CURRICULUM VITAE

LAURENCE H. HURLEY

Howard J. Schaeffer Endowed Chair in Pharmaceutical Sciences
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Education

1970	Ph.D., Medicinal Chemistry Purdue University Major Professors: Heinz G. Floss and Ulfert Hornemann
1967	B.Pharm., Pharmacy, with Honors Bath University, England
1970–1972	Postdoctoral Fellow, Chemistry Department University of British Columbia, Canada Advisor: James P. Kutney

Academic and Administrative Positions

2000–present The University of Arizona

2000–present	Howard J. Schaeffer Endowed Chair in Pharmaceutical Sciences Professor of Medicinal Chemistry Professor of Chemistry
2006–2009	Co-Director, Program in Molecular Therapeutics, Arizona Cancer Center
2005–2009	Associate Director, BIO5 Collaborative Research Institute
2013–present	Director, BIO5 Oro Valley Drug Discovery and Development Program

1982–2000 The University of Texas at Austin

1992–2000	George Hitchings Regents Chair in Drug Design
1988–1992	George Hitchings Professor of Drug Design
1986–1988	James E. Bauerle Professor of Medicinal Chemistry
1983–1986	Henry M. Burlage Centennial Professor of Medicinal Chemistry

1982–2000	Head, Laboratory for Drug Design Drug Dynamics Institute, College of Pharmacy
1995–2000	Director of Chemistry, Institute for Drug Development, San Antonio

1973–1980 The University of Kentucky

1980	Professor of Medicinal Chemistry
1977–1980	Associate Professor of Medicinal Chemistry
1973–1977	Assistant Professor of Medicinal Chemistry

1972–1973 University of Maryland, Baltimore

1972–1973	Assistant Professor of Pharmacognosy

Additional Professional Experience

2012–present	Founder and Scientific Director, TetraGene LLC
1997–2006	Founder and Scientific Director, Cylene Pharmaceuticals, Inc.
1994–2000	Molecular Biology Graduate Studies Faculty, The University of Texas at Austin
1990–2000	Cynthia Hendrick Kozmetsky Endowment Research Fellow
1985–2000	Graduate Studies Faculty, Chemistry Department, The University of Texas at Austin
1985–1987	Executive Committee, Texas Anticancer Drug Consortium
1983–1985	Head, Division of Medicinal Chemistry The University of Texas at Austin College of Pharmacy
1981–2000	Head, Laboratory for Drug Design, Drug Dynamics Institute, The University of Texas at Austin College of Pharmacy
1968–1970	David Ross Graduate Fellowship, Purdue University
1967–1968	Teaching Assistant, Purdue University
1967	Hospital Pharmacist, Birmingham General Hospital, Birmingham
1962–1963	Apprentice Pharmacist, Boots The Chemist, Birmingham, England

Honors and Awards

2013	D.Sc., Purdue University
2012	Honored by Leukemia & Lymphoma Society as a “Person of Vision”
2012	Art Broom Lecturer, University of Utah
2012	Sid Hecht Lecturer, University of Virginia
2011	Honorary Alumnus Award from the Governing Board of the University of Arizona Alumni Association

2011 Nucleic Acids Award, 6th Cambridge Symposium on Nucleic Acids Chemistry and Biology
2010 Chair, American Chemical Society Medicinal Chemistry Division
2010 Chair, National Cancer Institute Board of Scientific Councilors
2009 Roland T. Lakey Award, Wayne State University
2009 Chair, Chemistry in Cancer Research, American Association for Cancer Research
2009 Vice-Chair, American Chemical Society Medicinal Chemistry Division
2008 Paul Dawson Biotechnology Award, American Association of Colleges of Pharmacy
2007 Thirtieth Mary E. Kapp Lecturer in Chemistry, Virginia Commonwealth University
2007 Bath University Centennial Speaker
2007 University of Arizona Innovator of the Year Award
2007 Medicinal Chemistry Division Hall of Fame, American Chemical Society
2007 Co-Chair, American Association for Cancer Research National Program Committee
2005 George & Christine Sosnovsky Award in Cancer Therapy, Royal Society of Chemistry
2003 Boehringer-Ingelheim Lecturer, University of British Columbia
2001 Frank Rose Memorial Lectureship, Leeds, England
1999 Prestige Lectureship, Bradford University, England
1997 Otto M. Smith Lectureship, Oklahoma State University
1996 D.Sc., Bath University, England
1994 Outstanding Investigator Award, National Cancer Institute
1994 John Albert Southern Lecturer, Furman University
1994 American Chemical Society Medicinal Chemistry Award
1992 Research Achievement Award in Medicinal Chemistry, American Pharmaceutical Association
1992 MIKI Keynote Speaker, Medicinal Chemistry Meeting in Miniature
1990 Fellow, American Association for the Advancement of Science
1990 Watkins Visiting Professorship, Wichita State University
1989 Volwiler Research Achievement Award, American Association of Colleges of Pharmacy
1989 Outstanding Investigator Award, National Cancer Institute
1988 George H. Hitchings Award in Innovative Methods for Drug Design
1988 Distinguished Alumnus Award, Purdue University School of Pharmacy and Pharmacal Sciences
1987 Ole Gisvold Lectureship, University of Minnesota
1982 Julius Koch Memorial Lecturer, University of Pittsburgh
1974 Lederle Faculty Award
1970 Glen Jenkins Award, Outstanding Graduate Student Award, Purdue University School of Pharmacy and Pharmacal Sciences

Scientific and Professional Organizations

American Chemical Society (current)
American Association for Cancer Research (current)
Rho Chi Pharmacy Honor Society (current)
Phi Kappa Phi Honor Society (current)
American Association for the Advancement of Science (current)
American Association of Colleges of Pharmacy (current)
Chemical Society of Great Britain
American Society for Microbiologists
Academy of Pharmaceutical Sciences

Editorial Offices

Journal of Medicinal Chemistry (Senior Editor) (1992–2010)
Current Medicinal Chemistry (Associate Editor) (2001–present)
Advances in DNA Sequence Specific Agents (General Editor) (1991–1997)
Anti-Cancer Drug Design (U.S. Editor) (1991–1992)

Editorial Boards

International Journal of Oncology (2005–present)
Molecular Cancer Therapeutics (2001–present)
Journal of New Anticancer Agents (1989–1991)
Chemical Research in Toxicology (1989–1992)
Pharmacological and Pharmaceutical Letters (1991–1992)

NIH/NCI Program and Grant Review Responsibilities

2010–2011	Chair, Board of Scientific Councilors, NCI
2007–2010	Member, Board of Scientific Councilors, NCI
1992	Chairman, NCI Special Study Section for Outstanding Investigator Grant
1988–1992	NIH Bioorganic and National Products Chemistry Study Section reserve board
1986–1988	Chairman, NIH Bioorganic and Natural Products Chemistry Study Section
1984–1986	NIH Bioorganic and Natural Products Chemistry Study Section Member

Scientific Advisory Boards

2006–present	University of Minnesota Cancer Center External Scientific Advisory Board

2006–present	University of Minnesota Center for Drug Discovery External Advisory Board
2006–2010	Purdue Cancer Center External Advisory Board
2004	Chair, External Advisory Board, Experimental Therapeutics Program, University of Minnesota
1997–1998	SunPharm
1997–2006	Cylene Pharmaceuticals, Chair and CSO
1990–2000	Institute for Drug Development, San Antonio

Consultantships

Hoffmann-La Roche, Basel (1989–1992)
Abbott Laboratories, Chicago (1990–1994)
Review of Graduate and Professional Program, Kumamoto University, Japan (1999)
Consultant, University of Kentucky Cancer Center (1984)
Consultant to Smith, Kline and Beckman Company (1983–1986)
Consultant to the Upjohn Company (1977–1992)

Symposium Talks and Chairs

2012

- June 1, Flagstaff, Translational Medicine in Arizona: Networks, Partnerships, and Initiatives conference. Invited presentation titled “Drugging the Undruggable by Targeting DNA Transcriptional Control Switches.”
- May 20–23, 33rd National Medicinal Chemistry Symposium. Oral presentation titled “Modulation of MYC and BCL-2 through Targeting DNA in Its Proposed Role as a Molecular Switch”

2011

- Annual American Chemical Society, Anaheim (March): Symposium Speaker: “Specific targeting of the c-MYC promoter with ellipticines.”
- Plenary Speaker, European Symposium on Biological and Organic Chemistry, Gregynog, Wales (May). “Drug targeting of G-quadruplexes and i-motifs in the c-MYC and Bcl-2 promoters.”
- The 2011 Nucleic Acids Award Lecture, 6th Cambridge Symposium on Nucleic Acids Chemistry and Biology (September). “Riding the G-Quadruplex Wave and Drug Targeting of G-Quadruplexes and i-Motifs in the c-Myc and Bcl-2 Promoters.”

