations after activation with azide, nitro and nitroso compounds. 3rd Intl. Congress of Cyclic Nucleotides, **Adv. Cyclic Nucl. Res.** 9: 742, 1978.

68. Ichihara, K., Murad, F.: Effect of starvation on guanylate cyclase activity in various rat tissues. 3rd Intl. Congress on Cyclic Nucleotides, **Adv. Cyclic Nucl. Res.** 9: 743, 1978.
69. Sutherland, C.A., Murad, F., Rall, T.W.: Effects of Ca^{++} , AMP and DP on cyclic AMP-induced activation of phosphorylase in liver extract preparations. 3rd Intl. Congress on Cyclic Nucleotides, **Adv. Cyclic Nucl. Res.** 9: 774, 1978.
70. Arnold, W.P., Katsuki, S., Mittal, C.K., Murad, F.: Stimulation of guanylate cyclase by nitric oxide gas. 3rd Intl. Congress on Cyclic Nucleotides. **Adv. Cyclic Nuc. Res.** 9: 743, 1978.
71. Guerrant, R.L., Hughes, J.M, Murad, F.: Effects of E. Coli heat-stable toxin on cyclic GMP in intestine. Presented - Southern Soc. Clin. Invest., January, 1978, **Clin. Res.** 26: 58a, 1978.
72. Arnold, W.P., Braughler, J.M., Mittal, C.K., Murad, F.: Activation of guanylate cyclase from thiols. **Fed. Proc.** 37: 390, 1978.
73. Ichihara, K., El-Zayat, M., Mittal, C.K., Murad, F.: Activation of guanylate cyclase from fibroblasts and liver by fatty acids. **Fed. Proc.** 37: 341, 1978.
74. Murad, F., Mittal, C.K., Braughler, J.M.: Cyclic AMP formation by guanylate cyclase. A new pathway for its synthesis. Presented at the Amer. Soc. Clin. Invest. Meeting, San Francisco, April, 1978. **Clin. Res.** 26: 531A, 1978.
75. Mittal, C.K., Murad, F.: Effects of phospholipase A₂ and lipoxygenase on rat cerebral cortex guanylate cyclase. **Fed. Proc.** 37: 1968, 1978.
76. Hughes, J., Murad, F., Guerrant, R.: Studies to elucidate the mechanism of action of heat-stable enterotoxin of E. Coli. **Clin. Res.** 26: 524A, 1978.
77. Thorner, M.O., Kirk, C.R., Murad, F.: Dissociation of prolactin and growth hormone release from perfused isolated rat pituitary cells in response to changes in endogenous cyclic AMP. Endocrine Society Meeting, June, 1978.
78. Murad, F., Mittal, C.K., Arnold, W.P., Braughler, J.M.: Effect of nitro-compound smooth muscle relaxants and other materials on cyclic GMP metabolism. Proc. of the 7th Intl. Congress of Pharmacology, Paris, France, July, 1978.
79. Murad, F.: Cyclic GMP and Guanylate Cyclase. State of the Art Lecture, FASEB, April, 1978.
80. Murad, F.: Guanylate Cyclase. Presented at the Gordon Conference on Cyclic Nucleotides, June, 1978.
81. Hughes, J., Murad, F., Guerrant, R.: Studies of guanylate cyclase activation by heat stable enterotoxin of E. Coli. Proc. of the Interscience Conf. on Antimicrobial Agents and Chemotherapy, Atlanta, Georgia, Sept., 1978.
82. Murad, F.: Clinical applications of cyclic nucleotides. Presented at the Internat. Symposium on Cyclic Nucleotides and Therapeutic Perspectives, Paris, July, 1978.
83. Murad, F.: Guanylate cyclase and cyclic GMP. Presented at the EMBO/ICRO Meeting on Hormones, Calcium and Cyclic Nucleotides, Glasgow, Scotland, August, 1978.

84. Murad, F.: Clinical studies with cyclic nucleotides. Presented at the EMBO/ICRO Meeting on Hormones, Calcium and Cyclic Nucleotides, Glasgow, Scotland, August, 1978.
85. Braugher, J.M., Mittal, C.K., Murad, F.: Purification of soluble guanylate cyclase from rat liver to apparent homogeneity. **Clin. Res.** 26: 788A, 1978.
86. Mittal, C.K., Braugher, J.M., Murad, F.: Modulation of purified guanylate cyclase activity. **Fed. Proc.** 38: 318, 1979.
87. Dohi, T., Murad, F.: Pyruvate and other metabolites increase cyclic GMP levels in rat hepatocytes and kidney cortex. **Fed. Proc.** 38: 432, 1979.
88. Daniel, K.A., Thorner, M.O., Murad, F.: The role of cyclic nucleotides in the release of LH from continuously perfused isolated rat pituitary cells. Endocrine Society Meeting, Anaheim, California, June, 1979.
89. Murad, F.: Properties and regulation of guanylate cyclase and cyclic GMP. Presented at the Hormone Action Gordon Conference, January, 1979.
90. Murad, F.: Cyclic nucleotides. Presented at a meeting on Cell Injury in Shock, Anoxia and Ischemia in Easton, Maryland, Sept., 1979.
91. Murad, F.: Cyclic nucleotides. Presented at a workshop on Manganese in Metabolic Regulation, Bethesda, Maryland, Sept., 1979.
92. Murad, F.: Effects of E. Coli heat-stable enterotoxin on cyclic GMP metabolism. Presented at the Second Annual Meeting of the Great Neglected Diseases of Mankind, Oxford, England, October, 1979.
93. Greenberg, R.N., Chang, B., Murad, F., Guerrant, R.L.: Indomethacin and chlopromazine inhibition of E. Coli heat-stable enterotoxin. Presented at Southern Soc. Clin. Invest., New Orleans, January, 1980. **Clin. Res.** 27: 787a, 1979.
94. Greenberg, R.N., Chang, B., Murad, F., Guerrant, R.L.: Indomethacin and chlopromazine inhibition of E. Coli heat-stable enterotoxin. Amer. Soc. Microbiol. Meeting, Miami, Florida, May, 1980.
95. Varma, M., Wilson, T.A., Murad, F., Blizzard, R.M.: Impairment of human chorionic gonadotropin-induced cyclic 3', 5'-adenosine monophosphate formation in isolated Leydig cells of aged rats. Endo. Soc. Meeting, June, 1980.
96. Brandwein, H.J., Lewicki, J.A., Waldman, S.A., Murad, F.: Effects of disulfides and thiols on guanylate cyclase. Presented at Soc. Biol. Chem. Meeting, New Orleans, June, 1980, **Fed. Proc.** 39: 2108, 1980.
97. Wada, A., Mittal, C.K., Murad, F.: Cyclic GMP levels and -glucuronidase release from human polymorphonuclear leukocytes. **Clin. Res.** 28: 498a, 1980.
98. Greenberg, R., Chang, B., Murad, F., Guerrant, R.L.: Inhibition of E. Coli heat-stable enterotoxin by phenothiazine derivatives and indomethacin. **Clin. Res.** 28: 369a, 1980.
99. Arnold, W.P., Marshall, W.K., Bedford, R.B., Murad, F.: Nitroprusside alters plasma levels of cyclic GMP and cyclic AMP. Amer. Heart Assoc. Meeting, Miami, November, 1980.

