

CURRICULUM VITAE

Jonathan Bradford (Brad) Chaires, Ph. D.

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A. EDUCATION

B.A., Biology, June, 1972

University of California, Santa Cruz

Thesis: *Functional Modification of 16S rRNA with Kethoxal*

Thesis Advisor: Dr. H. F. Noller

Physiology Course (Summers of 1972 & 1973)

Marine Biological Laboratory, Woods Hole, MA

Ph.D., Biophysics, May, 1978

University of Connecticut (Storrs Campus)

Thesis: *Relaxation Kinetics of Ribosomal Subunit Association*

Thesis Advisor: Dr. Gerson Kegeles

NIH Postdoctoral Fellow, 1979 - 1981

Yale University

Mentor: Prof. Donald M. Crothers

B. ACADEMIC APPOINTMENTS

University of Louisville (Louisville, KY)

Department of Medicine

Professor with Tenure (July, 2004 – present)

James Graham Brown Cancer Center

Senior Scientist (July, 2004 – Present)

James Graham Brown Endowed Chair in Cancer Biophysics (2004 –)

Department of Biochemistry & Molecular Biology, Professor (2004 - present; Joint)

The University of Mississippi Medical Center (Jackson, MS)

Department of Biochemistry

Professor (1990- 2004)

Tenured (1987)

Associate Professor (1986-1990)

Full Member of Graduate Faculty (1982)

Assistant Professor (1982-1986)

B. ACADEMIC APPOINTMENTS- CONTINUED

The University of Mississippi (Oxford, MS)

Department of Chemistry, Professor (2000 – 2004; Joint Appointment)

Max Planck Institute for Biophysical Chemistry

Department of Molecular Biology

Visiting Scientist on sabbatical leave (1989-1990)

Yale University

Department of Chemistry

NIH Postdoctoral Fellow (1979-1981)

Woods Hole Marine Biological Laboratory

Physiology Course, Student (1972); Research Assistant (1973)

C. OTHER POSITIONS AND EMPLOYMENT - none

D. BOARD CERTIFICATION AND LICENSURE - not applicable

E. PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

MEMBERSHIPS:

Sigma Xi, American Chemical Society

ACTIVITIES:

Co-organizer (with Michael Doyle), 10th Annual Gibbs Conference on Biothermodynamics, Carbondale, IL, 1996

Co-organizer (with David Graves), *Drug-DNA Interactions Symposium*, American Chemical Society Southwest Regional Meeting, Baton Rouge, LA, 1998

Co-organizer (with Loren Williams), *Frontiers in Nucleic Acids: Structures and Energetics Symposium*, American Chemical Society Southeast Regional Meeting, Knoxville, TN, 1999

Organizer, 2005 Current Trends in Microcalorimetry Conference, Boston, MA

Co-organizer, *Frontiers in Nucleic Acids Symposium*, American Chemical Society SE/SW Regional Meeting, Memphis, TN, 2005

Co-organizer, 1st International Conference on G-Quadruplex Biology, Louisville, 2007

Organizer, 2nd International Conference on G-Quadruplex Biology, Louisville, 2009

Volume Editor (with Dr. Laurence Hurley), *Advances in DNA Sequence Specific Agents*, Vol. 2, JAI Press, Inc., Greenwich, CT

Guest Editor, *Biopolymers: Nucleic Acids Science*, Vol. 44, No. 3, 1997, Issue on *Energetics of Nucleic Acid Interactions*.

Guest Editor, *Current Medicinal Chemistry*, vol. 7, No. 1, 2000 “Hot Topics” Issue on *Targeting Nucleic Acids*,

E. PROFESSIONAL MEMBERSHIPS AND ACTIVITIES ACTIVITIES (CONTINUED):

Guest Editor, Special Issue of *Biophysical Chemistry*, vol. 126, Issues 1-3, March, 2007 to honor Professor Julian Sturtevant

Editor, (with Michael Waring). *Methods in Enzymology*, volume 340, “Drug-Nucleic Acid Interactions”, Academic Press, **2001**