2010

- Modern Techniques in Drug Discovery Symposium, Northwestern University, (March). Symposium presentation titled “Drug Targeting of Globular DNA Structures via Transcriptionally Induced Supercoiling.”

- Wales Cancer Conference, Cardiff, Wales (April). Plenary lecture titled "Novel Therapeutic Strategies Involving the c-MYC G-Quadruplex and Associated Proteins."
- American Association for Cancer Research National Meeting, Washington, DC (April): Symposium Chair and Speaker: "Doing a Biopharm Start-Up from Academics."
- 3rd Annual Meeting of the Mississippi Biophysical Consortium Mississippi (June): Keynote Speaker, "Structural and Biological Complexity of the G-Quadruplex/i-Motif Structures in the c-Myc and Bcl-2 Promoters."
- Sixth Annual Conference on Porphyrins and Phthalocyanines (ICPP-6), Santa Ana Pueblo, New Mexico (July): Symposium presentation titled "Probing the Molecular Mechanism for Turning c-Myc On and Off Using Cationic Porphyrins."
- American Chemical Society National Meeting, Boston (August): Symposium organizer and speaker presentation titled "Drug targeting of the c-Myc G-quadruplex and associated proteins to inhibit gene transcription."
- NACON VII, University of Sheffield, England (September): Plenary speaker presentation titled "Drug Targeting of the c-MYC G-quadruplex and Associated Proteins to Inhibit Gene Transcription."
- Drug Discovery and Development Symposium, University of Kentucky, Lexington (October): Symposium speaker presentation titled "Drug Discovery and Development in Academia: Fighting the Odds and Sometimes Winning."
- American Chemical Society Pacifichem 2010, Honolulu, (December): Symposium Organizer/Chair and speaker presentation titled "Structural and biological complexity of the G-quadruplex/i-motif structures in the c-Myc and Bcl-2 promoters."
- American Chemical Society Pacifichem 2010, Honolulu, (December): Speaker presentation titled "Drug targeting of the c-Myc G-quadruplex and associated proteins to inhibit gene transcription."

2009

- North Texas Chapter of the Leukemia & Lymphoma Society, Dallas (February): Invited presentation to the "Journey of Hope" Dinner titled "It's about keeping the dream."
- American Association for Cancer Research National Meeting, Denver (April): Chair of National Products Symposium. April 18–22.
- IUPAC Meeting, Glasgow, Scotland (August): "Cumulative circumstantial evidence for secondary DNA structures as valid targets for drug discovery."
- Leukemia & Lymphoma Society, New York (October): Translational Research Progress Review Meeting: "Novel molecular therapies for lymphoma: targeting transcriptional regulation of c-Myc and Bcl-2."

2008

- 10th Annual IMD^3 Symposium titled "Molecular Targets: Drug Design & Diagnostics for the 21st Century, Louisville (March). Presentation titled "Secondary DNA structures and their role in transcriptional control and drug targeting: fact or fantasy?".

- American Association for Cancer Research Annual Meeting, San Diego (April). Presentation titled “Telomestatin as a structural probe for targeting G-quadruplexes in telomeric and promoter regions.”
- American Chemical Society Medicinal Chemistry Symposium, Pittsburgh (June). Session Chair for “Targeting Transcriptional Control via Secondary DNA Structures.” Presentation titled “Small molecule targeting of transcriptional control and the origins of Quarfloxin, the first G-quadruplex-interactive compound to reach the clinic.”
- Sunesis, San Francisco: “Revisiting quinolone antibiotics for new applications.”
- British Association for Cancer Research (September). Amgen Lecturer; “A tale of two case histories leading to Quarfloxin and MP470 in clinical trials.”
- AACP Meeting, Chicago (July): Dawson Award Panel Discussion on future directions in biotechnology in Colleges of Pharmacy.

2007

- American Association for Cancer Research Special Conference in Cancer Research, Oncogenomics 2007: Dissecting Cancer Through Genome Research, Scottsdale, AZ (February). “Drug targeting of secondary DNA structures in oncogene promoter elements.”
- American Association for Cancer Research Program Committee, April, June
- First International Meeting on G-quadruplex DNA, Louisville, KY (April). Chair and Organizer.
- American Chemical Society National Meeting, Boston (August). “Drug targeting of secondary DNA structures in oncogene promoter elements.”
- 5th International Symposium on Pharmaceutical Chemistry Istanbul, Turkey (September). “Small molecule targeting of transcriptional control.”

2006

- BRI VIII Meeting, Tucson, AZ (February). Presentation titled “A novel oncogenic silencing mechanism amenable to small molecule targeting.”
- “DNA Structure, Genomic Rearrangements, and Human Disease” conference, Houston (May). Presentation titled “A novel oncogenic silencing mechanism amenable to small molecule targeting.”
- Symposium in honor of Michael Waring, Cambridge, England (July). “Drug targeting of transcription control via secondary DNA structures.”
- Sixth Arizona Biosciences Leadership Symposium, Phoenix, AZ (October). Presentation titled “A novel oncogenic silencing mechanism amenable to small molecule targeting.”

2005

- American Association for Cancer Research Meeting, Anaheim, CA (April). Meet the Expert, Sunrise Session presentation titled “A Newly Discovered Oncogenic Silencing Mechanism Amenable to Small Molecule Targeting.”
- Gordon Conference on Nucleosides, Nucleotides, and Oligonucleotides, Newport, RI (June). Chair of session titled “G-Quadruplex Interactions.” Presentation titled “Secondary DNA Structures as Gene-Silencing Elements.”

- 13th SPORE Investigators' Workshop, Washington, DC (July). Plenary talk titled "Discovery and Development of CX-3543: A Phase-1 Drug for Treatment of Gastrointestinal Tumors."
- AACR-NCI-EORTC Meeting, Philadelphia (November). Presentation titled "A Novel Oncogenic Silencing Mechanism Amenable to Small Molecule Targeting."
- American Chemical Society Pacifichem 2005 Meeting, Honolulu (December). Organizer of 1.5-day symposium and session titled "G-Quadruplexes as Targets for Drug Design." Presentation titled "Newly Discovered Oncogenic Silencing Mechanism Involving G-Quadruplexes Amenable to Small Molecule Targeting."

2004

- Keystone Symposium (Gene Suppression: Drug Target Validation), Lake Tahoe (January). Presentation titled "Transcription control by ligand-mediated G-quadruplex stabilization."
- American Association for Cancer Research meeting, Orlando, FL (March). Chairperson of symposium titled "Experimental and Molecular Therapeutics 13."
- Global Trends in Cancer Research, Tokyo (July). Presentation titled "The c-MYC silencer element complex with NM23-H2: A new molecular target for colorectal cancer."
- Bioorganic and Natural Products Symposium Celebrating the 70th Birthday of Professor Heinz Floss, Seattle (August). Presentation titled "37 Years and counting: from methyl transferases in *Streptomyces* to targeting of gene control in colorectal and prostate cancer."
- Frontiers in Chemical Biology: the Chemical Biology of Cancer, London, UK (September). Presentation titled "The c-MYC silencer element complex with NM23-H2: A new molecular target for colorectal cancer."

2003

- Keystone Symposium (Gene Suppression: Drug Target Validation), Lake Tahoe (January). Presentation titled "Transcription control by ligand-mediated G-quadruplex stabilization."
- 5th Annual Symposium on Cancer Drug Development, Phoenix (February). Presentation titled "G-quadruplex inhibitors and other molecular targets."
- CNIO Cancer Conference (Targeted Search for Anti-Cancer Drugs), Madrid, Spain (March). Presentation titled "The role of secondary DNA structures in silencing transcription."
- Arizona Health Sciences Center Genomics Forum, Phoenix (April). Presentation titled "Evolution of DNA as a Molecular Target for Cancer Therapy."
- Paradigms Lost and Won: A Symposium To Celebrate the 65th Birthday of Professor Malcolm Stevens, Nottingham, England (September). Presentation titled "Secondary DNA Structures: The Relationship between Mutational Mechanisms for Overexpression of c-MYC, NM23-H2, and Colon Cancer."
- American Chemical Society Symposium "Frontiers in DNA Research," New York (September). Presentation titled "G-quadruplexes: Their importance in gene silencing, as targets for drug design, and in the etiology of colorectal cancer."