100. Greenberg, R.N., Guerrant, R.L., Chang, B., Murad, F.: Inhibition of E. Coli heat-stable enterotoxin by quinacrine. Interscience Conf. Antimicrobial Agents and Chemotherapy, abstract 700, New Orleans, 1980.
101. Murad, F.: Guanylate cyclase. Purification and properties. Presented at the IV International Cyclic Nucleotide Conference, Brussels, July, 1980.
102. Waldman, S.A., Lewicki, J.A., Brandwein, H.J., Murad, F.: Solubilization, characterization and partial purification of guanylate cyclase from particulate fractions of rat liver. **Clin. Res.** 28: 835, 1980.
103. Lewicki, J.A., Brandwein, H.J., Waldman, S.A., Murad, F.: Characterization and radiolabeling of purified soluble guanylate cyclase. **Clin. Res.** 28: 819a, 1980.
104. Brandwein, H.J., Lewicki, J.A., Murad, F.: Production and characterization of monoclonal antibodies to soluble guanylate cyclase from rat lung. **Clin. Res.** 28: 891a, 1980.
105. Greenberg, R.N., Chang, B., Murad, F., Guerrant, R.L.: Lack of effect of porcine E. Coli enterotoxin (STb) on cyclic nucleotide metabolism. **Clin. Res.** 28: 830a, 1980.
106. Brandwein, H.J., Lewicki, J.A., Murad, F.: Development of monoclonal antibodies to soluble guanylate cyclase from rat lung. **Fed. Proc.** 40: 664, 1981.
107. Lewicki, J.A., Brandwein, H.J., Waldman, S.A., Murad, F.: Binding of soluble guanylate cyclase from rat lung to immobilized monoclonal antibody. **Fed. Proc.** 40: 664, 1981.
108. Waldman, S.A., Lewicki, J.A., Brandwein, H.J., Murad, F.: Partial purification and characterization of particulate guanylate cyclase from rat liver. **Fed. Proc.** 40: 664, 1981.
109. Rapoport, R.M., Brandwein, H.J., Murad, F.: Cystamine inhibits relaxation, increases in cyclic GMP accumulation and guanylate cyclase activation induced by nitroprusside in rat aorta. **Fed. Proc.** 40: 690, 1981.
110. Greenberg, R.N., Chang, B., Sauer, K., Murad, F., Guerrant, R.L.: Effects of a third type of Escherichia Coli enterotoxin on cyclic nucleotide metabolism. **Clin. Res.** 29: 385a, 1981.
111. Greenberg, R.N., Murad, F., Halterman, L., Guerrant, R.L.: Lanthanum chloride inhibition of the secretory response to Escherichia Coli heat-stable enterotoxin (ST). **Clin. Res.** 29: 386a, 1981.
112. Brandwein, H., Lewicki, J.A., Murad, F.: Effect of GTP analogues on purified guanylate cyclase. **Fed. Proc.** 40: 1973, 1981.
113. Arnold, W.P., Murad, F.: Interactions of nitrovasodilators with the cyclic GMP systems. 28th Annual Association of University Anesthetics Meeting, April, 1981.
114. Arnold, W.P., Marshall, W.K., Bedford, R.F., Murad, F.: Is nitroprusside mediated by cyclic GMP? American Society of Anesthesiologists, October, 1981.
115. Rapoport, R.M., Lewicki, J.A., Murad, F.: Cyanide inhibits relaxation, increases in cyclic GMP and guanylate cyclase activation induced by nitroprusside in rat aorta. American Heart Association Meeting, Dallas, Texas, November, 1981.
116. Greenberg, R.N., Murad, R., Guerrant, R.L.: Pharmacologic inhibition of the secretory response to E. Coli heat-stable enterotoxin. U.S.-Japan Cholera Meeting, Baltimore, Maryland, October, 1981.

117. Guerrant, R.L., Greenberg, R.N., Chang, B., Murad, F.: Studies on the mechanism of action of E. Coli (STb): Evidence for a third type of E. Coli enterotoxin. U.S.-Japan Cholera Meeting, Baltimore, Maryland, October, 1981.
118. Draznin, M.B., Rapoport, R.M., Murad, F.: Vascular smooth muscle protein phosphorylation following sodium nitroprusside treatment: Possible role in smooth muscle relaxation. **Clin. Res.** 30: 6A, 1982.
119. Rapoport, R.M., Murad, F.: Ouabain inhibits relaxation of nitroprusside and 8-bromo-cyclic GMP in rat aorta. **Clin. Res.** 30: 18A, 1982.
120. Greenberg, R.N., Kennedy, D.J., Chang, B., Murad, F., Guerrant, R.L.: Studies on the properties and mechanisms of action of a third type of E. Coli enterotoxin (STb). Amer. Soc. for Microbiol. Meeting, March, 1982.
121. Rapoport, R.M., Draznin, M.B., Murad, F.: Sodium nitroprusside-induced protein phosphorylation in intact rat aorta is mimicked by 8-bromo-cyclic GMP. **Clin. Res.** 30: 484A, 1982.
122. Greenberg, R.N., Lonogro, A., Murad, F., Guerrant, R.L.: Stimulation of intestinal prostaglandin secretion by a third type of E. Coli enterotoxin (STb). **Clin. Res.** 30: 367A, 1982.
123. Murad, F.: Cyclic nucleotides in smooth muscle. Presented at the FASEB Smooth Muscle Conference, Saxton River, Vermont, June, 1982.
124. Rapoport, R.M., Draznin, M.B., Martinez, G.A., Murad, F.: Effect of endothelium-dependent vasodilators on relaxation, cyclic GMP levels and protein phosphorylation in rat thoracic aorta. **Clin. Res.** 31: 16A, 1983.
125. Waldman, S.A., O'Hanley, P.D., Falkow, S., Schoolnik, G.K., Murad, F.: A simple, sensitive and quantitative *in vitro* assay for the detection of heat-stable enterotoxin (ST) produced by E. Coli. **Clin. Res.** 31: 50A, 1983.
126. Draznin, M.B., Rapoport, R.M., Martinez, G.A., Murad, F.: Effects of norepinephrine, sodium nitroprusside, calcium-free buffer and a calmodulin inhibitor on protein phosphorylation related to contraction and relaxation in intact rat aorta. **Clin. Res.** 31: 6A, 1983.
127. Lewicki, J.A., Waldman, S.A., Chang, B., Murad, F.: Membrane-dependent regulation of soluble guanylate cyclase by snake venom phospholipase A₂. **Fed. Proc.** 42: 902, 1983.
128. Sinacore, M.S., Lewicki, J.A., Waldman, S.A., Murad, F.: Determination of the subcellular distribution of guanylate cyclase in neural crest derived cultured cells using a tandem double monoclonal antibody immunoassay. **Fed. Proc.** 42: 900, 1983.
129. Waldman, S.A., Lewicki, J.A., Chang, L.Y., Murad, F.: Characteristics of highly purified particulate guanylate cyclase from rat lung. **Fed. Proc.** 42: 1366, 1983.
130. Rapoport, R.M., Draznin, M.B., Martinez, G.A., Murad, F.: Endothelium-dependent vascular relaxation may be mediated through cyclic GMP-dependent protein phosphorylation. **Clin. Res.** 31: 526A, 1983.
131. Draznin, M.B., Rapoport, R.M., Martinez, G.A., Murad, F.: Myosin light chain dephosphorylation in intact rat aorta treated with sodium nitroprusside: Role of cyclic GMP. **Clin. Res.** 31: 466A, 1983.

132. Murad, F.: Free radicals, cyclic GMP metabolism and cell growth. Presented at the Cancer Causation and Prevention: Biochemical Mechanisms Symposium, Washington, D.C., December, 1982.
133. Waldman, S.A., Sinacore, M.S., Lewicki, J.A., Chang, L.Y., Murad, F.: Activation of particulate guanylate cyclase by hemin. **Fed. Proc.** 42: 1853, 1983.
134. Murad, F.: Physiological aspects of potassium metabolism. Presented at the Student National Medical Association Meeting, Atlanta, April, 1983.
135. Murad, F.: Regulation and role of cyclic GMP. Presented at the Gordon Conference on Cyclic Nucleotides, June, 1983.
136. Murad, F., Rapoport, R.M., Draznin, M.B., Fiscus, R.: Cyclic GMP-linked mechanisms for controlling smooth muscle. Presented at the NIH workshop on Airway Smooth Muscle, September, 1983.
137. Pearl, R.G., Rosenthal, M.H., Ashton, J.P., Murad, F.: Aminophylline potentiates sodium nitroprusside-induced hypotension. **Anesthesiology**, September, 1983.
138. Fiscus, R.R., Rapoport, R.M., Murad, F.: Activation of cyclic GMP-dependent protein kinase in rat aorta by sodium nitroprusside and endothelium-dependent vasodilator. **Clin. Res.** 32: 5A, 1984.
139. Murad, F.: Role of cyclic GMP in vascular smooth muscle relaxation. Presented at the Workshop on Precapillary Vessels, Weisbaden, Germany, April, 1984.
140. Murad, F.: Endothelium-dependent and independent vascular relaxation: Role of cyclic GMP. Presented at the Workshop on Endothelium, Cardiff, Wales, August, 1984.
141. Murad, F.: Cyclic GMP in vascular relaxation. Presented at the American Heart Association joint meeting of the Council on Circulation and Basic Science, Snowmass, Colorado, August, 1984.
142. Murad, F.: The role of the endothelium and cyclic GMP in vascular smooth muscle relaxation. Presented at the Second Fernand Nedee Conference, Antwerp, Belgium, October, 1984.
143. Murad, F.: Effects of treatment of hypokalemia. Presented at the Southern Med. Assoc. Meeting, Scientific Assembly, New Orleans, November, 1984.
144. Leitman, D.C., Fiscus, R., Murad, F.: Inhibition of cultured endothelial cell proliferation by forskolin and phosphodiesterase inhibitors. **Clin. Res.** 33: 12A, 1985.
145. Chang, B., Kamasaki, Y., Saheki, S., Waldman, S.A., Lewicki, J.A., Murad, F.: Rapid purification of soluble guanylate cyclase by monoclonal antibody immunoaffinity chromatography. **Fed. Proc.** 44: 698, 1985.
146. Kuno, T., Waldman, S.A., Kamasaki, Y., Gariiepy, J., Schoolnik, G.K., Murad, F.: Molecular characterization of the receptor for the heat-stable enterotoxin (ST) produced by E. Coli. **Fed. Proc.** 44: 1798, 1985.
147. Kamasaki, Y., Waldman, S.A., Murad, F.: Involvement of catalytic site sulfhydryls in the activation of soluble guanylate cyclase by sodium nitroprusside. **Fed. Proc.** 44: 699, 1985.