Chair, External Site Visit Team to evaluate the Department of Chemistry, Georgia State University, 2006

F. HONORS AND AWARDS

1968 Valedictorian, Rubidoux High School
 1968 President's Scholar, University of California
 1989-90 Alexander von Humboldt Fellow
 1996 Basic Science Teacher Award, University of Mississippi School of Dentistry
 2000 Outstanding Chemist, Mississippi Section of the American Chemical Society
 2006-2007 *President*, Gibbs Society for Biological Thermodynamics
 2013 Brown Cancer Center Scientist of the Year

G. COMMITTEE ASSIGNMENTS AND ADMINITRATIVE SERVICES

University of Louisville:

Director, James Graham Brown Cancer Center Biophysics Service Center

Member, CTSA Proposal Preparation, Committee on Translational Technologies and Resources

University of Mississippi Medical Center:

1983-1986: University Academic Senate

1987-1992: Student Evaluations and Promotions Committee, School of Dentistry

1991: Comprehensive Cancer Center Planning Committee

1998: Review panel for American Cancer Society institutional grants

H. JOURNAL EDITORIAL BOARDS, ADVISORY COUNCILS, PEER REVIEWER OF MANUSCRIPTS

a. Journal Editorial Boards

Editorial Board, *Biophysical Journal*, 2003-2006, 2006-2009

Editorial Advisory Board, *Biophysical Chemistry*, 2006 - 2011

Editorial Advisory Board, *Current Medicinal Chemistry- Anti-Cancer Agents*, **2001 -**

Editorial Advisory Board, *Medicinal Chemistry Reviews – Online*, **2003 -present**

Editorial Board, *International Review of Biophysical Chemistry*, **2010** – present

Editorial Advisory Board, *Biochimie*, **2009**-present

Editorial Advisory Board, *Methods*, **2012**-present

b. Advisory Councils

Chartered Reviewer, **National Institutes of Health**, Molecular and Cellular Biophysics BBCA Study Section, 1997 - 2001.

Member, Committee of Visitors for the Biomolecular Structure and Function and Biomolecular Processes Clusters, Division of Molecular and Cellular Biosciences, **National Science Foundation**, 2000

Reviewer, **National Cancer Institute**, Site Visit Team to the State University of New York at Stony Brook, 1998; 2003

Special Reviewer, **National Institutes of Health**, Molecular and Cellular Biophysics BBCA Study Section, 1993; 1996; 2004

Member, **National Science Foundation** Advisory Panel for the Biophysics Program, 1991 - 1992

Reviewer for the **National Science Foundation**: Biophysics Program; Biochemistry Program; Biological Instrumentation Program

Chair, **National Institutes of Health**, ZRG1 BST-A50 Study Section, Special Emphasis Panel Bioengineering Research Partnership, 2004

Member, **National Institutes of Health**, GGG-J(10) Genes, Genetics, Genomes Study Section, 2005

Member, **National Institutes of Health**, S10 Shared Instrumentation Online AED Review Panel, ZRG1 BCMB-R 311, 2008

Member, **National Institutes of Health**, College of CSR Reviewers, 2010 - 2012

c. Peer Reviewer of Manuscripts

Regular Reviewer for the following journals:

Biochemistry; Biochemical Pharmacology; Biophysical Chemistry; Biophysical Journal; Biopolymers; Cancer Research; European Biophysics Journal; Gene; Journal of the American Chemical Society; Journal of Biological Chemistry; Journal of Biomolecular Structure & Dynamics; Journal of Inorganic Biochemistry; Journal of Medicinal Chemistry; Journal of Molecular Biology; Molecular Pharmacology; Nature; Proceedings of the National Academy of Sciences (USA); Photochemistry and Photobiology

I. BOARD MEMBERSHIPS - none

J. TEACHING

University of Mississippi Medical Center

Biochemistry 604: *General Biochemistry* (for Dental Students)

Lecturer: 1982 - 2004

Course Coordinator: 1986 - 1989; 1991 - 1992

Biochemistry 610: *General Biochemistry* (for Medical Students)