- 9th International Symposium Platinum Coordination Compounds in Cancer Chemotherapy, New York (October). Presentation titled "Targeting the silencer element–NM23-H2 complex to repress c-MYC transcription."
- 5th International Congress of the Genetics, Biochemistry, and Physiology of NM23-NDP Kinase/A^{WD}, Lexington, KY (October). Presentation titled "Proposed structure for the silencer element of the NHE III of the c-myc promoter."

2002

- 6th Lake Tahoe Symposium (January). "DNA as a molecular receptor for cancer therapeutics."
- PharmaMar MOA Symposium III, Madrid, Spain (March). "Relating the structural effects of Et 743 on DNA to the biological consequences" (March)
- American Association for Cancer Research Meeting, San Francisco (April). Co-Chairperson of Chemistry Minisymposium.
- 17th Meeting of the European Association for Cancer Research, Granada, Spain (June). Plenary lecture titled "Relating the structural effects of Et 743 on DNA to the biological consequences."
- 1st International Meeting on Medicinal and Pharmaceutical Chemistry, Ankara, Turkey (September). Plenary Speaker on "G-quadruplexes: a new paradigm for control of gene expression and its utility as a drug receptor."
- Meeting of the German Pharmaceutical Association, Berlin, Germany (October). Plenary Speaker on "The evolution of DNA as a molecular receptor."
- Speaker for *10th Journée CRPF* (Centre de Recherche Pierre Fabre) *de Chimie*, Castre, France (November). Presentation titled "A naturally occurring G-quadruplex in the c-myc promoter is a molecular target for transcriptional repression."
- 14th EORTC–NCI–AACR Symposium on Molecular Targets and Cancer Therapeutics, Frankfurt, Germany (November). Session Chair (Combinatorial Chemistry) and Symposium Plenary Speaker ("The role of secondary DNA structures in silencing transcription").

2001

- 2nd PharmaMar Symposium on Marine Compounds: Novel Mechanisms of Action in Cancer Research, Madrid, Spain (January). "Et 743–DNA adducts: A structural basis for sequence-dependent UvrABC repair recognition and incision."
- American Association for Cancer Research meeting, New Orleans (March). Sunrise Session, "Secondary DNA structures as targets for cancer therapeutics."
- NACON V meeting, Sheffield, England (April). Plenary speaker: "G-quadruplexes and associated gene targets for drug design."
- Arizona Cancer Drug Development meeting, Scottsdale, Arizona (April). "Et 743–DNA adducts: A structural basis for sequence-dependent UvrABC repair recognition and incision."
- Bioorganic Gordon Research Conference, Andover, New Hampshire (June). "G-quadruplexes and associated gene targets for drug design."

- Frank Rose Memorial Lecture speaker for British Cancer Research Meeting, Leeds, England (July). "DNA and associated oncogene targets for cancer therapeutics."
- Biochemistry Society Meeting, Symposium on Apoptosis and DNA Damage, Dublin, Ireland (July). "Secondary DNA structures as targets for cancer therapeutics."
- Cancer Therapeutics Gordon Research Conference, New London, New Hampshire (July). "Unusual DNA structures as targets for selective therapeutics."
- Symposium honoring Phil Portoghese, Minneapolis (August)
- National Foundation for Cancer Research meeting, Washington, DC (September). Chairperson and speaker.
- Arizona Cancer Center Workshop, Tucson (September). Invited speaker.

2000

- Sixth International Symposium on Biological Reactive Intermediates, Paris, France (July). Invited presentation titled "Structural basis for the differential repair of Et 743–DNA adducts."
- American Chemical Society symposium titled *Physical Chemistry of Nucleic Acids: In Memory of Matt Petersheim*, Washington, DC (August). Invited presentation titled "G-quadruplexes and associated gene targets for drug design."
- British Pharmaceutical Conference, Birmingham, England (September). Invited presentation titled "Telomere maintenance mechanism as a target for drug action."
- American Chemical Society Pacifichem meeting, Honolulu (December). Session: Nucleic Acid–Protein Complexes as Drug Receptors. Symposium chair and presentation titled "G-quadruplexes and associated gene targets for drug design."

1999

- Gordon Conference, Newport, Rhode Island (July). Invited presentation titled "Purines, Pyrimidines, and Related Substances."
- Drug Regulation of Gene Expression Conference, Bressanone, Italy (September). Invited speaker.
- 7th International Symposium on Molecular Aspects of Chemotherapy, Gdansk, Poland (September). Invited presentation titled "G-Quadruplexes as Targets for Drug Design."
- 5th Drug Discovery and Development Symposium, Detroit, Michigan (September). Invited speaker.
- Design and Development of Cancer Therapeutics for the Next Millennium Symposium, Houston, Texas (October). Invited speaker.
- American Association for Cancer Research/National Cancer Institute/European Organisation for Research and Treatment of Cancer (AACR/NCI/EORTC) conference titled "Molecular Targets and Cancer Therapeutics: Discovery,

Development, and Clinical Development," Washington, DC (November). Plenary Session co-organizer and speaker.
- British Pharmaceutical Society conference titled "Gene Targeted Therapeutic Strategies," London (December). Invited speaker.

1998
- Ernst Schering Research Foundation Workshop, Berlin, Germany (February). Invited presentation titled "Telomerase and G-Quadruplexes as Targets for Drug Design."
- International Meeting on Recognition Studies in Nucleic Acids: NACON IV, Sheffield, UK (April). Invited presentation titled "Topo II as a Target for Drug Design."
- XIVth International Conference on Phosphorus Chemistry, Cincinnati (August). Invited presentation titled "^{31}P-NMR as a Probe for Drug–Nucleic Acid Interactions."
- Topoisomerase-Targeted Drugs: Chemistry to Chemotherapy, NCI-sponsored symposium, University of Mississippi, University, MS (August). Invited presentation titled "Topoisomerase II Site-Directed Alkylation of DNA by Psorospermin."
- PharmaMar Symposium, Boston (October). Invited presentation titled "Et 743: Molecular Basis for Sequence Specificity."

1997
- Toxicant-Induced Alterations in Gene Transcription Mini-Symposium (American Association for Cancer Research Mini-Symposium), Bastrop, Texas (March). Invited presentation titled "The Molecular Details of Drug Targeting of Transcriptional Control."
- School of Pharmacy and Pharmacology Reunion: 90th Anniversary Celebrations, University of Bath, England.
- British Pharmaceutical Conference, Scarborough, England (September). Invited presentation titled "The Design of Telomerase Inhibitors" (September)

1996
- 7th Cyprus Conference on New Methods in Drug Research, Limassol, Cyprus (April). Invited presentation titled "Nucleoprotein Targets in Drug Design."
- International Symposium on Ligands Active on Nucleic Acids, Ascona, Switzerland (April). Invited presentation titled "Pluramycins. Old Drugs with New Friends in Molecular Biology."
- 37th Annual Buffalo Medicinal Chemistry Symposium, Buffalo (May). Invited presentation titled "Targeting Nucleoprotein Complexes."
- 5th Annual Symposium on Cancer Research in San Antonio, Texas (July). Invited presentation titled "Telomerase as a Target for Drug Design."
- Geron Telomerase and Cancer Symposium, Kamuela, Hawaii (August). Invited presentation titled "G-Tetraplex Interactive Compounds Inhibit Telomerase Activity."