148. Chang, L.Y., Chang, B., Waldman, S.A., Murad, F.: Purification of particulate guanylate cyclase from rat lung and production of monoclonal antibodies. **Fed. Proc.** 44: 698, 1985.
149. Waldman, S.A., Kuno, T., Kamasaki, Y., Chang, L.Y., Gariieppy, J., Schoolnik, G.K., Murad, F.: The ST receptor for E. Coli heat-stable enterotoxin (ST) is tightly coupled to a novel form of particulate guanylate cyclase. **Fed. Proc.** 44: 698, 1985.
150. Fiscus, R.R., Robles, B.T., Rapoport, R.M., Waldman, S.A., Murad, F.: Atrial natriuretic factor elevates cyclic GMP and activates cyclic GMP-dependent protein kinase in rat aorta: Potential mechanism of vasodilation. **Fed. Proc.** 44: 698, 1985.
151. Murad, F.: The mechanism of action of nitroglycerin and other nitrovasodilators, a role for cyclic GMP. Presented at the Science Writers Forum, Amer. Heart Assoc., Monterey, January, 1985.
152. Murad, F.: Phosphodiesterase inhibition as a mechanism of action of xanthines. Presented at the Symposium on Antiasthms xanthines and adenosine. Copenhagen, Feb., 1985.
153. Molina, C.R., Andresen, J.W., Rapoport, R.M., Waldman, S.A., Murad, F.: The effect of *in vivo* nitroglycerin therapy on endothelium-dependent and independent vascular relaxation and cyclic GMP accumulation in rat aorta. **Clin. Res.** 33:, 1985.
154. Leitman, D.C., Waldman, S.A., Kuno, T., Murad, F.: Specific atrial natriuretic factor receptors mediate increased cyclic GMP accumulation in cultured bovine aortic endothelial and smooth muscle cells. **Clin. Res.** 33: 599A, 1985.
155. Murad, F.: Regulation of cyclic GMP synthesis and the interactions with calcium. Presented at the meeting on Cellular Calcium Control Mechanisms, Lucerne, February, 1985.
156. Murad, F., Rapoport, R.M., Waldman, S.A., Fiscus, R.R., Leitman, D.C.: The role of cyclic GMP in endothelium-dependent, nitrovasodilator and atriopeptin mediated vascular relaxation. Presented at the Hungarian Physiological Soc. Meeting, Budapest, July, 1985.
157. Murad, F.: Regulation of guanylate cyclase and the role of cyclic GMP in vascular relaxation. Presented at Biochemical Pharmacology meeting of the New York Acad. Sci., Nov., 1985.
158. Murad, F.: Diuretics and potassium supplements - Solutions or problems. Presented at the Tutorials in Medicine meeting. San Francisco, March, 1986.
159. Kuno, T., Andresen, J.W., Kamisaki, Y., Waldman, S.A., Chang, L.Y., Saheki, S., Nakane, M. Murad, F.: Purification and characterization of particulate guanylate cyclase from rat lung. **Fed. Proc.** 45: 1986.
160. Saheki, S., Kamisaki, Y., Nakane, M., Palmieri, J.A., Chang, L.Y., Kuno, T., Waldman, S.A., Murad, F.: Purified soluble guanylate cyclase from rat lung is a heterodimer. **Fed. Proc.** 45: 1986.
161. Murad, F.: Cyclic GMP as a mediator of endothelium-dependent and endothelium-independent relaxation. Presented at the Smooth Muscle Function Symposium of the International Union of Physiological Sciences, Banff, Canada, July, 1986.
162. Tomlanovich, S., Peterson, C., Molina, C.R., Murad, F., Nitkin, R., Myers, B.D.: Role of atrial natriuretic hormone and cardiac nerves in renal response to hyperkolemia in man. **Clin. Res.** 34: 702A, 1986.

163. Kuno, T., Andresen, J.W., Kamasaki, Y., Waldman, S.A., Saheki, S., Murad, F.: Co-purification of atrial natriuretic factor receptor and particulate guanylate cyclase from rat lung. **Clin. Res.** 34: 638A, 1986.
164. Leitman, D.C., Andresen, J.W., Kuno, T., Kamisaki, Y., Chang, L.Y., Murad, F.: Identification of two binding sites for atrial natriuretic factor in endothelial cells. **Clin. Res.** 34: 709A, 1986.
165. Nakane, M., Kuno, T., Murad, F.: Cloning of soluble guanylate cyclase 82,000 dalton subunit complementary DNA from rat lung. **Fed. Proc.** 45: 1523, 1986.
166. Molina, C.R., Leitman, D.C., Fowler, M.B., Murad, F.: Atrial natriuretic factor release and renal clearance in heart failure. Amer. Heart Assoc. meeting, November, 1986, **Circ.** 74: II-438, 1986.
167. Molina, C.R., Leitman, D.C., Fowler, M.B., Murad, F.: An *in vitro* bioassay for plasma human atrial natriuretic factor using cultured endothelial cells. Amer. Heart Assoc. meeting, November, 1986, **Circ.** 74:II-464, 1986.
168. Bennett, B.M., Hayward, D., Murad, F.: Stereospecificity in the action of isoside dinitrate. **Pharmacologist** 28: 188, 1986.
169. Bennett, B.M., Hayward, D., Murad, F.: Comparison of vasodilation and tolerance development to glycerol trinitrate and the stereoisomers of isoside dinitrate. Amer. Heart Assoc. meeting, November, 1986, **Circ.** 74: II-321, 1986.
170. Molina, C.R., Andresen, J.W., Rapoport, R.M., Murad, F.: The effect of nitroglycerin tolerance on endothelium-dependent vascular relaxation. Amer. Heart Assoc. meeting, November, 1986, **Circ.** 74: II-287, 1986.
171. Fiscus, R.R., Robles, B.T., DelVecchio, R.L., Waldman, S.A., Murad, F.: Atrial natriuretic factor stimulates cyclic GMP accumulation and efflux in C6-2B rat glioma cell cultures and these responses are antagonized by chlorpromazine. VIth Internat. Conf. on Cyclic Nucleotides, Calcium and Protein Phosphorylation, Bethesda, Maryland, September, 1986.
172. Murad, F.: Interactions of atrial natriuretic factor and cyclic GMP. Presented at the VIth Internat. Conf. on Cyclic Nucleotides, Calcium and Protein Phosphorylation, Bethesda, Maryland, September, 1986.
173. Fiscus, R.R., Robles, B.T., Murad, F.: Atrial natriuretic factor stimulates cyclic GMP accumulation in selected regions of rat brain. Amer. Physiol. Soc. Mtg., New Orleans, Louisiana, October, 1986. **The Physiologist**, 29: 156, 1986.
174. Murad, F.: Regulation and role of guanylate cyclase-cyclic GMP in vascular relaxation. Presented at the Second Internat. Symposium on Cellular Endocrinology, Lake Placid, NY, September, 1986.
175. Murad, F.: The role of cyclic GMP in the mechanism of action of nitrovasodilators, atrial peptides and other agents. Presented at the Symposium on Nitrates, Tokyo, Japan, October, 1986.
176. Murad, F.: Cyclic nucleotides and endothelium-derived relaxing factors. Presented at the Amer. Physiol. Society Meeting, New Orleans, Louisiana, October, 1986.
177. Murad, F.: Atrial natriuretic factor: a new class of peptide hormones. Presented at the Center of Molecular and Genetic Medicine Symposium, Stanford University, November, 1986.