Lecturer: 1982 - 1985

Biochemistry 713: *Proteins: Chemistry, Structure and Function* (Graduate Level)

Lecturer: 1982, 1984, 1986

Biochemistry 730: *Directed Study in Physical Biochemistry* (Graduate level)

Lecturer: 1984

Biochemistry 720: *Protein-Nucleic Acid Interactions* (Graduate level)

Organizer and coordinator of journal club, 1987

Biochemistry 731: *Principles of Nucleic Acid Structure* (Graduate level)

Lecturer: 1988, 1990, 1992, 1994, 1996, 1998, 2000

University of Louisville

Biochemistry 603: *Special Topics in Biochemistry- Molecular Interactions*

Lecturer (8 contact hours): 2005, 2006, 2007, 2008, 2009, 2010

Biochem Special Topics 603-5: *Advanced Techniques in Biochemistry and Molecular Biology II*

Lecturer (6 contact hours): 2009, 2010

K. PRESENTATIONS (Since July, 2004)

2004

Invited lecture, *Applications of Biocalorimetry Conference IV*, August 31-September 3, 2004, Budapest, Hungary

Invited seminar, Laurence Hurley Laboratory Retreat, University of Arizona, Sedona, Arizona, November 5, 2004

Invited seminar, Department of Chemistry, Northern Arizona University, November 8, 2004,

2005

Invited seminar, Department of Human Biological Chemistry and Genetics, The University of Texas Medical Branch at Galveston, Texas, May 12, 2005

Invited lecturer, *Third Annual Biotech Symposium: Molecular Basis of Diseases*, Georgia State University, Atlanta, Georgia, June 9-10, 2005

Invited Lecturer, *Current Trends in Microcalorimetry*, July, 2005, Boston, MA

Invited speaker, *19th Gibbs Conference on Biothermodynamics*, October, 2005, Carbondale, IL

Invited speaker, *Frontiers in Nucleic Acid Chemistry Symposium*, SE/SW Regional Meeting of the American Chemical Society, Memphis, TN, November, 2005

2006

Invited Seminar, Vanderbilt University, Department of Chemistry, Nashville, TN, April 2006

Invited Seminar, University of Kentucky, Department of Biochemistry and Molecular Biology
Lexington, KY, October 2006

K. PRESENTATIONS (Since July, 2004)

2006

Invited Seminar, University of Louisville, Molecular Targets Program, Louisville, KY, October 2006

Invited Seminar, University of Kentucky, Department of Pharmacology, Lexington, KY, November 2006

Invited speaker, *Symposium on Designing DNA and RNA Binders*, Pacificchem Conference
December 2006, Honolulu, Hawaii

Invited speaker, *Symposium on G-Quadruplexes as Drug Targets*, Pacificchem Conference
December 2006, Honolulu, Hawaii

2007

Invited Seminar, Wake Forest University, Department of Chemistry, Winston Salem NC, February 2007

Invited Keynote Lecture, Rutgers University, Molecular Biophysics Program, New Brunswick, NJ
May 2007

Invited Grand Rounds Lecture, University of Louisville, Department of Pathology and Laboratory Medicine, Louisville,
KY, May 2007

Invited Lecture, *Current Trends in Microcalorimetry Conference*, Boston, MA, July 2007

Invited Symposium Presentation, *American Chemical Society 234th National Meeting & Exposition*, Boston, MA,
August, 2007

Invited Lecture, *Structural Biology and Molecular Biophysics Workshop*, University of Nebraska Medical Center
Omaha, Nebraska, August 6, 2007

Invited Seminar, Department of Chemistry, Georgia Institute of Technology, Atlanta, GA, September 13, 2007

Invited Symposium Presentation, Department of Chemistry, University of Washington, Seattle, Washington,
September 21 2007

Invited Seminar, Wyeth Pharmaceutical Company, Cambridge, MA, November 13, 2007

2008

Invited Seminar, Comprehensive Cancer Center, University of Alabama - Birmingham
Birmingham, AL, April 15, 2008

