

CURRICULUM VITAE
WALTON MALCOLM BYRNES
(last modified 3-21-07)

Assistant Professor
Dept. of Biochemistry & Molecular Biology
Howard University College of Medicine
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EDUCATION AND TRAINING

Postdoctoral Fellow, 1994-96, **Cornell University**, Ithaca, NY

Ph.D. in Biochemistry, 1994, **Louisiana State University**, Baton Rouge

B.S. in Chemistry, 1981, **Xavier University of Louisiana**, New Orleans (graduated *summa cum laude* with distinction in English; g.p.a. 4.0/4.0)

RESEARCH AND SCHOLARLY INTERESTS

- Kinetics and allosteric regulation of bacterial and archaeal metabolic enzymes, especially phosphofructokinase (a glycolytic enzyme) and anthranilate synthase (a chorismate-utilizing tryptophan biosynthetic enzyme)
- Structure and function of enzymes involved antibiotic resistance (to streptomycin) and antibiotic synthesis (of phenazines)
- Ethics and social impact of human genetic technologies, including cloning, germline engineering, embryo selection, and prenatal diagnosis
- Ecological ethics, in particular the implications of ecology and evolution for social responsibility in the areas of genetic technology and Earth stewardship

PROFESSIONAL EXPERIENCE

2001-present **Assistant Professor**, Department of Biochemistry and Molecular Biology, College of Medicine, Howard University, Washington, D.C. Website: <http://www.med.howard.edu/biochemistry/wbyrnes/>

Howard University Faculty Merit Award (2004, 2006); Howard University New Faculty Research Award (2001-03); member of Graduate Faculty since 2002

- 1999-2001 **Research Scientist**, Biochemical Sciences Division, Chemical Sciences and Technology Laboratory, National Institute of Standards and Technology (N.I.S.T.), Gaithersburg, MD
- 1996-1999 **Assistant Professor**, Chemistry Department, University of Louisiana at Lafayette
- 1994-1996 **Postdoctoral Fellow**, Department of Molecular Medicine, College of Veterinary Medicine, Cornell University, Ithaca, NY (Advisor: Robert E. Oswald)
NIH/NRSA Postdoctoral Fellowship (1995-96)
- 1988-1994 **Doctoral Student**, Department of Biological Sciences, Louisiana State University, Baton Rouge (Advisor: Simon H. Chang)

Dissertation Title: *The Structural Basis of Kinetic and Allosteric Differences between Two Bacterial Phosphofructokinases (PFKs)*

Robert S. and Louise P. Allen Award (1994), given annually to the outstanding biochemistry doctoral student at Louisiana State University
- 1980-1988 Chemistry and Physics **Teacher** at Gonzaga High School in Washington, D.C. (1986-1988); Chemistry **Instructor** at St. John's College in Belize City, Belize, Central America (1984-1986); **Teaching Assistant** for general chemistry lecture and biochemistry laboratory courses at the University of Illinois in Urbana-Champaign, IL (1982-1984); Analytical and organic chemistry **Laboratory Instructor** at Xavier University of Louisiana in New Orleans (1981-1982); Undergraduate Summer **Researcher** in Theoretical Biophysical Chemistry at Argonne National Labs in Argonne, IL (1980).

PUBLICATIONS IN BIOCHEMISTRY

1. Ashenafi, M. and **Byrnes, W. M.** (in preparation) Characterization of the Fused Anthranilate Synthase from *Streptomyces venezuelae*. To be submitted to the *Journal of Industrial Microbiology and Biotechnology*
2. Ashenafi, M., Carrington, R., Collins, A. C., and **Byrnes, W. M.** (2007) The Fused TrpEG from *Streptomyces venezuelae* is an Anthranilate Synthase, Not a 2-Amino-4-deoxyisochorismate (ADIC) Synthase. *Ethnicity and Disease*—in press.
3. Collins, A. C., Ashenafi, M., Saunders, A. A. and **Byrnes, W. M.** (2007, first two authors equal) Cloning and Expression of Streptomycin-Inactivating Enzymes APH(6)-Ia and -Id. *Cellular and Molecular Biology*—in press.
4. GenBank Entry: Collins, A. C. and **Byrnes, W. M.** (13 April 2005) Nucleotide Sequence of the Gene *aph(6)-Ia* from *Streptomyces griseus*, Accession No. AY971801.
5. GenBank Entry: Ashenafi, M., Saunders, A. A., Sundin, G. W. and **Byrnes, W. M.** (25 April 2005) Nucleotide Sequence of the Gene *aph(6)-Id* from *Pseudomonas syringae* pv. *syringae*, Accession No. AY997127.