178. Murad, F.: Regulation of guanylate cyclase and the role of cyclic GMP in vasodilation. Presented at the ANF Symposium, Southern Soc. Clin. Invest. Meeting, New Orleans, January, 1986.
179. Sakeki, S., Chang, L.Y., Ishii, K., Murad, F.: Subunit structure of soluble guanylate cyclase from rat lung. **Clin. Res.** 35: 117A, 1987.
180. Schroeder, H., Leitman, D.C., Bennett, B.M., Murad, F.: Atrial natriuretic factor, sodium nitroprusside and organic nitrates increase cyclic GMP and activate guanylate cyclase in cultured rat lung fibroblasts. **Clin. Res.** 35: 113A, 1987.
181. Molina, C.R., Fowler, M.B., Peterson, C.A., Costard, A., Myers, B.D., Murad, F.: Hemodynamic, renal and endocrine effects of atrial natriuretic peptide in severe congestive heart failure. **Clin. Res.** 35: 642A, 1987.
182. Molina, C.R., Costard, A., Peterson, C.A., Myers, B.D., Murad, F., Fowler, M.B.: Hemodynamics, renal and endocrine effects of atrial natriuretic peptide in severe congestive heart failure. Amer. Society of Hypertension, New York, May, 1987.
183. Leitman, D.C., Andresen, J.W., Tuan, J.J., Catalano, R., Murad, F.: Atrial natriuretic factor binding, cross linking and effects of cyclic GMP accumulation and particulate guanylate cyclase activity in cultured cells. Amer. Society of Hypertension, New York, May, 1987.
184. Murad, F.: Relationships of atrial natriuretic factor receptors and guanylate cyclase. Presented at the Angiotensin Gordon Conference, Santa Barbara, February, 1987.
185. Murad, F.: Role of guanylate cyclase and cyclic GMP in the actions of ANF. Presented at the 2nd World Congress on Biologically Active Atrial Peptides, New York, May, 1987.
186. Murad, F.: Role of cyclic GMP in the vascular effects of atrial natriuretic factor and other vasodilators. Presented at the Endocrinology Meeting, Indianapolis, June, 1987.
187. Murad, F.: Role of cyclic GMP in vasodilation. Presented at the Cyclic Nucleotide Gordon Conference, June, 1987.
188. Molina, C.R., Leitman, D.C., Costard, A., Fowler, M.B., Murad, F.: Atrial natriuretic factor is secreted as an immunoreactive but partially biactive peptide in man. **Clin. Res.** 35: 574A, 1987.
189. Molina, C.R., Fowler, M.B., McCrary, S., Murad, F.: Pharmacodynamic and pharmacokinetics of two hour atrial natriuretic peptide infusions in severe congestive heart failure. **Circ.** 76, Suppl. IV, , 1987. Amer. Heart Assoc. Meeting, Dallas, November, 1987.
190. Song, D.L., Wang, Y.N., Molina, C.R., Cheng, J.K., Cong, Y., Cheng, D., Murad, F.: B-Human atrial natriuretic polypeptide in human plasma. **Circ.** 76: Suppl. IV, 134, 1987. American Heart Assoc. Meeting, Dallas, November, 1987.
191. Murad, F.: Advances in vasodilator mechanisms. Presented at the 38th Annual Amer. Soc. Pharmacol. and Exp. Therap. meeting, Honolulu, August, 1987.
192. Murad, F.: The mechanism of relaxation of EDRF: Similarities of the effects of EDRF and nitrovasodilators on cyclic GMP formation and vascular relaxation. Presented at the Tenth Int'l. Pharmacol. Meeting, Sydney, August, 1987.

193. Murad, F.: Guanylate cyclase and cyclic GMP: Regulation by atrial natriuretic factor and other vasodilators. Presented at the Symposium on Receptors and Cell Activation, Bethesda, September, 1987.
194. Murad, F.: ANF and other vasodilators: The role of guanylate cyclase and cyclic GMP in their action. Presented at the 12th European Symposium on Hormones and Cell Regulation, St. Odile, France, October, 1987.
195. Murad, F.: Cyclic GMP and vasodilation. Presented at the Hughes Medical Institute Symposium on Cyclic GMP Action, Miami, November, 1987.
196. Murad, F.: Action of EDRF in vascular smooth muscle. Presented at the Second Chepstan Workshop on Endothelium and Vasomotor Control, Chepstow, Wales, December, 1987.
197. Murad, F.: Role of cyclic GMP in the mechanism of action of nitrovasodilators, endothelium-dependent agents and atrial natriuretic peptide. Presented at the British Biochemical Society Meeting, London, England, December, 1987.
198. Murad, F.: ANF receptors and the guanylate cyclase cyclic GMP system. Presented at the UCLA Symposium on ANF. Steamboat, Colorado, January, 1988. **J. Cell Biochem.** 12A: 7, 1988.
199. Murad, F.: Role of cyclic GMP in smooth muscle regulation. Presented at the Meeting of the Cellular Calcium Control Mechanisms, Basel, Switzerland, February, 1988.
200. Murad, F.: Cyclic GMP mediates the effects of atrial natriuretic factor and other vasodilators. Presented at the Western Assoc. Phys. Meeting, Carmel, California, February, 1988.
201. Schroeder, H., Leitman, D.C., Bennett, B.M., Waldman, S.A., Murad, F.: Nitrate tolerance and its reversal in cultured rat lung fibroblasts. Presented at the Deutsche gesellschaft fur Pharmakologie und Toxikologie, Mainz, Germany, A 296, March, 1988.
202. Ishii, K., Murad, F.: Atrial natriuretic peptides relax bovine tracheal smooth muscle and increase tissue cyclic GMP levels through activation of particulate guanylate cyclase. **Fed. Proc.** 47:A1066, 1988.
203. Song, D.L., Leitman, D.C., Molina, C.R., Murad, F.: Atrial natriuretic peptide, oxytocin and substance P increase cyclic GMP in kidney epithelial cells. **Fed. Proc.** 47:A1304, 1988.
204. Bennett, B.M., Leitman, D.C., Schroeder, H., Murad, F.: Relationship between biotransformation of glyceryl trinitrate and cyclic GMP accumulation in various cell lines. **Fed. Proc.** 47: A1304, 1988.
205. Murad, F.: Regulation of ANF receptors. Presented at the Gordon Conf. on Angiotensin and Related Hormones, Oxnard, California, February, 1988.
206. Waldman, S.A., Leitman, D.C., Andresen, J., Murad, F.: Guanylate cyclase and the atrial natriuretic factor receptor. **Science** 240: 805, 1988.
207. Murad, F.: Effects of vasodilators on cyclic GMP. Presented at the Cold Spring Harbor Symposium on Signal Transduction. May, 1988.
208. Murad, F.: Modulation of guanylate cyclase by vasodilators and free radicals. Presented at the NATO-Adv. Study Institute on Vascular Endothelium. Porto Carras, Greece, June, 1988.

209. Murad, F.: Effects of ANF on cyclic GMP. Presented at the Internat. Symposium on ANF, Kyoto, Japan, July, 1988.
210. Kohse, K., Song, D.L., Murad, F.: Ein nuentdecktes mitglied der ANP-familie im ZNS: Natriuretisches gehrin-peptid (BNP). Effekte anf intrazellulares cGMP and partikeulare guanylatzyklase sowie rezeptor bindung. Presented at the Annual Meeting, German Society of Clinical Chemistry, Vienna, Dec., 1988.
211. Chang, C.H., Kohse, K., Chang, B., Murad, F.: Participation of protein phosphorylation in the activation of particulate guanylate cyclase by ANP. **FASEB**, 3, A1005, 1989.
212. Murad, F.: Role of cGMP-guanylate cyclase system in the action of atrial peptides and other vasodilators. Presented at the FASEB meeting, New Orleans, Louisiana, March, 1989.
213. Murad, F.: Hormonal regulation of guanylate cyclases. Presented at the Mosbach Colloquium on Molecular Mechanisms of Hormone Action, Germany, April, 1989.
214. Murad, F.: Regulation of the guanylate cyclase-cyclic GMP system. Presented at the Chicago Biological Signal Transduction Symposium, Chicago, Illinois, April, 1989.
215. Murad, F.: EDRF and cyclic GMP. Presented at the First Internat. Symposium on Endothelium-Derived Vasoactive Factors, Philadelphia, Pennsylvania, May, 1989.
216. Murad, F.: Signal transduction and cyclases. Presented at the Amer. Lung Assoc. and Amer. Thoracic Soc. meeting, Cincinnati, Ohio, May, 1989.
217. Horio, Y., Murad, F.: Properties of retinal guanylate cyclase. Proc. 19th Neuroscience Meeting, Oct., 1989, 205.
218. Gorsky, L.P., Huang, Z.J., Murad, F.: Cytosolic production of an endothelium-derived relaxing factor-like substance in N1E-115 neuroblastoma cells. **Clin. Res.**, 37, 878A, 1989.
219. Förstermann, U., Huang, Z.J., Murad, F.: Subcellular localization of the enzymes responsible for the synthesis of endothelium-derived relaxing factor in endothelial cells. **Clin. Res.**, 37, 877A, 1989.
220. Ishii, K., Chang, B., Huang, Z.J., Murad, F.: Endothelium-derived relaxing factor is produced as an endogenous activator of soluble guanylate cyclase in porcine kidney epithelial cells. **Clin. Res.**, 37, 88A, 1989.
221. Förstermann, U., Ishii, K., Gorsky, L., Murad, F.: Endothelium-derived relaxing factor is a paracrine and autocrine activator of soluble guanylate cyclase in various cell types. Presented at the German Soc. Pharmacol. Toxicol. Meeting, Oct., 1989.
222. Murad, F., Ishii, K., Kerwin, J., Gorsky, L., Förstermann, U.: Role of EDRF in the formation of NO and the activation of the soluble guanylate cyclase isoenzyme form. Presented at the Royal Society Meeting on Nitric Oxide from L-Arginine, London, September, 1989.
223. Murad, F.: EDRF is an intracellular second messenger and autacoid to regulate cyclic GMP synthesis in many cells. Presented at the 7th International Conference on Cyclic Nucleotides, Calcium and Protein Phosphorylation, Kobe, Japan, October, 1989.