- Royal Society of Chemistry Medicinal Chemistry Symposium, Bath, England (September). Invited presentation titled “NMR as a Tool to Study Drug–DNA Complexes.”
- American Chemical Society Southwest Regional Meeting, Houston (October). Symposium on DNA and RNA: Structure, Dynamics, and Function.
- American Chemical Society Southwest Regional Meeting, Greenville, SC (November). Symposium on Small Molecule–Nucleic Acid Interactions

1995

- 36th Annual Buffalo Medicinal Chemistry Symposium, Buffalo (May). Invited presentation titled “Specific Targeting of Transcriptional Factors and Topoisomerases by DNA-Reactive Drugs.”
- International Symposium on Pharmaceutical Sciences Commemorating the 80th Anniversary of Modern Pharmaceutical Education in Korea, Seoul, Korea (June). Invited presentation titled “Specific Targeting of TATA Binding Protein (TBP) and Gyrase–DNA Complexes by the Pluramycins and Quinolones.”
- Western Biotech Conference, San Diego (October). Invited presentation titled “Targeting Transcriptional Control with DNA Interactive Drugs.”
- American Chemical Society, Memphis (November). Invited presentation titled “Targeting Transcriptional Control with DNA Interactive Drugs.”

1994

- Nucleic Acid Binding Drug Symposium, Palo Alto, California (February). Symposium speaker.
- 1st World Congress on Computational Medicine, Public Health, and Biotechnology, Austin (April). Symposium speaker.
- Drug Targeting of Nucleoprotein Complexes and Control of Gene Expression, 24th National Medicinal Chemistry Meeting, Salt Lake City (June). Symposium chairman.
- 24th National Medicinal Chemistry Meeting, Salt Lake City, (June). Award presentation.
- Drugs Acting on Nucleic Acids, Jacques Monod Conference, Alpes, France (June). Symposium speaker.
- Heinz Floss 60th Birthday Symposium, Seattle (August). Symposium organizer and speaker.
- Topoisomerase Meeting, New York (October). Invited presentation titled “The Self Assembly of a Novel 4:4 Quinobenzoxazine to Mg^{2+} Partial Intercalation Complex on DNA. Implications for the Structure of the Quinolone Bacterial Gyrase–DNA Complex.”

1993

- International Meeting on DNA Recognition, Copenhagen, Denmark (August). Symposium speaker.
- Southwest Regional Meeting, Symposium on DNA-reactive Drugs, Austin (October). Co-chairman and speaker.

- "Views To and From Macromolecular Structure" Symposium, National Cancer Institute, Frederick, Maryland (October). Symposium speaker.

1992

- Keynote Speaker, MIKI meeting, Iowa (May). Keynote Speaker,
- Recognition Studies in Nucleic Acids Conference, University of Sheffield, Sheffield, England (April). Symposium speaker,
- American Association for Cancer Research meeting titled "Novel Targets for Drug Design" (May). Symposium speaker.
- 5th Cyprus Conference on New Methods in Drug Research, Cyprus (May). Symposium chairman.
- XIIth International Symposium on Medicinal Chemistry, Basel, Switzerland (September). Symposium chair and speaker.
- DNA Adducts of Carcinogenic and Mutagenic Agents: Chemistry, Identification, and Biological Significance, Stockholm, Sweden (November). Symposium speaker.

1991

- 201st American Chemical Society National Meeting, Atlanta, Georgia (April). Symposium chairman and presentation titled "Molecular Mechanisms of Interaction of Anticancer Agents with DNA."
- 3rd International Symposium on Molecular Aspects of Chemotherapy, Gdansk, Poland (June)

1990

- 23rd Jerusalem Symposium in Quantum Chemistry and Biochemistry, Jerusalem, Israel (May). Symposium on "Molecular Basis of Specificity in Nucleic Acid-Drug Interactions."
- EORTC Joint Meeting, Glasgow, Scotland (June). Plenary Lecture titled "Agents to Influence Specific Gene Expression."
- 22nd National Medicinal Chemistry Symposium, Austin (July). Scientific Program Chairman and Local Arrangements Chairman,

1989

- National American Chemical Society meeting, Dallas, Texas. Chairman, Symposium on "DNA Damage."
- American Association for Cancer Research, Tiburn Lodge, California. Invited presentation titled "Molecular Events in Mutation and Cancer."
- Joint ASCB/ASBMB meeting, San Francisco, California (January). Symposium on "Drug Induced DNA Degradation."
- 4th Cyprus Conference on New Methods in Drug Research, Paphos, Cyprus (May). Invited presentation titled "Site Specific Recognition by DNA Active Ligands."
- 2nd International Conference on Drug-Nucleic Acid Interaction, Cambridge, UK (September).

- 42nd Annual Symposium on Fundamental Cancer Research, M.D. Anderson, Houston (October). Invited presentation titled “Cellular and Molecular Targets of Cancer Therapy.”
- 45th Southwest American Chemical Society Meeting, Baton Rouge (December). Symposium on “DNA Structure and DNA Ligand Interaction.”

1988

- British Association for Cancer Research Symposium, Norwich, England. Invited presentation titled “On Design of Compounds to Interact with DNA.”
- Buffalo Medicinal Chemistry Symposium. Invited presentation titled “Design of Antitumor Agents.”
- Fondation des Sciences et Techniques du Vivant International Symposium Pensieres, France. Invited presentation titled “Molecular Basis of Specificity in DNA-Antitumor Drug Interactions,”

1987

- 10th Annual Interdisciplinary Cancer Research Workshop, New Orleans, Louisiana.
- 100th NIH Anniversary Symposium Hunter College, New York. Invited presentation titled “Recognition of DNA by Proteins and Drugs.”
- American Chemical Society Meeting, Denver, Colorado. Symposium Chairman and presentation titled “DNA Associated Targets for Drug Design,”
- Northwest Regional American Chemical Society meeting, Bellingham, Washington. Presentation titled “Enzyme and Nucleic Acid Chemistry.”
- American Chemical Society Meeting, New Orleans, Louisiana. Presentation titled “The Use of Molecular Biology in Drug Design and Study of Drug Action.”
- International Congress on Nucleic Acid Interactions, Padova, Italy. Symposium speaker.
- Upjohn Symposium on “Drug-DNA Interaction and Biological Consequences,” Kalamazoo, Michigan. Co-organizer and speaker.

1986

- Molecular Biology Workshop for the Bioorganic and Natural Products Study Section, Georgetown, Washington DC. Chairman and Organizer.
- Pontifical Academy of Sciences, “The Molecular Mechanisms of Carcinogenic and Antitumor Activity,” Casa Pio IV, The Vatican (October).
- 14th International Cancer Congress, Budapest, Hungary. Invited presentation titled “Progress in Antitumor Drug Development.”
- ASPET/SOT Meeting, Baltimore, Maryland. Invited presentation titled “Mechanism of Action of Toxic and Pharmacologically Active Substances.”

1985

- Gordon Conference. Speaker, Experimental and Clinical Cancer.
- Northeast American Chemical Society, New Paltz, New York. Invited presentation titled “Design of Anticancer Drugs.”

- American Chemical Society Meeting, Chicago. Invited presentation titled "Opportunities for the Medicinal Chemistry From Recombinant DNA Research."
- International Conference on "Mechanisms of DNA Damage and Repair," National Bureau of Standards, Washington, DC.
- Southwest Environmental Mutagenesis Society, San Antonio. Plenary Lecture.

1984

- North American Medicinal Chemistry Symposium, Tucson, Arizona. Chairman and presentation titled "Design of Drugs to Control Gene Expression,"
- American Society for Pharmacognosy, Austin, Texas. Scientific Program Chairman.
- Southeast American Chemical Society, Raleigh, North Carolina. Invited presentation titled "Drug-DNA Interactions."
- Tenth Jena Symposium, Molecular Biological Mechanisms of Antitumor Antibiotic Action, Weimar, West Germany.
- British Pharmaceutical Society, symposium on "Modified Peptides," Brighton, England.

1983

- Plenary Lecture at the Southwest Oncology Group Meeting, Dallas, Texas.
- 74th American Association for Cancer Research Meeting, San Diego, California. Co-chairman and speaker of Minisymposium on "Drug-DNA Interactions,"
- American Chemical Society Tour Speaker (through 1985)

1982

- North American Medicinal Chemistry Symposium, Toronto, Canada. Invited presentation titled "Advances in Chemotherapy."
- 22nd International Conference on Antimicrobial Agents and Chemotherapy, Miami Beach, Florida. Invited presentation titled "Biosynthesis and Regulation of Antibiotic Production."
- Southeast American Chemical Society Meeting, Birmingham, Alabama. Invited presentation titled "Antitumor and Antiviral Agents."

