Thomas Connor Bishop

Curriculum Vitae

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Personal

US Citizen, Married, Two Children.

References

1) Professor Lisa Fauci
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2) Professor Emeritus John E. Hearst
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3) Professor Samuel J. Landry
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4) Professor Sanford H. Leuba
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University of Pittsburgh School of Medicine
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5) Professor Klaus Schulten
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Education

1987 B.S., Physics, minor in math, Louisiana State University at Baton Rouge.
1990 M.S., Applied Mathematics, Courant Institute, New York University.
1996 Ph.D., Chemical Physics, University of Illinois at Urbana-Champaign, Klaus Schulten.
Thesis: " A molecular dynamics study of hormone-receptor DNA binding".

Employment

1996-1998: Postdoctoral associate: Chemistry, University of California at Berkeley, Professor John Hearst.
1997: Lecturer: University of California at Berkeley, Department of Chemistry.
1998-present: Assistant Professor: Tulane University, Department of Environmental Health Sciences.
1998-present: Assistant Professor: Xavier University, Division of Basic Pharmaceutical Sciences.

Honors and Awards

1999 Louisiana Board of Regents' Joint Faculty Appointments Program Professor.
1999-present: Adjunct Assistant professor, Tulane University, Department of Biochemistry

Professional Memberships

Founding Member
1998-present: Founding Member New Orleans Protein Folding Intergroup.
2001-present: Founding Member Center for Computational Sciences Tulane and Xavier Universities.

Member
1998-present: Molecular and Cellular Biology Program at Tulane University.
1998-present: Center for Bioenvironmental Research at Tulane and Xavier Universities.
American Chemical Society, American Association for the Advancement of Science, Biophysical Society.

Co-Organizer

"Bioinformatics on the Bayou 2000", A statewide conference on bioinformatics, Center for Bioenvironmental Research, November 16-17, 2000, New Orleans, LA.

Organizer and Chair

"Experimental and Theoretical Perspectives on the Folding of the 30 nm Fiber", Biophysical Society National Meeting, February 22-28, 1998, Kansas City, MO.

Reviewer

Biotechnology Progress, Journal of Molecular Biology, Nucleic Acids Research

Service

Rhodes Scholarship Trust, Louisiana Selection Committee 2000-2003.
Molecular Modeling Lab Demonstrations for area high schools, yearly.
Epidemiologic Surveillance Task Force for Bioterrorism Preparedness and Response 2001-2002.

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Thesis Advising

"Investigating Environmental Estrogens with Databases"
Wilbert McClay, Computer Science, Tulane University, M.S. 1999
"The Advance of Molecular Techniques: Computer Simulation of Small Molecules"
Marc Sadaka, Environmental Health Sciences, Tulane University. M.S.P.H. 2000.
"Molecular Docking and Molecular Dynamics Simulations of Endocrine Disrupting Chemicals"
Radha Basavapathruni, Environmental Health Sciences, Tulane University. M.S.P.H. 2001.
"Free Energy Studies of the Estrogen Receptor Ligand Binding Domain"
Kirk Yancy Williams, Molecular and Cellular Biology Graduate Program, Doctoral Candidate.

Talks and Seminars:

Endocrine Signal Transduction Workshop, Dept. of Physiology, Tulane University, Feb. 22, 1999.
John E. Hearst Symposium, Asilomar Conference Center, Monterey, CA., Aug. 28 – 29, 1999.
Dept. of Chemistry, University of New Orleans, Oct. 1999.
Dept.of Mathematics, Tulane University, March 17, 2000.
Environmental Signaling and the CNS, Society of Neuroscience Annual Meeting, New Orleans, Nov. 4, 2000.
Center for Computational Sciences at Tulane and Xavier Universities, Oct. 2001.
College of Pharmacy, Xavier University of Louisiana, Nov. 2001.
Dept.of Physics, Wake Forest University, Winston-Salem, NC, Jan. 30, 2002.
Society of Industrial and Applied Mathematics Annual Meeting, Snowbird, UT, May 27-31, 2003.
DNA and Beyond: Struc., Dyn. and Interactions, Bernoulli Center, Lausanne, Switzerland, April 7-9, 2003.

Grants

"Tulane-Xavier Student Research Exchange Pipeline", NSF and LEQSF, July 1998-July 2000.
"Quantitative Structure Activity Relationships from Molecular Dynamics: A computational Method of identifying Environmental Estrogens", DoD/Office Naval Research (NO-0014-99-0763), August 1, 1999-April 30, 2001, Subproject PI.
"Bioinformatics on the Bayou", LA EPSCoR and the Board of Regents, July 1, 2000-December 31, 2000.
"Molecular Dynamics and Mathematical Models of Environmental Signaling", CBR/CDC (R04-CCR419466-01), July 1, 2000-September 30, 2002, Subproject PI.
"Tulane Structural Proteomics Initiative", Wall Fund at Tulane University, July 01, 2001 - June 30 2004, PI: William Wimley, Co-PIs: Bishop, Landry, Nolan, Wiffstung-Staffedes.
"Tulane Structural Proteomics Initiative", Louisiana Board of Regents, June 1, 2001 - June 30, 2002, PI: William Wimley, Co-PIs: Bishop, Landry, Nolan, Wiffstung-Staffedes.