Invited Lecture, CalCon 2008, Jersey City, New Jersey, July 2-6, 2008

Invited Lecture, Gordon Conference on Drug Metabolism, Holderness, New Hampshire, July 6-11, 2008

Invited Lecture, Telluride Scientific Research Conferences, Nucleic Acids Workshop, Telluride, Colorado, August 4-8,
2008

2009

Invited Lecture, 2009 Physician's Round Table on Lyme Disease, Greenville, NC, February 26 - March 1

Invited Lecture, Department of Chemistry, Carnegie Mellon University, Pittsburgh, PA, May 7

Invited Lecture, Abbott Laboratories, Chicago, IL, June 19

Invited Lecture, Cancer Biology Biomedical Sciences Program, College of Medicine, University of Toledo, October 15

Invited Lecture, Perkin-Elmer Corporation, Shelton, CT, November 20

2011

Invited Lecture, University of Missouri St. Louis, Department of Chemistry, March 21, 2011

Keynote Address, 3rd International Meeting on Quadruplex DNA, Sorrento, Italy, June, 2011

Invited Seminar, AMGEN, Seattle, WA, October 4, 2011

Invited Lecture, Gibbs Conference on Biothermodynamics, Carbondale, IL, September 18, 2011

2012

Invited Seminar, Department of Chemistry, University of the Pacific, Stockton, CA, March 20, 2012

Invited Seminar, Department of Chemistry, Texas Women's University, Denton, TX, April 10, 2012

Invited Lecture, TA Instruments User's Meeting, New Orleans, LA, May 2, 2012

Seminar, Molecular Targets Program, James Graham Brown Cancer Center, April 19, 2012

Invited Lecture, FIBER Forum 2012, Frontier Institute for Biomolecular Engineering Research, Kobe, Japan, November 26, 2012

Invited Lecture, The First International Symposium on Biofunctional Chemistry, Tokyo, Japan, November 28, 2012

2013

Invited Seminar, European Institute of Chemistry and Biology, Bordeaux, France, June 6, 2013

Invited Presentation, Pierre-Fabre Pharmaceuticals, Toulouse, France, June 8, 2013

Invited Seminar, Department of Chemistry, Clemson University, Clemson, SC, September 5, 2013

Invited Seminar, Southeast Regional Meeting of the American Chemical Society, Atlanta, GA, November 12, 2013

2014

Invited Lecture, Biophysics Conference: MODERN BIOPHYSICAL TECHNIQUES FOR THE LIFE SCIENCES
October 19-21, Brussels, Belgium

L. PATENTS

W. Priebe, J. B. Chaires, T. Przewloka, I. Fokt, R. Perez-Soler "*Bis-anthracyclines with High Activity Against Doxorubicin Resistant Tumors*" U. S. Patent Number 5,874,412, Issue Date February 23, 1999.

W. Priebe, J. B. Chaires, T. Przewloka, I. Fokt, R. Perez-Soler "*Bis-anthracyclines with High Activity Against Doxorubicin Resistant Tumors*" Australian Patent Number 717689, Issue Date July 13, 2000.

Jonathan B. Chaires, Nichola C. Garbett, A. Bennet Jenson, "*Proteomic Profiling Method Useful for Condition Diagnosis and Monitoring, Composition Screening and Therapeutic Monitoring*", United States Utility Patent Application Serial No. 11/972,921, Filed January 11, 2008

M. RESEARCH FUNDING

- RO1 CA35635** Chaires (PI) National Cancer Institute
"Specificity of Intercalation Reactions"
 2010-2014 Total: \$851,645 (Active)
 2002-2009 Total: \$680,000 (Competitive Renewal)
 1996-2002 Total: \$569,403 (Competitive Renewal)
 1991-1996 Total: \$462,793 (Competitive Renewal)
 1988-1991 Total: \$214,405 (Competitive Renewal)
 1984-1988 Total: \$118,276 (Original Award)
- RO1 GM077422** Chaires (PI) Trent (co-I;coPI) National Institute of General Medical Sciences
"Targeting Nucleic Acids with an Integrated Virtual and Actual Screen"
 2012-2016 Total: \$1,289,121 (Competitive renewal; active)
 2007-2012 Total: \$ 990,790 (Original Award + Supplement)
- P20 RR018733** D. M. Miller (PI); Chaires (co-I) National Institutes of Health
P20 GM103482 *COBRE – Core E Biophysics (J. Chaires, Director)*
 2009-2013 Total: \$471,623