1968–1981

- U.S.–Japan Symposium, Biosynthesis of Natural Products Meeting, Honolulu (1976)
- American Chemical Society National Meeting Symposium on "Biosynthesis," Miami, Florida (1978)
- American Chemical Society National Meeting, San Francisco, California (1980). Chairman and presentation titled "DNA as a Target for Drug Action."
- 12th International Congress on Chemotherapy Symposium, Florence, Italy (1981). Invited presentation titled "New DNA Reactive Drugs in Cancer Chemotherapy."
- Third International Symposia on the Biomedical and Clinical Aspects of Coenzyme Q10, Austin, Texas (1981).

Invited Seminar Presentations at Universities and Pharmaceutical Companies

2012

- Art Broom Lecture, University of Utah (February): Does DNA Function Naturally as a Molecular Switch in Cells?
- Hecht Lecture, University of Virginia (April 2): Can DNA Function as a Natural Molecular Switch in Cells?
- July 23, Cardiff, Wales: Invited seminar titled "Play against the Odds in Academic Drug Discovery and Still Trying to Win."
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2011

- Simon Fraser University, Vancouver, British Columbia (June)
- Translational Genomics Research Institute (September 28): Riding the G-Quadruplex Wave and Looking for the Next One to Catch
- Stanford Research Institute (October 7): Drug Targeting of G-Quadruplexes and i-Motifs in the c-Myc and Bcl-2 Promoters
- Scripps Research Institute (November 3): Drug Targeting of G-Quadruplexes and i-Motifs in the c-Myc and Bcl-2 Promoters
- Novartis (November 15): Small Molecule Modulation of Transcriptional Control for Refractory Targets

2010

- Caltech, Chemistry Department (February 10): Invited seminar titled "Drug Targeting of Odd DNA Structures as a means to Control Gene Transcription"
- Welsh School of Pharmacy, Cardiff University, Wales (April 13): Invited seminar titled "Translating drug discovery out of an academic setting: options and experiences."
- University of Manchester, England (April 21): Invited seminar titled "Novel Therapeutic Strategies Involving the c-MYC G-Quadruplex and Associated Proteins."
- Northwestern University (May 20): Invited seminar titled "Drug targeting of the c-Myc G-quadruplex and associated proteins to inhibit gene transcription."
- Hong Kong Polytech (June 21): "Structural and Biological Complexity of the G-Quadruplex / i-Motif Structures in the c-MYC and Bcl-2 Promoters."
- Sun Yat-Sen University, Guangzhou, China (June 24): "Drug Targeting of the c-Myc G-Quadruplex and Associated Proteins to Inhibit Gene Transcription."
- Sun Yat-Sen University, Guangzhou, China (June 25): "The Changing Dynamics in Drug Discovery and Development in the USA."

2009

- University of London (Jan 16): Invited seminar titled “Something new and something close to home in the hTERT and PDGFR-β promoter sequences.”
- Wayne State University (April 14–16): 2009 Roland T. Lakey Award presentation titled “Basic science, business, and cancer patients: one faculty member’s experience”

2008

- Pharmacy/BCP lecture (Jan 17): “Starting a biotech company—I said I would never do it again, but I am on the road again.“
- BIO5/Biodesign TRIF (Mar 26): “Fluorescent probes for G-quadruplex–i-motif structures.”
- Arizona State University (Mar 27): “Secondary DNA structures in eukaryotic promoter regions: evidence for their presence and strategies for drug targeting.”
- National Cancer Institute (July 16): Presentation titled “Drug targeting of transcription: the importance of secondary DNA structures in control of promoter activity.”
- University of London (Sep 10): “The role of the G-Quadruplex and i-motif in control of c-MYC transcription.”
- NCI Translational Science Meeting (Nov 7–9): “Small molecule repression of c-Myc gene expression in validated tumor types by targeting secondary DNA structures.”
- Medicinal Chemistry Seminar Series speaker: “Drug targeting of transcription: the importance of secondary DNA structures in control of promoter activity.”

2007

- Virginia Commonwealth University. 30th Annual Mary Kapp Lecture in Chemistry. Presentation titled “Drug targeting of secondary DNA structures in oncogene promoter elements”
- Bath University. Presentation titled “Beauty and the beast: from belladonna to cancer genes”
- Cardiff University. Presentation titled “From higher order DNA structures to cancer therapeutics”

2006

- University of New Mexico. Presentation titled “Bench to Bedside: G-Quadruplexes as a New Class of Molecular Receptors for Drug Targeting in Cancer Therapeutics”
- Southwestern University, Georgetown, TX. Presentation titled “Bench To Bedside: Development of a Transcriptional Inhibitor Targeting Secondary DNA Structures”
- University of Washington, Seattle. Presentation titled “Targeting Transcriptional Control through Secondary DNA Structures”

2005

- TGen Translational Science Seminar Series. Seminar titled “G-Quadruplexes as a New Class of Molecular Receptors for Drug Targeting in Cancer Therapeutics.”

- Lecture Tour associated with George & Christine Sosnovsky Award in Cancer Therapy. Presentation titled “From Bench to Bedside: G-Quadruplexes as a New Class of Molecular Receptors for Drug Targeting in Cancer Therapeutics” was delivered at Cardiff University, University of Newcastle upon Tyne, University of St. Andrews, University of Cambridge, University of Bath, and the Royal Society of Chemistry (London).

2004

- University of Minnesota, Minneapolis
- Imperial College, London, UK

2003

- PharmaMar, Madrid, Spain
- University of British Columbia, Vancouver
- Simon Fraser University, Vancouver
- University of Wisconsin, Madison
- University of Arizona, Phoenix
- Georgia State University, Atlanta
- Vanderbilt University, Nashville

2002

- California Institute of Technology, Pasadena
- Abbott Laboratories, Chicago
- University of Illinois College of Pharmacy, Chicago
- Genesoft, San Francisco
- University of Lille Cancer Center, Paris, France
- Georgia State University, Atlanta
- University of North Carolina, Chapel Hill
- Pharmacia (Upjohn), Kalamazoo

2001

- University of Virginia, Department of Chemistry, Charlottesville
- University of Pittsburgh, School of Pharmacy
- Southwestern Medical Center, Department of Pharmacology, Dallas, Texas
- China Pharmaceutical University, Nanjing, China
- Purdue University Cancer Center, Lafayette, Indiana
- University of Nottingham, Pharmaceutical Sciences Department, England
- University of Arkansas Cancer Center, Little Rock

2000

- Mississippi State University, Jackson
- Arizona State University, Department of Chemistry, Phoenix
- Washington University, Department of Chemistry, St. Louis
- Institute for Cancer Research, London, England
- National Cancer Institute, Bethesda, Maryland

- University of Arizona, Department of Biochemistry and Biophysics, Tucson

1999

- University of Arizona, Department of Chemistry, Tucson
- University of Arizona, College of Pharmacy, Tucson
- Kyoto University, Dept. of Chemistry, Japan
- Bradford University, School of Pharmacy, England
- University of Newcastle, Dept. of Chemistry, England
- Exeter University, Dept. of Chemistry, England
- University of London, School of Pharmacy, England
- GeneLabs, San Francisco, California
- MD Anderson, Smithville, Texas

1998

- Science Park, Smithville, Texas
- PharmaMar, Madrid, Spain
- University of Cambridge, Dept. of Pharmacology, England
- GeneLabs, San Francisco, California
- Georgia Tech, Dept. of Chemistry, Atlanta
- University of Arkansas, Dept. of Chemistry, Little Rock

1997

- University of Nottingham, England
- Institute for Cancer Research, Sutton, England
- Oklahoma State University, Stillwater
- University of Washington, Seattle
- Massachusetts Institute of Technology, Cambridge
- Glaxo Wellcome, Research Triangle Park, South Carolina
- Portsmouth University, England
- Cardiff University, Wales
- National Cancer Institute, Bethesda, Maryland
- Frederick Cancer Center, Frederick, Maryland

1996

- University of Texas Health Science Center, Grossman Cancer Center, San Antonio
- Baylor University College of Medicine, Houston, Texas
- University of Kentucky, Structural Biology Program, Lexington
- University of Wisconsin, Dept. of Chemistry, Madison
- University of Southampton, Biochemistry Dept., Southampton, England
- Institute of Cancer Research, Biomolecular Structure Unit, Sutton, England
- Bath University, Bath, England