224. Murad, F., Ishii, K.: EDRF may be a second messenger for hormonal activation of soluble guanylate cyclase in LLC-PK₁ cells. Presented at the 7th International Conference on Cyclic Nucleotides, Calcium and Protein Phosphorylation, Kobe, Japan, October, 1989.
225. Murad, F.: Hormonal regulation of guanylate cyclase. Presented at the Soc. for Neuroscience Meeting, Phoenix, Oct., 1989.
226. Murad, F.: Regulation of cyclic GMP in vascular preparations and other tissues - Mechanism of action of some vasodilators. Presented at the 62nd Amer. Heart Assoc. Meeting, New Orleans, Nov., 1989.
227. Yonemaru, M., Ishii, K., Murad, F., Raffin, T.: Atrial natriuretic peptide increases endothelial cell monolayer permeability via a cyclic GMP-dependent mechanism. Presented at the 62nd Amer. Heart Assoc. Meeting, New Orleans, Nov., 1989.
228. Schmidt, H.H.H.W., Pollock, J., Murad, F.: Characterization and purification of a rat brain enzyme (system) which catalyzes the formation of and EDRF-like factor from L-arginine. Presented at the German Society for Pharmacology and Toxicology, Spring Meeting, Mainz, March, 1990. **Naunyn Schmiedbergs Arch. Pharmacol.**, 341, R66, 1990.
229. Förstermann, U., Gorsky, L., Pollock, J., Schmidt, H.H.H.W., Ishii, K., Heller, M., Murad, F.: Subcellular localization and regulation of the enzymes responsible for EDRF synthesis in endothelial cells and N1E-115 neuroblastoma cells. Presented at IUPHAR XI Intl. Congress of Pharmacology, Amsterdam, July, 1990.
230. Heller, M., Förstermann, U., Gorsky, L., Ishii, K., Pollock, J., Schmidt, H.H.H.W., Murad, F.: Regulation of EDRF synthase in N1E-115 neuroblastoma cells by calmodulin and calcium. Presented at FASEB Meeting, Washington, D.C., April, 1990.
231. Schmidt, H.H.H.W., Förstermann, U., Gorsky, L., Heller, M., Ishii, K., Pollock, J., Murad, F.: Characterization and purification of a rat brain enzyme system catalyzing formation of EDRF from L-arginine. Presented at FASEB Meeting, Washington, D.C., April, 1990.
232. Murad, F., Pollock, J., Schmidt, H.H.H.W., Förstermann, U., Ishii, K., Heller, M., Gorsky, L.: Characterization and purification of a rat brain enzyme which catalyzes the formation of and EDRF-like factor from L-arginine. Presented at IUPHAR XI Int. Congress of Pharmacology, Amsterdam, July, 1990.
233. Heller, M., Förstermann, U., Gorsky, L., Ishii, K., Pollock, J., Schmidt, H.H.H.W., Murad, F.: EDRF synthetase in bovine aorta endothelial cells and N1E-115 neuroblastoma cells: Subcellular localization and regulation by calcium and calmodulin. **J. Molec. & Cellular Cardiol.** 22, 521, 1990.
234. Pollock, J., Schmidt, H.H.H.W., Gorsky, L., Förstermann, U., Kohlhaas, K., Huang, Z.J., Heller, M., Murad, F.: Characterization of a rat brain enzyme which catalyzes the formation of an EDRF-like factor from L-arginine. Amer. Soc. Biochem. and Molec. Biol. Meeting, New Orleans, June, 1990.
235. Gorsky, L., Schmidt, H.H.H.W., Pollock, J., Förstermann, U., Kohlhaas, K., Huang, Z.J., Heller, M., Murad, F.: Partial purification of a rat brain enzyme which catalyzes the formation of an EDRF-like factor from L-arginine. Amer. Soc. Biochem. and Molec. Biol. Meeting, New Orleans, June, 1990.
236. Murad, F.: Mechanisms of hormone receptor coupling to the various isoforms of guanylate cyclase. Endocrine Society Meetings, Atlanta, June, 1990.

237. Förstermann, U., Gorsky, L., Pollock, J., Schmidt, H.H.H.W., Heller, M., Murad, F.: Characterization and partial purification of the enzyme responsible for EDRF/NO synthesis in NIE-115 neuroblastoma cells. Symposium on EDRF, Antwerp, June, 1990.
238. Arneric, S., Linville, D., Kerwin, J., Murad, F.: Nitric oxide: Its role in mediating increases in cortical cerebral blood flow elicited by electrical stimulation of the basal forebrain. Soc. for Neuroscience Mtg., St. Louis, Oct., 1990.
239. Murad, F.: Relationships of nitric oxide free radical and cyclic GMP as second messengers. ASPET Mtg., Milwaukee, Aug., 1990.
240. Murad, F.: Cellular mechanisms of vascular smooth muscle relaxation. ASPET Mtg., Milwaukee, Aug., 1990.
241. Murad, F.: Biosynthesis of EDRF. ASPET Mtg., Milwaukee, Aug., 1990.
242. Chen, J., Chang, B., Heller, M., Murad, F.: Visualization of guanylate cyclase in cultured CNS neurons. Soc. for Neuroscience Mtg., St. Louis, Oct., 1990.
243. Murad, F.: Mechanisms of nitrovasodilator tolerance and heterogeneity. XII Congress of the European Society of Cardiology, Stockholm, September, 1990.
244. Ishii, K., Warner, T.D., Sheng, H., Murad, F.: Endothelin stimulates cyclic GMP formation in porcine kidney epithelial cells via activation of the L-arginine-dependent soluble guanylate cyclase pathway. Presented at the Second International Conference on Endothelin, Tsukubo, Japan, December, 1990.
245. Ishii, K., Warner, T.D., Sheng, H., Murad, F.: Endothelin increases cyclic GMP levels in LLC-PK₁ porcine kidney epithelial cells via formation of an EDRF-like substance. Annual Meeting of the Japanese Pharmacological Society, Kobe, Japan, 1991, **Japanese J. Pharmacol.**, 55, 70, 1991.
246. Murad, F.: The interrelationships of nitric oxide and cyclic GMP as second messengers. Trends in cardiovascular research seminars, Rome, Italy, February, 1991.
247. Förstermann, U., Pollock, J.S., Schmidt, H.H.H.W., Mitchell, J.A., Heller, M., Murad, F.: Characterization and purification of particulate EDRF-synthase from bovine aortic endothelial cells. **FASEB J.**, 5, Part III, pg. A1728, 1991.
248. Buechler, W., Nakane, M., Murad, F.: Expression of soluble guanylate cyclase activity requires both enzyme subunits. **FASEB J.**, 5, Part I, pg. A454, 1991.
249. Sheng, H., Ishii, K., Murad, F.: Generation of an EDRF-like substance with carbachol- or bradykinin-induced cyclic GMP accumulation in bovine tracheal smooth muscle. **FASEB J.**, 5, Part III, pg. A1591, 1991.
250. Huang, Z-J., Schmidt, H.H.H.W., Warner, T.D., Murad, F.: Glucose-induced formation of arginine-derived nitrogen oxides from HIT-T15 pancreatic β -cells implies a role of cyclic GMP in insulin biosynthesis and/or secretion. **FASEB J.**, 5, Part I, pg. A756, 1991.
251. Chang, B., Chen, J., Murad, F.: Increased expression of soluble guanylate cyclase (sGC) during the maturation of cultured CNS neurons. **FASEB J.**, 5, Part I, pg. A509, 1991.