NSF Biomolecular Interaction Technologies Center - University of New Hampshire

Subcontract: Chaires (PI) 7/01/09- 6/30/10 \$50,000 Total costs
Origin of altered thermograms in plasma from diseased individuals

Subcontract: Chaires (PI) 9/01/07 - 8/31/08 \$50,000 Total costs
A novel calorimetric assay for studies of drug-plasma protein interactions

ARRA IIP-0912660 NSF Louisville Biosciences, Inc. (G. Brewood, PI; subcontract to J. Chaires) *"Plasma Thermograms for Disease Detection"*

2010 Total: \$25,639

Elsa U. Pardee Foundation Chaires (PI) 07/01/07 to 8/31/08
 \$109,000 total costs
A novel calorimetric assay for characterization of the plasma proteome for cancer detection

R01-CA-113735 Trent (PI), Chaires (Co-investigator 5%) 04/01/05 to 03/31/10
 National Cancer Institute
 Development of Nucleolin Targeted Anticancer Compounds

R01-GM-079516 Ye (PI), Chaires (co-PI, 5% effort) 07/01/07 to 06/30/13
 National Institutes of Health

Structural and functional studies of the SMC5-6 Complex

R44 CA103437 Edwin A. Lewis (PI), 7/1/04 – 6/30/06, National Cancer Institute
High Throughput DSC for Drug Screening (Fast Track SBIR grant)
Chaires (10% effort on subcontract; \$125,000 total direct costs)

Elsa U. Pardee Foundation Chaires (PI) 1994 Total Costs: \$26,613 *Template Directed Synthesis of Bisintercalating Anticancer Antibiotics*

National Science Foundation

U.S.-Federal Republic of Germany Cooperative Research
1989-1990 Total Direct Costs: \$2,450
U. S.-United Kingdom Cooperative Research
1986 Total Direct Costs: \$6,814

National Science Foundation

"Purchase of a Circular Dichroism Spectrophotometer"
1985-1986 Total Direct Costs: \$50,000

National Institutes of Health

Biomedical Research Support Grant Program
1985: Isolation of Z DNA Binding Proteins - \$3,147
1983: Kinetics of Drug-DNA Interactions - \$4,000
1982: Interaction of Daunomycin with DNA - \$8,500

Cancer Research Advisory Committee Award

1983: Effect of Chemotherapeutic Drugs on the Kinetics of the B to Z
Transition of DNA - \$2,000.
1982: Interaction of Antibiotics with Nucleosomes - \$2,500

N. CLINICAL SERVICES - not applicable

O. PUBLICATIONS

a. Peer-reviewed Publications:

- Noller, H.F. and **Chaires, J.B.** (1972) Functional Modification of 16S Ribosomal RNA by Kethoxal. *Proceedings of the National Academy of Sciences (USA)* **69**:3115-3118.
- Chaires, J.B.**, Tai, M., Huang, C., Kegeles, G., Infante, A.A., and Wahba, A.J. (1977) Relaxation Kinetics of *E. coli* Ribosomes. *Biophysical Chemistry* **7**: 179- 188.
- Chaires, J.B.** and Kegeles, G. (1977). Sucrose Density Gradient Sedimentation of *E. coli* Ribosomes. *Biophysical Chemistry* **7**:173-179.
- Chaires, J. B.** (1979) *The Association of E. coli Ribosomal Subunits: Relaxation Kinetic and Zone Sedimentation Studies*. (Ph. D. Dissertation), University Microfilms International, Ann Arbor, Michigan.
- Chaires, J.B.**, Kegeles, G. and Wahba, A.J. (1979) Evidence for the Reaction of 30S-IF3 Complex with 50S Ribosomal Subunits. *Biophysical Chemistry* **9**:405-412.
- Chaires, J.B.**, Pande, C. and Wishnia, A. (1981) The Effect of Initiation Factor IF3 on *E. coli* Ribosomal Subunit Association Kinetics. *Journal of Biological Chemistry* **256**:6600-6607.
- Infante, A.A., Demple, B. and **Chaires, J.B.** (1982) Analysis of the *E. coli* Ribosome -Ribosomal Subunit Equilibrium using Pressure-Induced Dissociation. *Journal of Biological Chemistry* **257**:80-87.
- Chaires, J.B.**, Dattagupta, N. and Crothers, D.M. (1982) The Self-Association of Daunomycin. *Biochemistry* **21**:3927-3932.
- Chaires, J.B.**, Dattagupta, N. and Crothers, D.M. (1982). Studies on the Interaction of Anthracycline Antibiotics and DNA: Equilibrium binding studies on the interaction of daunomycin with DNA. *Biochemistry* **21**:3933-3940.
- Fritzche, H., Triebel, H., **Chaires, J.B.**, Dattagupta, N. and Crothers, D.M. (1982). Studies of the Interaction of Anthracycline Antibiotics and DNA: Geometry of Intercalation of Iremycin and Daunomycin. *Biochemistry* **21**:3940-3946.
- Chaires, J.B.**, Hawley, D. and Wahba, A.J. (1982). Crosslinking of IF3 to 30S and 50S Ribosomal Subunits. *Nucleic Acids Research* **10**:5681-5693.
- Chaires, J.B.**, Dattagupta, N. and Crothers, D.M. (1983). The Interaction of Daunomycin with Calf-Thymus Nucleosomes. *Biochemistry* **22**:284-292.
- Chaires, J.B.** (1983). Equilibrium Studies on the Interaction of Daunomycin with Deoxypoly- nucleotides. *Biochemistry* **22**: 4204-4211.
- Chaires, J.B.** (1983). Daunomycin Inhibits the B to Z Transition in Poly d(G-C). *Nucleic Acids Research* **11**:8485-8494.
- Chaires, J.B.** (1985). Thermodynamics of the Daunomycin-DNA Interaction: Ionic Strength Dependence of the Enthalpy. *Biopolymers* **24**:403-419
- Chaires, J.B.**, Dattagupta, N. and Crothers, D.M. (1985). Kinetics of the Daunomycin-DNA Interaction. *Biochemistry* **24**:260-267.
- Chaires, J.B.** (1985). Long-range Allosteric Effects on the B to Z Transition by Daunomycin. *Biochemistry* **24**:7479-7486.
- Britt, M., Zunino, F. and **Chaires, J.B.** (1986). Interaction of the β -Anomer of Adriamycin

with B and Z DNA. *Molecular Pharmacology* **29**:74-80.

Chaires, J.B. (1986) Allosteric Conversion of Z DNA to an Intercalated, Right-Handed Helix by Daunomycin. *Journal of Biological Chemistry* **261**:8899-8907.

Chaires, J.B. and Sturtevant, J.M. (1986). Thermodynamics of the B to Z Transition in Poly(dGm5dC). *Proceedings of the National Academy of Sciences (USA)* **83**:5479-5483.

Chaires, J.B. (1986). Inhibition of the Thermally Driven B to Z Transition by Intercalating Drugs. *Biochemistry* **25**:8436-8439.

Fritzsche, H., Wahnert, U., **Chaires, J.B.**, Dattagupta, N., Schlessinger, F.B. and Crothers, D.M. (1987). Anthracycline Antibiotics. Interaction with DNA and Nucleosomes and Inhibition of DNA Synthesis. *Biochemistry* **26**:1996-2000.

Chaires, J.B., Fox, K.R., Herrera, J. Britt, B.M., and Waring, M.J. (1987) Site and Sequence Specificity of the Daunomycin-DNA Interaction. *Biochemistry* **26**:8227-8236.

Chaires, J.B., Herrera, J.E., Britt, M., Fox, K.R. and Waring, M. J. (1988) Sequence Specificity of the Daunomycin-DNA Interaction. *Biochemical Pharmacology* **37**:1785- 1786.