1995

- Ohio State University, Medicinal Chemistry Dept.
- Bath University, School of Pharmacy, Bath, England
- Ciudad Universitaria, Dept. of Chemistry, Mexico City
- University of Leicester, Dept. of Biochemistry, England
- University of Texas Health Science Center, San Antonio, Texas
- Johns Hopkins University, Dept. of Mol. Biol., Baltimore
- University of Kansas, Dept. of Medicinal Chemistry, Lawrence
- University of Maryland, Dept. of Chemistry, Baltimore
- University of Missouri, Dept. of Chemistry, Columbia
- Rockefeller University, New York

1994

- University of Leicester, England
- University of Nottingham, England
- University of Texas Medical Branch, Galveston
- Hunter College, New York
- Sloan Kettering, New York

1993

- University of North Carolina, Department of Pharmacology
- Lederle Labs, Pearl River, New Jersey
- University of Washington, Seattle, Depts. of Chemistry and Medicinal Chemistry
- Albert Einstein College of Medicine, New York
- State University of New York, Stony Brook
- National Cancer Institute, Bethesda
- University of Maryland Cancer Center, Baltimore

1992

- University of Utah, Department of Medicinal Chemistry
- University of Michigan, Department of Medicinal Chemistry
- University of California, San Francisco, Department of Pharmaceutical Chemistry
- Genentech, Department of Medicinal Chemistry, San Francisco
- Abbott Laboratories, Chicago

1991

- Burroughs Wellcome, North Carolina
- Ciba Geigy, Basel, Switzerland
- Hoffmann-La Roche, Basel, Switzerland
- Portsmouth Polytechnic, School of Pharmacy, United Kingdom
- Georgia State University, Department of Chemistry
- University of Georgia, Department of Medicinal Chemistry
- Dartmouth College, Department of Chemistry, New Hampshire
- University of Vermont, Department of Chemistry
- University of Texas at Austin, Department of Chemistry

- University of Minnesota, Department of Medicinal Chemistry

1990

- Upjohn Company, Kalamazoo, Michigan
- University of Connecticut, College of Pharmacy
- University of Nebraska, Epply Cancer Center
- Glaxo Pharmaceuticals, North Carolina
- Burroughs Wellcome, North Carolina
- Hoffmann-La Roche, Basle, Switzerland
- University of Wisconsin, College of Pharmacy
- Wichita State University, Department of Chemistry

1989

- Abbott Laboratories, Chicago, Illinois
- University of Illinois at Chicago, Department of Medicinal Chemistry

1988

- North Texas State University, Department of Biochemistry
- Burroughs Wellcome Research Triangle, North Carolina
- University of Kansas, Department of Medicinal Chemistry
- Purdue University, Department of Medicinal Chemistry
- University of Pennsylvania, Department of Chemistry
- University of Kentucky, College of Medicine and College of Pharmacy
- Merck Sharp & Dohme, Westpoint, Pennsylvania

1987

- Texas A&M University, Department of Chemistry
- The University of Texas at San Antonio, Biochemistry Department
- American Cyanamid Company, Lederle Laboratories, Pearl River, New York
- University of California at San Francisco, Toxicology Department
- University of California at Irvine, Chemistry and Toxicology Departments
- M.I.T. Departments of Chemistry and Applied Biology
- Brown University, Department of Chemistry
- University of Minnesota, Department of Medicinal Chemistry
- University of Utah, Department of Medicinal Chemistry
- University of Utah, Department of Chemistry

1986

- Vanderbilt University, Department of Biochemistry
- University of Florida, College of Pharmacy
- University of Virginia, Department of Chemistry
- Cambridge University, Department of Pharmacology, UK
- Aston University, Birmingham, Department of Pharmacy, UK
- Institute of Cancer Research, London, Biomolecular Structure Unit, UK

- Smith, Kline and Beckman, Valley Forge, Pennsylvania
- Upjohn Company, Kalamazoo, Michigan
- The University of Texas at Austin, Chemistry Department

1985

- M.D. Anderson, Pharmacology Section
- Cal. Tech., Department of Chemistry
- Ohio State University, Department of Chemistry
- Ohio State University, Department of Medicinal Chemistry
- University of Houston, Chemistry Department

1984

- Texas A&M University, Department of Veterinary Medicine
- University of Alabama at Huntsville, Department of Chemistry
- University of Alabama at Tuscaloosa, Department of Chemistry
- University of Southern Alabama at Mobile, Department of Biochemistry
- University of Southern Mississippi, Department of Chemistry
- The University of Texas at San Antonio, Biochemistry Department

1983

- The University of Texas at Austin, Genetics Group
- Smith, Kline and Beckman Company
- Lederle Laboratories, New York
- The University of Texas Medical Center, San Antonio
- Rice University, Department of Chemistry
- M.D. Anderson, Science Park, Carcinogenesis
- University of London, School of Pharmacy
- Bath University, School of Pharmacy
- University of Aston, School of Pharmacy

1982

- Warner Lambert Company, Ann Arbor, Michigan
- The University of Texas at San Antonio, Department of Chemistry
- The University of Texas at San Antonio Health Science Center, Oncology
- University of Kentucky, Biochemistry Department
- University of Kentucky, Toxicology Department
- University of Pittsburgh, School of Pharmacy
- Dupont Company, Wilmington, Delaware

1981

- The University of Texas, Department of Chemistry
- North Texas State University, Biochemistry Department
- University of Maryland, School of Pharmacy
- Southwest Research Institute, Division of Chemistry

- MIT, Food and Nutrition Department
- Bristol Laboratories, Syracuse, New York
- The University of Texas at Austin, Botany Department
- Upjohn Company, Cancer Unit
- Southwest American Chemical Society Meeting, Corpus Christi, Texas
- University of Wisconsin, College of Pharmacy
- Frederick Cancer Center, Maryland

1972–1980

- University of Maryland, School of Pharmacy
- University of British Columbia, College of Pharmacy
- Eli Lilly Company, Indianapolis, Indiana
- Purdue University, School of Pharmacy
- Manchester University, School of Pharmacy
- Nottingham University, School of Pharmacy, UK
- Upjohn Company, Fermentation Division
- Eli Lilly Company, Indianapolis, Indiana
- University of Iowa, School of Pharmacy
- University of Arizona, School of Pharmacy
- University of Connecticut, School of Pharmacy
- Ohio State University, School of Pharmacy
- Northeastern University, College of Pharmacy
- Purdue University, Indianapolis, Indiana
- Bristol Laboratories, Syracuse, New York
- Cambridge University, Department of Pharmacology
- Upjohn Company, Cancer Unit
- The University of Texas, College of Pharmacy

Summary of Teaching Experience

University of Arizona (2000–present)

Coordinator and lecturer for two graduate courses: "Principles in Drug Discovery, Design, and Development" (PHSC670) and "Proteins and Nucleic Acids as Drug Targets" (PCOL530). Lecturer in undergraduate courses in medicinal chemistry (PCOL837A/B). Case Studies leader (PCOL820). Lecturer in "Cancer Therapeutics" (CBIO555).

University of Texas at Austin (1981–2000)

Participated in pharmacy undergraduate courses in medicinal chemistry (antitumor agents, antiviral agents, antifungal agents), analytical chemistry, and a campus-wide course titled "Drugs in Our Society." Graduate courses in bioorganic chemistry: two semester-long courses, each offered alternative years and team-taught with two other faculty. Contributed to courses in molecular recognition and biophysical chemistry offered through the Department of Chemistry.

University of Kentucky (1973–1981)

Completely revamped two course in pharmacognosy to teach modern aspects of natural products chemistry relevant to undergraduate pharmacy students. Developed one-semester course in special topics to include biotechnology, bioethics, serendipity in drug discovery, and future of drug design and discovery. Graduate courses in biosynthesis of natural products; contributed to course on nucleic acid biochemistry/chemistry (in Department of Biochemistry).

University of Maryland (1971–1973)

Responsible for teaching undergraduate courses in infectious diseases and immunology. Graduate course in biosynthesis of antibiotics.

ISI Web of Knowledge

Laurence Hurley has an H-index of 63 and the most highly cited articles in the publications list below are indicated in red.

Publications

1. Hornemann, U.; Speedie, M. K.; Kelley, K. M.; Hurley, L. H.; Floss, H. G. (1969) Biosynthesis of indoleisopropionic acid by *Claviceps*. Biological C-methylation involving an intact methyl group. *Arch. Biochem. Biophys*., **131**, 430–440.