252. Nakane, M., Schmidt, H.H.H.W., Warner, T.D., Huang, Z., Murad, F.: Induction of Type II guanylyl cyclase-activating-factor (GAF) synthase in RAW macrophages requires transcription and de novo-protein biosynthesis. **FASEB J.**, 5, Part I, pg. A509, 1991.
253. Mitchell, J.A., Förstermann, U., Warner, T.D., Pollock, J.S., Schmidt, H.H.H.W., Kohlhaas, K.L., Heller, M., Murad, F.: Particulate activity is responsible for EDRF formation by native bovine aortic endothelial cells. **FASEB J.**, 5, Part III, pg. A1728, 1991.
254. Warner, T.D., Schmidt, H.H.H.W., Opgenorth, T.J., Murad, F.: Selective stimulation of the release of nitrogen oxides from whole bovine aortae by endothelin-3 but not endothelin-1. **FASEB J.**, 5, Part III, pg. A1728 1991.
255. Dillon, T., Warner, T.D., Schmidt, H.H.H.W., Budzik, G.P., Opgenorth, T.J., Murad, F.: Stimulators of the release of EDRF decrease the release of immunoreactive-endothelin from whole bovine aortae. **FASEB J.**, 5, Part II, pg. A1419, 1991.
256. Schmidt, H.H.H.W., Pollock, J.S., Förstermann, U., Murad, F.: Type I guanylyl cyclase-activating-factor (GAF) synthase from rat brain is a Ca^{2+} /Calmodulin-, NADPH- Tetrahydrobiopterin-dependent homodimer. **FASEB J.**, 5, Part III, pg. A1591, 1991.
257. Schmidt, H.H.H.W., Warner, T.D., Mitchell, J., Nakane, M., Murad, F.: Soluble synthase of guanylyl cyclase-activating factors (Type I) and mouse macrophages (Type II). Presented at the German Pharmacology Soc. Meeting, March, 1991.
258. Nakane, M., Schmidt, H.H.H.W., Murad, F.: Purification and molecular cloning of guanylyl cyclase activating factor synthase. Neuroscience Meeting, November, 1991.
259. Murad, F.: Regulation of guanylate cyclase isoforms, signal transduction via chemical and electrical messengers. Nashville, May, 1991.
260. Murad, F.: Nitric oxide regulation of cyclic GMP synthesis: An ubiquitous signal transduction pathway. Presented at the meeting of the "Biological Role of Nitric Oxide", Baltimore, May, 1991.
261. Sheng, H., Mitchell, J.A., Nakane, M., Warner, T.D., Pollock, J.S., Förstermann, U., Murad, F.: Characterization of NO synthase from NANC nerve containing tissues. Presented at the British Pharmacol. meeting, Glasgow, July, 1991.
262. Mitchell, J.A., Sheng, H., Warner, T.D., Pollock, J.S., Förstermann, U., Murad, F.: Relationship between endothelial cell activation and subsequent NO synthase activity: Inhibition by oxygen-derived free radicals. Presented at the British Pharmacol. meeting, Glasgow, July, 1991.
263. Murad, F.: Endothelial regulation of cyclic GMP synthesis: A ubiquitous signal transduction system. Presented at the FASEB conference on Endothelium and Cardiovascular Function, Copper Mountain, June, 1991.
264. Mitchell, J.A., Kohlhaas, K.L., Warner, T.D., Pollock, J.S., Förstermann, U., Murad, F.: Simultaneous induction by cytokines of NADPH-dependent diaphorase activity and NO synthase in endothelium-denuded rat aorta. Presented at the Biology of Nitric Oxide--2nd International meeting, London, September, 1991.
265. Sheng, H., Mitchell, J.A., Nakane, M., Schmidt, H.H.H.W., Pollock, J.S., Warner, T.D., Förstermann, U., Murad, F.: Characterization of NO-synthase from non-adrenergic non-cholinergic nerves in rat anococcygeus and bovine retractor penis muscles. Presented at the Biology of Nitric Oxide--2nd International meeting, London, September, 1991.

266. Mitchell, J.A., Pollock, J.S., Nakane, M., Warner, T.D., Kerwin, J., Wagenaar, F., Förstermann, U., Murad, F.: Hydroxy-L-arginine is a substrate for constitutive NO synthase purified from endothelial cells and brain: Comparison with L-arginine. Presented at the Biology of Nitric Oxide--2nd International meeting, London, September, 1991.
267. Pollock, J.S., Mitchell, J.A., Warner, T.D., Schmidt, H.H.H.W., Nakane, M., Förstermann, U., Murad, F.: Purification of NO synthases from endothelial cells. Presented at the Biology of Nitric Oxide--2nd International meeting, London, September, 1991.
268. Schmidt, H.H.H.W., Smith, R.M., Nakane, M., Pollock, J.S., Sheng, H., Förstermann, U., Murad, F.: Type I NO_x Synthase: Purification and immunohistochemical localization. Presented at the Biology of Nitric Oxide--2nd International meeting, London, September, 1991.
269. Förstermann, U., Schmidt, H.H.H.W., Pollock, J.S., Sheng, H., Mitchell, J.A., Warner, T.D., Nakane, M., Murad, F.: Characterization and classification of constitutive and inducible isoforms of NO synthase in various cell types. Presented at the Biology of Nitric Oxide--2nd International meeting, London, September, 1991.
270. Mitchell, J.A., Sheng, H., Warner, T., Pollock, J., Förstermann, U. and Murad, F.: Relationship between endothelial cell activation and subsequent NO synthase activity: Inhibition by oxygen derived free radicals. **Brit. J. Pharmacol.** 105, 117, 1991.
271. Pollock, J.S., Nakane, M., Förstermann, U., Murad, F.: Characterization of monoclonal antibodies to Type III Nitric Oxide (NO) synthase. Presented at ASBMB/Biophysical Society, Houston, February, 1992 .
272. Schmidt, H.H.H.W., Nakane, M, Smith, R.M., Murad, F.: Characterization of Type I NO synthase from rat cerebellum: a biopero-flavo-protein differentially regulated by Ca²⁺/Calmodulin. Presented at ASBMB/Biophysical Society, Houston, February, 1992 .
273. Gagne, G.D., Schmidt, H.H.H.W., Nakane, M, Miller, M.F., Murad, F.: Immunohistochemical localization of NO synthase, NADPH diaphorase, and soluble guanylyl cyclase reveals inter- and intracellular messenger functions for NO in the CNS and paraneuronal functions in peripheral tissues. Presented at ASBMB/Biophysical Society, Houston, February, 1992 .
274. Nakane, M., Mitchell, J., Förstermann, U., Murad, F.: Phosphorylation by calcium calmodulin-dependent protein kinase II and protein kinase C modulates the activity of nitric oxide synthase. Presented at ASBMB/Biophysical Society, Houston, February, 1992 .
275. Schmidt, H.H.H.W., Gagne, G., Miller, M., Warner, T.D., Sheng, H., Murad, F.: Immunohistochemical detection of NO synthase type I suggests co-localization with NADPH-diaphorase but not soluble guanylyl cyclase, and para-neuronal functions for nitrinergic signal transduction. Presented at the German Pharmacological Society Meeting, March, 1992 .
276. Matsumoto, T., Mitchell, J.A., Kohlhaas, K., Ritger, R., Warner, T.D., Schmidt, H.H.H.W., Förstermann, U., Murad, F.: Localization of nitric oxide synthase in ferret brain. FASEB, April, 1992 .
277. Förstermann, U., Pollock, J., Huang, Z., Kuk, J., Nakane, M., Murad, F.: Transforming growth factor- β increases nitric oxide production in bovine aortic endothelial cells. FASEB, April, 1992 .

278. Sheng, H., Nakane, M., Schmidt, H.H.H.W., Mitchell, J.A., Gagne, G., Miller, M., Murad, F.: Characterization and localization of NO synthase from non-adrenergic non-cholinergic nerves from bovine retractor penis muscle. **FASEB**, 6, A1298, April, 1992.
279. Huang, R., Sheng, H., Murad, F.: Formation of nitric oxide in bovine superior cervical ganglion. **FASEB**, 6, A1298, April, 1992 .
280. Murad, F.: The nitric oxide-cyclic GMP signal transduction pathway in vasular preparations and other tissues. Presented at the International Symposium on Smooth Muscle, Fukuoka, Japan, January, 1992.
281. Murad, F.: The discovery and development of pharmaceutical agents. Presented at the Internal Medicine Symposium, Vail, Colorado, February, 1992.
282. Pollock, J., Nakane, M., Springhall, D., Huang, Z., Mitchell, J., Warner, T., Pollock, J., Förstermann, U., and Murad, F.: Particulate and soluble endothelial nitric oxide synthases are similar proteins. Presented at the 2nd International Symposium of Endothelium-Derived Vasoactive Factors. Basel, Switzerland, April, 1992. **J. Vascular Res.**, 29, 315, 1992.
283. Mitchell, J., Warner, T., Huang, Z., Förstermann, U., and Murad, F.: Native LDL inhibits the release of endothelium-derived relaxing factor by reduced activity of endothelial nitric oxide synthase. Presented at the 2nd International Symposium of Endothelium-Derived Vasoactive Factors. Basel, Switzerland, April, 1992. **J. Vascular Res.**, 29, 1992.
284. Hughes, M., Sheng, H., Murad, F., and Briggs, C.: Evidence that nitric oxide mediates the cyclic GMP response to synaptic activity in the rat superior cervical ganglion. Soc. Neurosci. Meeting, October, 1992.
285. Mitchell, J., Kohlhaas, K., Matsumoto, T., Warner, T., Pollock, J., Förstermann, U., Schmidt, H., and Murad, F.: NO synthase activity in the lung is species dependent. British Pharmacol. Soc. Meeting, 1992.
286. Murad, F.: Endothelial regulation of cyclic GMP synthesis: The nitric oxide-cyclic GMP signal transduction system. Presented at the Intl. Union Biochem. Molec. Biol. Mtg., Nagoya, Japan, June, 1992.
287. Murad, F.: Isoforms of nitric oxide synthase and the nitric oxide-cyclic GMP signal transduction system. Presented at the NATO Vascular Endothelium Mtg., Rhodes, Greece, June, 1992.
288. Murad, F.: The nitric oxide-cyclic GMP signal transduction system for intracellular and intercellular communication. Presented at the 8th Intl. Conf. on Second Messengers and Protein Phosphorylation. Glasgow, Scotland, August, 1992.
289. Murad, F.: Isoenzymes of nitric oxide synthase: The nitric oxide-cyclic GMP signal transduction pathway in intercellular and intracellular communication. Presented at the 8th Intl. Symp. on Calcium-Binding Proteins and Calcium Function in Health and Disease. Davos, Switzerland, August, 1992.
290. Mitchell, J., Kohlhaas, K., Sorrentino, R., Murad, F., Warner, T. and Vane, J.: Induction of calcium-independent nitric oxide synthase in rat mesentery during sepsis does not impair the vascular response to vasoconstrictor agonists. **Brit. J. Pharmacol.**,
- 291 Murad, F.: Nitric oxide. Presented at the Laurention Hormone Conference, Puerto Rico, November 1992.