²⁵ **Chaires, J.B.** and Norcum, N.T. (1988). Structure and Stability of Z* DNA. *Journal of Biomolecular Structure and Dynamics* **5**:1187-1207.

Chaires, J.B. and Sturtevant, J.M. (1988). Thermodynamics of the B to Z Transition in Poly(dGdC). *Biopolymers* **27**: 1375-1387.

Herrera, J.E. and **Chaires, J.B.** (1989) A Premelting Conformational Transition in Poly dA - Poly dT Coupled to Daunomycin Binding. *Biochemistry* **28**:1993-2000

Chaires, J.B. (1989). Unusual Condensation Behavior of Poly dA-Poly dT. *Biopolymers* **28**:1645-1650.

Chaires, J.B., Herrera, J.E. and Waring, M.J. (1990) Preferential Binding of Daunomycin to 5'A/TCG and 5'A/TGC Sequences Revealed by Footprinting Titration Experiments. *Biochemistry* **29**:6145-6153.

Chaires, J.B. (1990) Biophysical Chemistry of the Daunomycin-DNA Interaction. *Biophysical Chemistry* **35**:191-202.

Suh, D., Sheardy, R. D. and **Chaires, J. B.** (1991) Unusual Binding of Ethidium to a Deoxyoligonucleotide Containing a B-Z Junction. *Biochemistry* **30**: 8722 - 8726.

Gilbert, P. L., Graves, D. E. and **Chaires, J. B.** (1991) Inhibition of the B to Z Transition in Poly (dGdC) - Poly (dGdC) by Covalent Attachment of Ethidium: Equilibrium Studies. *Biochemistry* **30**: 10925 -10931.

Gilbert, P. L., Graves, D. E., Britt, M., and **Chaires, J. B.** (1991) Inhibition of the B to Z Transition in Poly (dGdC) - Poly (dGdC) by Covalent Attachment of Ethidium: Kinetic Studies. *Biochemistry* **30**: 10931 - 10937.

Chaires, J. B., Suh, D. and Sheardy, R. D. (1992) Unusual Binding of Ethidium to a Deoxyoligonucleotide Containing a B-Z Junction. *In: Structure & Function: Proceedings of the Seventh Conversation in Biomolecular Stereodynamics* (R. H. Sarma & M. H. Sarma, eds.), Adenine Press, pp. 127 - 136.

Satyanarayana, S. Dabrowiak, J. C. and **Chaires, J. B.** (1992) Neither Δ nor λ tris (phenanthroline)ruthenium(II) Bind to DNA by Classical Intercalation. *Biochemistry* **31**:9319-9324.