2. Hornemann, U.; Hurley, L. H.; Speedie, M. K.; Guenther, H. F.; Floss, H. G. (1969) Biosynthesis of the antibiotic indolmycin by *Streptomyces griseus*. C-methylation of the β-carbon atom of the tryptophan side chain. *J. Chem. Soc. (Chem. Commun.)*, 245–246.

3. Hornemann, U.; Hurley, L. H.; Speedie, M. K.; Floss, H. G. (1970) Isolation and absolute configuration of indolmycin acid, an intermediate in the biosynthesis of indolmycin by *Streptomyces griseus*. *Tetrahedron Lett.,* **26**, 2255–2258.

4. Hornemann, U.; Speedie, M. K.; Hurley, L. H.; Floss, H. G. (1970) Demonstration of a C-methylating enzyme in cell free extracts of indolmycin-producing *Streptomyces griseus*. *Biochem. Biophys. Res. Commun.,* **39**, 594–599.

5. Hornemann, U.; Speedie, M. K.; Hurley, L. H.; Floss, H. G. (1971) The biosynthesis of the antibiotic indolmycin by *Streptomyces griseus. J. Am. Chem. Soc.,* **93**, 3028–3035.

6. Hurley, L. H.; Bialek, D. (1974) Regulation of antibiotic production. Catabolite inhibition and the dualistic effect of glucose on indolmycin production. *J. Antibiot.,* **37**, 49–55.

7. Hurley, L. H.; Gairola, C.; Zmijewski, M. (1974) The biosynthesis of the antitumor antibiotic anthramycin by *Streptomyces refuineus. J. Chem. Soc. (Chem. Commun.)*, 337–338.

8. Hurley, L. H.; Gairola, C.; Zmijewski, M. (1975) The biosynthesis of the antibiotics 11-demethyltomaymycin by *Streptomyces achromogenes. J. Chem. Soc. (Chem. Commun.)*, 120–121.

9. Hurley, L. H.; Zmijewski, M.; Chang, C.-J. (1975) The biosynthesis of anthramycin. Determination of the labelling pattern using radioactive and stable isotope techniques. *J. Am. Chem. Soc.,* **97**, 4372–4378.

10. Gairola, C.; Hurley, L. H. (1976) The mechanism for the methionine mediated reduction of anthramycin yields in *Streptomyces refuineus* fermentation. *Eur. J. App. Microb.,* **2**, 95–101.

11. Hurley, L. H.; Gairola, C.; Das, N.; Zmijewski, M. (1976) Biosynthetic incorporation of DL-tryptophan(5-^{3}H) into anthramycin, sibiromycin, and tomaymycin. NIH shift produced by actinomycetes. *Tetrahedron Lett*., **18**, 1419–1422.

12. Hurley, L. H.; Gairola, C.; Das, N. (1976) Pyrrolo(1,4)benzodiazepine antibiotics. Biosynthesis of the antitumor antibiotic 11-demethyltomaymycin and its biologically inactive metabolite oxotomaymycin by *Streptomyces achromogenes*. *Biochemistry,* **15**, 3760–3769.

13. Chang, C.-J.; Floss, H. G.; Hurley, L. H.; Zmijewski Jr., M. J. (1976) Application of long-range spin–spin couplings in biosynthetic studies. *J. Org. Chem.,* **41**, 2932–2934.

14. Hurley, L. H.; Gairola, C.; Zmijewski, M. (1977) Studies on the *in vitro* reactivity of the pyrrolo(1,4)benzodiazepine antibiotics towards DNA, using specifically radiolabelled molecules. *Biochem. Biophys. Acta,* **475**, 521–535.

15. Hurley, L. H. (1977) Pyrrolo(1,4)benzodiazepine Antitumor Antibiotics. Comparative aspects of anthramycin, tomaymycin, and sibiromycin. *J. Antibiot.,* **30**, 349–370 (cited 167 times).

16. Kutney, J. P.; Baarschers, W. H.; Chin, O.; Ebizuka, Y.; Hurley, L. H.; Leman, J.; Salisbury, P. J.; Sanchez, I. H.; Yee, T.; Bandoni, R. J. (1977) Studies in the usnic acid series. VIII. The biodegradation of (+)-usnic acid by *Mortierella isabellina*. *Can. J. Chem.,* **55**, 2930–2940.

17. Hannan, M.; Hurley, L. H. (1978) Pathways of DNA repair operating in yeast treated with the pyrrolo(1,4)benzodiazepine antitumor antibiotics. *J. Antibiot.,* **31**, 911–913.

18. Hannan, M. A.; Hurley, L. H.; Gairola, C. (1978) Mutagenic and recombinogenic effects of the antitumor antibiotic anthramycin. *Cancer Res.,* **38**, 2795–2799.

19. Hurley, L. H.; Gairola, C. (1979) Pyrrolo(1,4)benzodiazepine antibiotics. biosynthetic intermediates between tryptophan and the anthranilic acid moieties of anthramycin, sibiromycin, and tomaymycin. *Antimicrob. Agents Chemother.,* **15**, 42–46.

20. Hurley, L. H.; Lasswell, W. L.; Malhotra, R. K.; Das, N. V. (1979) Pyrrolo(1,4)benzodiazepine antibiotics. Biosynthesis of the antitumor antibiotic sibiromycin by *Streptosporangium sibiricum*. *Biochemistry,* **18**, 4225–4229.

21. Hurley, L. H.; Lasswell, W. L.; Ostrander, J.; Parry, R. (1979) Pyrrolo(1,4)benzodiazepine antibiotics. Biosynthetic conversion of tyrosine to the C_2- and C_3-proline units of anthramycin, tomaymycin, and sibiromycin. *Biochemistry,* **18**, 4229–4237.

22. Hurley, L. H.; Chandler, C.; Garner, T.; Petrusek, R.; Zimmer, S. (1979) DNA binding, induction of unscheduled DNA synthesis, and excision of anthramycin from DNA in normal and repair deficient human fibroblasts. *J. Biol. Chem.,* **254**, 605–608.

23. Hurley, L. H.; Allen, C.; Feola, J.; Lubawy, W. (1979) *In vitro* and *in vivo* stability of anthramycin–DNA conjugate and its potential application as an anthramycin prodrug. *Cancer Res.,* **39**, 3134–3140.

24. Lubawy, W. C.; Whaley, J.; Hurley, L. H. (1979) Coenzyme Q_{10} or α-tocopherol reduce the acute toxicity of anthramycin in mice. *Res. Commun. Chem. Pathol. Pharmacol.,* **24**, 401–404.

25. Hurley, L. H.; Petrusek, R. (1979) Proposed structure of the anthramycin–DNA adduct. *Nature,* **282**, 529 (cited 110 times).

26. Hurley, L. H.; Lubawy, W. C. (1979) Molecular basis for the antitumor activity of anthramycin and approaches to reduction of its cardiotoxicity. *Process Biochemistry,* **14**, 6.

27. Lubawy, W. C.; Dallam, R. A.; Hurley, L. H. (1980) Protection against anthramycin induced toxicity in mice by co-enzyme Q_{10}. *J. Natl. Cancer Inst.,* **64**, 105–109.

28. Hannan, M. A.; Estes, R. S.; Hurley, L. H. (1980) Induction and potentiation of lethal and genetic effects of ultraviolet light by tobacco smoke condensate. *Environ. Res.,* **21**, 97–108.

29. Hurley, L. H.; Speedie, M. D. (1980) Pyrrolo(1,4)benzodiazepine antibiotics. anthramycin, tomaymycin, and sibiromycin. In: *Antibiotics IV* (ed. J. W. Corcoran), Verlag Heidelburg, pp. 262–294.

30. Petrusek, R. L.; Garner, T. F.; Hurley, L. H. (1980) A proposed model for the anthramycin DNA adduct. In: *Current Chemotherapy and Infectious Disease*. *Proceedings of the 11th International Congress of Chemotherapy and the 19th*

Interscience Conference on Antimicrobial Agents and Chemotherapy, **2**, 1561–1563.

31. Hurley, L. H.; Rokem, J. S.; Petrusek, R. L. (1980) Proposed structures of the pyrrolo(1,4)benzodiazepine antibiotic–DNA adducts. *Biochem. Pharmacol.,* **29**, 1307–1310.