292. Ignarro, L., Sheng, H., Buga, G. and Murad F.: Distribution of neuronal NO synthase in rat penis. **FASEB**, abstract 1488, April, 1993.
293. Murad, F.: The nitric oxide-cyclic GMP signal transduction system for intercellular and intracellular communication. Presented at the Japanese Pharmacology Meeting, Yokohama, Japan, March, 1993.
294. Murad, F.: The nitric oxide - cyclic GMP signal transduction system for intercellular and intracellular communication. Presented at the Japanese Pharmaceutical meeting, Osaka, Japan, March, 1993.
295. Murad F.: The nitric oxide - cyclic GMP signal transduction system. Presented at the National Institutes of Health Workshop on Nitric Oxide in the Lung. Bethesda, Maryland, April, 1993.
296. Murad, F.: The nitric oxide-cyclic GMP pathway. Presented at the Canadian Biological Societies Meeting, Windsor, Canada, June, 1993.
297. Murad, F.: The nitric oxide-cyclic GMP signal transduction system. Presented at the Histochemistry Soc. Meeting, Bethesda, Maryland, Aug., 1993.
298. Murad, F.: Nitric oxide signal transduction. Presented at the Southeastern Pharmacol. Soc. Meeting, Memphis, Tennessee, October, 1993.
299. Murad, F.: The nitric oxide-cyclic GMP signal transduction system. Presented at the Medicine Group Therapeutic Advances Meeting, Newport Beach, California, October, 1993.
300. Murad, F.: The nitric oxide-cyclic GMP signal transduction system. Presented at the Banbury Conference on Nitric Oxide: Molecular Mechanisms of Synthesis and Action, Cold Spring Harbor, New York, November, 1993.
301. Murad, F.: The nitric oxide-cyclic GMP signal transduction system. Presented at the Uehara Symposium on Endothelium-Derived Factors and Vascular Functions. Tokyo, Japan, December, 1993.
302. Murad, F.: The nitric oxide-cyclic GMP signal transduction system. Presented at the 38th Oholo Conference on Biochemical, Pharmacological, and Clinical Aspects of Nitric Oxide, Eilat, Israel, April, 1994.
303. Buechler, W., Aktos, J., Muller, S., Murad, F., and Gerzer, R.: Baculovirus-mediated high level expression of a functional soluble guanylyl cyclase. Presented at the International Conf. on the Biochemistry and Molecular Biology of Nitric Oxide, Los Angeles, California, July, 1994.
304. Murad, F.: The nitric oxide-cyclic GMP signal transduction system. Presented at the International Conf. on the Biochemistry and Molecular Biology of Nitric Oxide, Los Angeles, California, July, 1994.
305. Young, A., Murad, F., Xie, J., Rife, T. Seiff, M., and Roddy, P.: Human neuronal nitric oxide synthase gene transcription initiates at multiple sites involving at least two promoters. Presented at the International Conf. on the Biochemistry and Molecular Biology of Nitric Oxide, Los Angeles, California, July, 1994.

306. Papapetropoulos, A., Marczin, N., Mora, G., Milici, A., Murad, F., and Catravas, J.: Regulation of soluble guanylate cyclase activity, message and protein levels by cyclic AMP elevating agents. Presented at the FASEB meetings, Atlanta, Georgia, April, 1995.
307. Murad, F.: Nitric oxide and cyclic GMP signaling. Presented at the Nitric Oxide Symposium, FASEB, Atlanta, Georgia, April, 1995.
308. Murad, F.: Nitric oxide and cyclic GMP. Presented at the 9th Intl. Conf. on Second Messengers and Phosphoproteins. Nashville, Tennessee, October, 1995.
309. Murad, F.: Nitric oxide: Its potential significance in vascular and neurological diseases. Presented at the Fourth International Symposium on Functional Medicine. Aspen, Colorado, May, 1997.
310. Murad, F.: Nitric oxide and cyclic GMP in cell signalling, Plenary lecture presented at the 33rd International Congress of Physiological Sciences. St. Petersburg, Russia, July, 1997.
311. Murad, F.: Nitric oxide as a second messenger. Presented at the Recent Progress in Hormone Research Conference, Stevenson, WA, August, 1997.
312. Murad, F.: Nitric oxide and guanylyl cyclase activation. Presented at the Endothelial Regulation of Vascular Tone Meeting, Amer. Physiol. Soc., Fall Conference, Augusta, Georgia, Sept., 1998.
313. Murad, F.: Nitric oxide and cyclic GMP signaling, Presented at the Tenth International Conf. on Second Messengers and Phosphoproteins, Jerusalem, Israel, November, 1998.
314. Ankoma-Sey, V., Wang, Y., Behbod, F., and Murad, F.: Reactive oxidative species during liver injury and repair: contribution of nitrotyrosine during hepatic stellate cell activation at Amer. Assoc. of the Study of Liver Diseases meeting in Chicago, Illinois, November, 1998.
315. Murad, F.: Nitric oxide and cyclic GMP in cellular signaling, Nobel Lecture, Karolinska University, Stockholm, Sweden, December, 1998.
316. Murad, F. Cellular signaling with nitric oxide and cyclic GMP. Basic and Clinical Aspects of Nitric Oxide meeting, Iguacu, Brazil, March, 1999.
317. Murad, F. Discovery of nitric oxide and cyclic GMP signaling. UCLA Vascular Biology Symposium, Los Angeles, California, March, 1999.
318. Murad, F. Nitric oxide production and therapeutic implications. Plenary Lecture, Amer. Soc. For Clinical Pharmacology and Therapeutics, 100th annual meeting, San Antonio, Texas, March, 1999,
319. Murad, F. Cellular signaling with nitric oxide and cyclic GMP. Annual Biomedical Sciences meeting, Taipei, Taiwan, April, 1999,.
320. Murad, F. Perspectives on Nitric oxide, NICHD Conference on Vasoactive Substances and free radicals in perinatal biology. Alexandria, Virginia, May, 1999,
321. Murad, F. Nitric Oxide, Human Anatomy and Physiology Society Meeting, Baltimore, Maryland, May, 1999,
322. Murad, F. Cellular Signaling with nitric oxide and cyclic GMP. Presented at the German Aerospace Center symposium on Science Summit Space, Cologne, Germany, June, 1999,

323. Murad, F. Personal perspectives on nitric oxide, NASA Nitric Oxide meeting, Houston, TX, August, 1999.
324. Murad, F. Cellular signaling with nitric oxide and cyclic GMP. Presented at the Congress on Heart Failure, Rome, Italy, September, 1999.
325. Murad, F. Cellular signaling with nitric oxide and cyclic GMP. Presented at College Marocain Interdisciplinaire de Couer et des Vaisseaux, Rabat, Morocco, October, 1999.
326. Carmines, P., Pollock, J.S., Ishii, N., Patel, K.P., Lane, P.H., Bian, K., and Murad, F. Tyrosine nitration accompanies increased nitric oxide and superoxide anion production in renal cortex during the hyperfiltration stage of diabetes mellitus. Amer. Nephrology Meeting, Miami, Florida, November, 1999.
327. Bian, K., Harari, Y., Lai, M., Weisbrodt, N. and Murad, F. Gut mediated systemic down-regulation of nitric oxide synthase-2 expression. Amer. Gastro. Assoc., Submitted, 1999.
328. Murad, F. Nitric oxide in cellular signaling, Amer. Nephrology meeting, Miami, Florida, November, 1999.
329. Murad, F. Cellular signaling with nitric oxide, Assoc. Academic Surgeons meeting, Philadelphia, Pennsylvania, November, 1999.
330. Jablecki, N.T., Bian, K., Harari, Y., Lai, M., Walker, C., Weisbrodt, F. and Murad, F. The effect of lipopolysaccharide and *Trichinella spiralis* on levels of inducible nitric oxide synthase (iNOS) in jejunum and ileum of rat. Exper. Biol. Meeting, April, 2000.
331. Murad, F. Nitric oxide cell signaling. Internat. Symposium on Neuroprotection and the Eye, San Antonio, Texas, March, 2000.
332. Murad, F. Cellular signaling with NO and cyclic GMP. Annual Meeting Assoc. Medical School Pharmacology. Sea Island, Georgia, February, 2000.
333. Murad, F. Nitric oxide and gastrointestinal diseases, 11th Asian Pacific Congress of Gastroenterology, Hong Kong, March, 2000.
334. Murad, F. Nitric oxide signaling. Annual meeting of the German Society for Cell Biology, Karlsruhe, Germany, March, 2000.
335. Murad, F. Nitric oxide celular signaling. FASEB meeting lecture, San Diego, California, April, 2000.
336. Murad, F. Cellular signaling with nitric oxide. Plenary lecture. Joint meeting of Amer. Soc. Of Clin. Invest. and American Assoc. of Physicians, Baltimore, May, 2000-06-23
337. Bian, K. Gut mediated systemic down-regulation of nitric oxide synthase-2 expression. Digestive Disease Week and the 101st Annual Meeting of the American Gastroenterological Association, San Diego, May, 2000.
338. Murad, F. Keynote Lecture. Nitric Oxide: A unique signaling molecule. Internat. Society for Heart Res. Meeting, Louisville, June, 2000.