"Predicting the Binding Free Energy of Small Molecules", NIH (1 F31 GM069318-01), May 15, 2003- May 15, 2008.
This is a MARC Predoctoral Fellowship submitted by my graduate student, Kirk Yancy Williams.

Submitted: "Thermodynamics of Hormone Receptor Agonist/Antagonist", NIH, July 1, 2004- June 30, 2008.

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Publications

Peer-reviewed

1) T. Bishop and K. Schulten. Molecular dynamics study of glucocorticoid receptor-DNA binding. *Proteins Struct., Funct. and Genet.,* **24**(1):115-133, 1996.

2) T. Bishop, D. Kosztin and K. Schulten. How hormone receptor-DNA binding affects nucleosomal DNA: The role of symmetry. *Biophys. J.,* **72**:2056-2067, 1997.

3) D. Kosztin, T. Bishop and K. Schulten. Binding of the estrogen receptor to DNA: The role of waters. *Biophys. J.* **73**:557-570, 1997.

4) T. Bishop, R. Skeel and K. Schulten. Difficulties with multiple time stepping and the fast multipole algorithm in molecular dynamics. *J. Comp. Chem.,* **18**(14):1785-1791, 1997.

5) Y. Shi, J.E.Hearst, T.C. Bishop and H.R. Halvorson. Erratum: "The Kirchhoff elastic rod, the nonlinear Schrödinger equation, and DNA supercoiling" [J. Chem. Phys. 101,5186 (1994)]. *J. Chem. Phys.,* **109**(7):2959-2961, 1998.

6) T.C. Bishop and J.E. Hearst. Potential Function Describing the Folding of the 30nm Fiber. *J. Chem. Phys.B,* **102**(33):6433-6439, 1998.

7) T. C. Bishop and O.O. Zhmudsky, Information Transmission Along DNA, in *Currents in Computational Molecular Biology 2001,* N. El-Mabrouk, T. Lengauer, and D. Sankoff, Editors, Les Publications CRM: Montreal. p. 105-106, 2001.

8) C. A. Marhefka, B.M. Moore II, T.C. Bishop, L. Kirkovsky, A. Mukherjee, J.T. Dalton, and D. D. Miller. Homology Modeling Using Multiple Molecular Dynamics Simulations and Docking Studies of the Human Androgen Receptor Ligand Binding Domain Bound to Testosterone and Nonsteroidal Ligands. *J. Med. Chem.,* **44**:1729-1740, 2001.

9) T. C. Bishop and O. Zhmudsky. Mechanical Model of Nucleosome and Chromatin Dynamics. *J. Biol. Struc. Dyn.,* **19**(5):877-887, 2002.

10) A. K. Mohanty, C. M. Bishop, Thomas C. Bishop, W. C. Wimley, and M. C. Wiener. Enzymatic E-colicins bind to their target receptor BtuB by presentation of a small binding epitope on a coiled-coil scaffold. *J. Biol. Chem.,* **278**(42):40953-40958, 2003.

11) T. C. Bishop, R. Cortez, and O. O. Zhmudsky. Investigation of Bend and Shear Waves in a Geometrically Exact Model of an Elastic Rod. *To appear in J. Comp. Phys.,* 2003.

12) J. B. Delehanty, R. M. Jones, T. C. Bishop, and D.A. Blake. Identification of Important Residues in Metal-Chelate Recognition by Monoclonal Antibodies. *To Appear Biochemistry,* 2003.

Non-peer-reviewed

13) T. C. Bishop. A Replaceable Hydrophobic Core, *e.hormones: your gateway to the environment and hormones, News and Views.* August 2002. http://e.hormone.tulane.edu/ViewsArchives/200208-Bishop.html

14) T. C. Bishop and O.O. Zhmudsky, Elastic wave propagation along DNA. *Los Alamos National Laboratory, Preprint Archive,* Physics:1-17, 2001. arXiv: physics/0101071.

15) T. C. Bishop and O.O. Zhmudsky, Folding DNA into nucleosomes and chromatin: Dynamics. *Los Alamos National Laboratory, Preprint Archive,* Physics:1-21, 2001. arXiv: physics/0108008.

Manuscripts in preparation.

16) T. C. Bishop and O.O. Zhmudsky, Twist-Extension Dynamics of Chiral Rods in Viscous Media.