32. Hurley, L. H. (1980) Elucidation and formulation of novel biosynthetic pathways leading to the pyrrolo(1,4)benzodiazepine antibiotics anthramycin, tomaymycin, and sibiromycin. *Acc. Chem. Res.,* **13**, 263–269.

33. Otsuka, H.; Mascaretti, O. A.; Hurley, L. H.; Floss, H. G. (1980) Stereochemical aspects of the biosynthesis of spectinomycin. *J. Am. Chem. Soc.,* **102**, 6817.

34. Ostrander, J. M.; Hurley, L. H.; McInnes, A. G.; Smith, D. G.; Walter, J. A.; Wright, J. L. C. (1980) Proof for the biosynthetic conversion of L-(Indole-^{15}N)-tryptophan to (10-^{15}N) anthramycin using (^{13}C, ^{15}N) labelling in conjunction with ^{13}C-NMR and mass spectral analysis. *J. Antibiot.,* **33**, 1167–1171.

35. Malhotra, R. K.; Ostrander, J. M.; Hurley, L. H.; McInnes, A. G.; Smith, D. G.; Walter, J. A.; Wright, J. L. C. (1981) Chemical conversion of anthramycin 11-methyl ether to didehydroanhydroanthramycin and its utilization in studies of the biosynthesis and mechanism of action of anthramycin. *J. Nat. Prod.,* **44**, 38–44.

36. Petrusek, R. L.; Anderson, G. L.; Garner, T. F.; Fannin, Q. L.; Kaplan, D. J.; Zimmer, S. G.; Hurley, L. H. (1981) Pyrrolo(1,4)benzodiazepine Antibiotics. Proposed structures and characteristics of the *in vitro* DNA adducts of anthramycin, tomaymycin, sibiromycin, and neothramycins A and B. *Biochemistry,* **20**, 1111–1119 (cited 107 times).

37. Rokem, J. S.; Hurley, L. H. (1981) Sensitivity and permeability of the anthramycin producing organism *Streptomyces refuineus* to anthramycin and structurally related antibiotics. *J. Antibiot.,* **34**, 1171–1174.

38. Kaplan, D. J.; Hurley, L. H. (1981) Anthramycin binding to deoxyribonucleic acid–mitomycin C complexes. Evidence for drug induced DNA conformational change and cooperativity in mitomycin C binding. *Biochemistry,* **20**, 7572–7580.

39. Lubawy, W. C.; Hurley, L. H. (1981) Modification by C-enzyme Q_{10} of the toxicity of antitumor agents in mice. In: *Biomedical and Clinical Aspects of Co-enzyme Q_{10},* Volume 3 (eds. K. Folkers and Y. Yamamura), Elsevier/North Holland Biomedical Press, pp. 145–155.

40. Reynolds, V. L.; Hurley, L. H. (1982) The reaction of anthramycin with DNA. Comparison of the properties of anthramycin with chromatin and calf thymus DNA. *Chem. Biol. Interact.,* **42**, 141–151.

41. Petrusek, R. L.; Uhlenhopp, E. L.; Duteau, N.; Hurley, L. H. (1982) Reaction of anthramycin with DNA. Biological consequences of DNA damage in normal and *Xeroderma pigmentosum* cell lines. *J. Biol. Chem.,* **257**, 6207–6216.

42. Swenson, D. H.; Li, L. H.; Hurley, L. H.; Rokem, J. S.; Petzold, G. L.; Dayton, B. D.; Wallace, T. L.; Lin, A. H.; Krueger, W. C. (1982) Mechanism of interaction of CC-1065 (NSC 298223) with DNA. *Cancer Res.,* **42**, 2821–2828 (cited 102 times).

43. Hurley, L. H.; Rokem, J. S. (1983) Biosynthesis of the antitumor antibiotic CC-1065 by *Streptomyces zelensis*. *J. Antibiot.,* **36**, 383–390.

44. Hurley, L. H.; Rokem, J. S. (1983) Some insights into the possible development of a biosynthetic pathway and biological function for anthramycin in *Streptomyces refuinius*. *Folio Microbiol.,* **28**, 229–236.

45. Thurston, D. E.; Hurley, L. H. (1984) A rational basis for development of antitumor agents in the pyrrolo(1,4)benzodiazepine group. *Drugs Future* (CIPS), **8**, 957–971.

46. Hurley, L. H.; Thurston, D. E. (1984) Pyrrolo(1,4)benzodiazepine antitumor antibiotics: chemistry, interaction with DNA, and biological implications. *Pharm. Res.,* **1**, 51–59.

47. Graves, D. E.; Pattaroni, C.; Balakrishnan, C.; Ostrander, J. M.; Hurley, L. H.; Krugh. T. R. (1984) The reaction of anthramycin with DNA: Proton and carbon nuclear magnetic resonance studies on the structure of the anthramycin–DNA adduct. *J. Biol. Chem.,* **259**, 8202–8209.

48. Thurston, D. E.; Kaumaya, P. T.; Hurley, L. H. (1984) Limitations and factors affecting the lactam reduction approach to the synthesis of anthramycin analogs. *Tetrahedron Lett.,* **25**, 2649–2652.

49. Needham-VanDevanter, D. R.; Reynolds, V. L.; Theriault, N.; Wierenga, W.; Krueger, W. C.; Hurley, L. H. (1984) Characterization of an adduct between CC-1065 and a defined oligodeoxynucleotide duplex. *Nucleic Acids Res.,* **12**, 6159–6168.

50. Brahme, N. M.; Gonzalez, J. E.; Rolls, J. P.; Hessler, E. J.; Mizsak, S.; Hurley, L. H. (1984) Biosynthesis of the lincomycins I. Studies using stable isotopes on the biosynthesis of the propyl and ethyl L-hygric acid moieties of lincomycins A and B. *J. Am. Chem. Soc.,* **106**, 7873–7878.

51. Brahme, N. M.; Gonzalez, J. E.; Mizsak, S.; Rolls, J. P.; Hessler, E. J.; Hurley, L. H. (1984) Biosynthesis of the Lincomycins II. Studies using stable isotopes on the biosynthesis of methylthio-lincosamine moiety of lincomycin A. *J. Am. Chem. Soc.,* **106**, 7878–7883.

52. Hurley, L. H.; Reynolds, V. L.; Swenson, D. H.; Petzold, G. L.; Scahill, T. (1984) Reaction of the antitumor antibiotic CC-1065 with DNA. Structure of a DNA adduct with DNA sequence specificity. *Science,* **226**, 843–844 (cited 273 times).

53. Reynolds, V. L.; Molineux, I. J.; Kaplan, D.; Swenson, D. H.; Hurley, L. H. (1985) Reaction of the Antitumor Antibiotic CC-1065 with DNA. Location of the site of thermally induced strand breakage and analysis of DNA sequence specificity. *Biochemistry,* **24**, 6228–6237 (cited 237 times).

54. Hurley, L. H.; Reynolds, V. L.; Molineux, I. J. (1985) Sequence specificity of antitumor antibiotics in the anthramycin group. *Studia Biophysica,* **104**, 283–284.

55. Hurley, L. H.; Needham-VanDevanter, D. R. (1986) Sequence specificity and biological consequences of drugs that bind covalently in the minor groove of DNA. In: *Mechanisms of DNA Damage and Repair* (eds. Simic, Grossman, and Upton) Plenum Press, N.Y., pp. 203–210.

56. Hertzberg, R.; Hecht, S.; Reynolds, V. L.; Molineux, I. J.; Hurley, L. H. (1986) DNA sequence specificity of the pyrrolo(1,4)benzodiazepine antitumor antibiotics. MPE Fe(II) footprinting analysis of DNA binding sites for anthramycin and related drugs. *Biochemistry,* **25**, 1249–1258.

57. Barkley, M.; Cheatham, S.; Thurston, D. E.; Hurley, L. H. (1986) Pyrrolo(1,4)benzodiazepine antitumor antibiotics. Evidence for two forms of tomaymycin bound to DNA. *Biochemistry,* **25**, 3021–3031.

58. Reynolds, V. L.; McGovren, J. P.; Hurley, L. H. (1986) The chemistry, mechanism of action, and biological properties of CC-1065, a potent antitumor antibiotic. *J. Antibiot.,* **39**, 319–334 (cited 163 times).

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