339. Leite, J.P., Martins, A.R., Terra-Bustamante, V.C., Chimelli, L., de Nucci, G., Assirati, J.A., and Murad, F. The reorganization of hippocampal non-ergic synapses is associated with increased expression of soluble guanylyl cyclase immunoreactivity on CA1 pyramidal neurons in temporal lobe epilepsy. American Epilepsy Society, San Diego, California, December, 2000.
340. Murad, F. Nitric oxide signaling. NATO meeting on Nitric Oxide, Sicily, Sept., 2000.
341. Murad, F. Medical research in the next millennium. Presented at the 2nd Chinese Hi Tech Fair meeting, Shenzhen, China, Oct., 2000.
342. Murad, F. Cellular signaling with nitric oxide and cyclic GMP. Presented at the Nobel Symposium Polytechnic University, Hong Kong, China, Oct., 2000.
343. Murad, F. Plenary lecture. Cellular signaling with nitric oxide and cyclic GMP. Presented at the Twelfth International Pathogenic Neisseria Conf., Galveston, TX, Nov., 2000.
344. Bhuiyan, B.M., Murad, F., and Fant, M.E. The placental cholinergic system: localization to the cytotrophoblast and regulation of nitric oxide. 2001 Pediatric Academic Societies Meeting, 2001.
345. Mailman, D., Gantuku, S., Bhuiyan, M.B.A., and Murad, F. Organ sites of lipopolysaccharide (LPS)-induced nitric oxide (NO) production in the anesthetized rat. Shock Society meeting, 2001.
346. Bian, K., Harari, Y., Zhong, M., Weisbrodt, N., and Murad, F. Tissue inflammation and tyrosine nitration: Role of nitric oxide and myeloperoxidase in nitrotyrosine formation. **FASEB**, 15, 190.11, 2001.
347. Bian, K., and Murad, F. Diversity of endotoxin-induced nitrotyrosine formation in macrophage-endothelium rich tissues. **FASEB**, 15, 190.12, 2001.
348. Murad, F. Cellular signaling with nitric oxide and cyclic GMP. NIH Symposium on Insights into signal transduction. Bethesda, MD, March, 2001.
349. Murad, F. Cellular signaling with NO and cyclic GMP. Japanese Soc. Legal Medical Conference, Kurume, Japan, April, 2001.
350. Bian, K., Weisbrodt, N. and Murad, F. Ca⁺⁺-channel protein nitration and intestinal smooth muscle contractility. Amer. Gastroenterological Assoc. Meeting, Atlanta, GA, May, 2001.
351. Bian, K., Harrari, Y., Zhang, M., Lai, M., Weisbrodt, N. and Murad, F. Intestinal protein nitration induced by myeloperoxidase. Amer. Gastroenterological Assoc. Meeting, Atlanta, GA, May, 2001.
352. Murad, F. Nitric oxide and cyclic GMP in cell signaling. Endothelial meeting, Kracow, Poland, May, 2001.
353. Murad, F. Role of NO and cGMP in Cellular Signaling. Kyoto – Neuro 2001 Symposium, Osaka, Japan, September, 2001.
354. Murad, F. Cardiovascular effects of nitric oxide and cyclic GMP. Presented at the 17th International Meeting of Clinical Cardiology, Athens, Greece, May, 2002.
355. Murad F. Cellular Signaling with Nitric Oxide. Free Radical Symposium, Chicago, Illinois. May 20-24, 2002.

356. Bian, K., Zhong, M., Harari, Y., Weisbrodt, N., and Murad, F. Down regulation of NOS-2 by an IL-4R α /Stat6-dependent and T-cell independent pathway during parasite-induced gut inflammation. 103rd Annual meeting of the American Gastroenterological Assoc., San Francisco, May, 2002.
357. Murad, F. Cell Signaling with Nitric Oxide and Cyclic GMP. 25th Congress of Mexican Ophthalmology, Morelia, Mexico, August, 2002.
358. Murad F. Cellular Signaling with Nitric Oxide and Cyclic GMP. Retreat Seminar, Department of Physiology & Physics, University of Alabama, Birmingham, AL. October 16-18, 2002.
359. Murad, F. Nitric oxide, cyclic GMP and cell signaling. Keynote address, the Second Sino-US Symposium, Shanghai, China, October, 2002.
360. Bian, K., Gao, Z., Weisbrodt, N., and Murad, F. The nature of heme/iron-induced protein tyrosine nitration. Exper. Biol. Meeting, April, 2003.
361. Murad, F. Nitric oxide and cyclic GMP regulation in biology. Japanese Society of Oral Therapeutics and Pharmacology meeting, Osaka, Japan, February, 2003.
362. Bian, K., Gao, Z., Weisbrodt, N., and Murad, F. The nature of heme/iron-induced protein tyrosine nitration. Exper. Biol. Meeting, April, 2003.
363. Murad, F. Nitric oxide and cyclic GMP, 13th Internat. Conference on Laboratory Medicine and 10th European Conference of Clinical Molecular Biology, Capri, Italy, June, 2003.
364. Murad, F. The nitric oxide story, Canadian Soc. Clin. Pharmacol. Meeting, Ottawa, Canada, September, 2003.
365. Murad, F. Nitric oxide and cyclic GMP in cellular signaling. Islamic Academy of Science meeting, Kuching, Malaysia, September, 2003.
366. Murad, F. Importance of animals in nitric oxide research, Amer. Assoc. Lab. Animal Science meeting, Seattle, Washington, October, 2003.
367. Turko, L., and Murad, F. Quantitative protein profiling in heart mitochondria from diabetic rats using stable isotope labeling with denterated acrylamide IUBMB XIX World Congress, Montreal, Canada, October, 2003.
368. Murad, F. How does the blood vessel constrict or dilate? International Conference on Heart, Hypertension, and Diabetes. Hyderabad, India, November, 2003.
369. Murad F. Nitric oxide in cellular signaling and drug development, International Peace Foundation lecture series, (4 lectures). Bangkok, Chiang Mai, Khen Kaen and Song Kla, Thailand, January 2004.
370. Murad F. Application of nitric oxide research to drug development. 8th International Conference on Business and Economic Development. Monterrey, Mexico, January, 2004.
371. Murad F. Discovery of nitric oxide and its applications for drug development. Presented at the Houston Society for Engineering in Medicine and Biology, Houston, Feb., 2004.
372. Murad, F. Guest speaker, 26th National Arab American Medical Association meeting, Houston, October, 2004.

373. Murad, F. Keynote speaker, Bioastronautics meeting, Galveston, TX, Jan. 2005.
374. Murad, F. Plenary Speaker, Nitric oxide discovery and role in cell signaling and drug development. Western Assoc. Physicians meeting, Carmel, Feb., 2005.
375. Murad, F. Keynote speaker, Society of University Surgeons meeting, Nashville, TN, Feb. 2005.
376. Seminara AR. Murad F. MEK-ERK Kinase 1 (MEKK1) transcriptional regulation by nitric oxide (NO) in murine macrophages. XXXV International Congress of Physiological Sciences, San Diego, CA, April 3, 2005.
377. Murad, F. Keynote speaker, Application of nitric oxide and cyclic GMP research to drug development. First Internat. Conf. on Biological and Medical Physics, United Arab Emirates, March, 2005.
378. Murad, F. Speaker DeLange Conference, Rice University, Frontiers of Medicine, March, 2005.
379. Murad, F., Keynote Speaker, European Metabolic Group meeting, Prague, May, 2005.
380. Murad, F., Speaker, Three Master Course Lectures, Valencia, Spain, May, 2005.
381. Murad, F., Speaker, Cyclic GMP meeting, Potsdam, Germany, June, 2005.
382. Murad, F., Lecture, Campus de Excellence meeting, Canary Islands, June, 2005.
383. Murad, F., Lecture, Annual Meeting of Association of Pakistan Physicists of North America, Houston, TX, July 2005
384. Murad, F., Keynote Speaker, Biotech and Life Sciences Global Venture Congress, New York, NY, August 2005.