- Satyanarayana, S. Dabrowiak, J. C. and **Chaires, J. B.** (1993) Tris(phenanthroline) ruthenium(II) Enantiomer Interactions with DNA: Mode and Specificity of Binding. *Biochemistry* **32**:2573-2584.
- Chaires, J. B.**, Priebe, W., Graves, D. E. and Burke, T. G. (1993) Dissection of the Free Energy of Anthracycline Antibiotic Binding to DNA: Electrostatic Contributions. *Journal of the American Chemical Society* **115**: 5360 - 5364
- Sheardy, R. D., Suh, D., Kurzinsky, R., Doktycz, M. J., Benight, A. S and **Chaires, J. B.** (1993) Sequence Dependence of the Free Energy of B - Z Junction Formation in Deoxyoligonucleotides. *Journal of Molecular Biology*, **231**: 475 - 488
- Herrera, J. E. and **Chaires, J. B.** (1994) Characterization of Preferred Deoxyribonuclease I Cleavage Sites. *Journal of Molecular Biology*, **236**: 405 - 411.
- Wellman, S. E., Sittman, D. B. and **Chaires, J. B.** (1994) Preferential Binding of Histone H1e to GC-Rich DNA. *Biochemistry*, **33**: 384 - 388.
- Sheardy, R. D., Levine, N., Marotta, S., Suh, D. and **Chaires, J. B.** (1994) A Thermodynamic Investigation of the Melting of B-Z Junction Forming DNA Oligomers. *Biochemistry* **33**:1385 - 1391.
- Falzon, L., Kirk, C., **Chaires, J. B.** and Dabrowiak, J. C. (1994) PCR Generation of Large Amounts of Purified DNA. *Journal of Biochemical and Biophysical Methods*, **29**: 251 - 257.
- Haq, I., Lincoln, P., Norden, B., Chowdhry, B. Z. and **Chaires, J. B.** (1995) The Interaction of Δ and λ [Ru(phen)₂DPPZ]²⁺ with DNA: A Calorimetric and Equilibrium Binding Study. *Journal of the American Chemical Society*, **117**: 4788 - 4796
- Suh, D. and **Chaires, J. B.** (1995) Criteria for the Mode of Binding of DNA Binding Agents. *Bioorganic and Medicinal Chemistry* **3**: 723-728.
- Spink, C. H. and **Chaires, J. B.** (1995) Selective Stabilization of Triplex DNA by Poly(ethyleneglycols). *Journal of the American Chemical Society* **117**: 12887-12888.
- Chaires, J. B.**, Satyanarayana, S., Suh, D., Fokt, I., Przewloka, T. and Priebe, W. (1996) Parsing the Free Energy of Anthracycline Antibiotic Binding to DNA. *Biochemistry* **35**: 2047-2053.
- Leng, F., Savkur, S. Fokt, I., Przewloka, T., Priebe, W. and **Chaires, J. B.** (1996) Base Specific and Regioselective Chemical Crosslinking of Daunorubicin to DNA. *Journal of the American Chemical Society* **118**: 4731 - 4738.
- Chaires, J. B.** (1996) Dissecting the Free Energy of Drug Binding to DNA. *Anti-Cancer Drug Design* **11**: 569 - 580.
- Laue, T. M., Ridgeway, T. M., Wooll, J. O., Shepard, H. K., Moody, T. P., Wilson, T. J., **Chaires, J. B.** and Stevenson, D. A. (1996) Insights From a New Analytical Electrophoresis Apparatus. *Journal of Pharmaceutical Science* **85**: 1331 - 1335 .
- ⁵⁰ **Chaires, J. B.**, Leng, F., Przewloka, T., Fokt, I., Ling, Y.-H., Periz-Soler, R. and Priebe, W. (1997) Structure-Based Design of a New Bisintercalating Anthracycline Antibiotic. *Journal of Medicinal Chemistry* **40**: 261 - 266.
- Chaires, J. B.** (1997) Possible Origin of Differences between van't Hoff and Calorimetric Enthalpy Estimates. *Biophysical Chemistry* **64**: 15 - 23.
- Hu, G., Shui, X., Leng, F., Priebe, W., **Chaires, J. B.** and Williams, L. D. (1997) Structure of a DNA - Bisdaunomycin Complex. *Biochemistry* **36**: 5940 - 5946.

- Yan, Q., Priebe, W., **Chaires, J. B.** and Czernuszewicz, R. S. (1997) Interaction of Doxorubicin and Its Derivatives with DNA: Elucidation by Resonance Raman and Surface-Enhanced Resonance Raman Spectroscopy. *Biospectroscopy* **3**: 307 - 314.
- Spink, C. and **Chaires, J. B.** (1997) Thermodynamics of the Binding of a Cationic Lipid to DNA. *Journal of the American Chemical Society* **119**: 10920 - 10928.
- Haq, I., Ladbury, J. E., Chowdhry, B. Z., Jenkins, T. C. and **Chaires, J. B.** (1997) Specific Binding of Hoechst 33258 to the d(CGCAAATTTGCG)₂ Duplex: Calorimetric and Spectroscopic Studies. *Journal of Molecular Biology* **271**: 244 - 257.
- Haq, I., Chowdhry, B. Z. and **Chaires, J. B.** (1997) Singular Value Decomposition of 3-D DNA Melting Curves Reveals Complexity in the Melting Process. *European Biophysics Journal*, **26**: 419 - 426.
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