6. Ho, D. L., **Byrnes, W. M.**, Ma, W.-P., Shi, M. Y., Callaway, D. J. E. and Bu, Z. (2004) Structure-Specific DNA-induced Conformational Changes in Taq Polymerase Revealed by Small Angle Neutron Scattering. *Journal of Biological Chemistry* 279: 39146-39154.
7. **Byrnes, W. M.** and Vilker, V. L. (2004) Extrinsic factors potassium chloride and glycerol induce thermostability in recombinant anthranilate synthase from *Archaeoglobus fulgidus*. *Extremophiles* 8(6): 455-462.
8. **Byrnes, W. M.**, Goldberg, R. N., Holden, M. J., Mayhew, M. P. and Tewari, Y. B. (2000) Thermodynamics of Reactions Catalyzed by Anthranilate Synthase. *Biophysical Chemistry* 84(1): 45-64.
9. Auzat, I., **Byrnes, M.**, Garel, J.-R. and Chang, S. H. (1995, first two authors equal) Role of Residue 161 in the Allosteric Transitions of Two Bacterial Phosphofructokinases. *Biochemistry* 34(21): 7062-7068.
10. **Byrnes, M.**, Hu, W., Younathan, E. S. and Chang, S. H. (1995) A Chimeric Bacterial Phosphofructokinase Exhibits Cooperativity in the Absence of Heterotropic Regulation. *Journal of Biological Chemistry* 270(8): 3828-3835.
11. Zhu, X., **Byrnes, M.**, Nelson, J. W. and Chang, S. H. (1995) Role of Glycine 212 in the Allosteric Behavior of Phosphofructokinase from *Bacillus stearothermophilus*. *Biochemistry* 34(8): 2560-2565.
12. **Byrnes, M.**, Zhu, X., Younathan, E. S. and Chang, S. H. (1994) Kinetic Characteristics of Phosphofructokinase from *Bacillus stearothermophilus*: MgATP Nonallosterically Inhibits the Enzyme. *Biochemistry* 33(11): 3424-3431.
13. Li, J.-Y., Zhu, X., **Byrnes, M.**, Nelson, J. W. and Chang, S. H. (1993) Site-directed Mutagenesis of Rabbit Muscle Phosphofructokinase cDNA: Mutations at Glutamine 200 Affect the Allosteric Properties of the Enzyme. *Journal of Biological Chemistry* 268(33): 24599-24606.
14. Li, J.-Y., Chen, Z., Lu, L., **Byrnes, M.** and Chang, S. H. (1991) Sequence Diversity in the 5'-untranslated Region of Rabbit Muscle Phosphofructokinase mRNA. *Biochemical and Biophysical Research Communications* 170(3): 1056-1060.

PUBLICATIONS IN OTHER AREAS (BIOETHICS, ECOLOGICAL ETHICS, AND DEVELOPMENTAL BIOLOGY)

1. **Byrnes, W. M.** (2007) Review of *Challenging Nature: The Clash of Science and Spirituality at the New Frontiers of Life* by Lee M. Silver. *Worldviews: Environment, Culture, Religion*—forthcoming in the August issue.
2. Braun, G., Hellwig, M. and **Byrnes, W. M.** (2007) Global Climate Change and Catholic Responsibility: Facts and Faith Response. *The Journal of Catholic Social Thought* 4(2)—in press.
3. **Byrnes, W. M.** (2007) Just, Ernest Everett (1883-1941). Entry in *The Dictionary of Scientific Biography*—in press.
4. **Byrnes, W. M.** (2007) Remembering Cicadas (poem). *The Ecozoic Reader* 4(4)—in press.
5. **Byrnes, W. M.** (2007) ANT-OAR Misrepresents the Scientific Facts. *The National Catholic Bioethics (NCB) Quarterly*—in press.
6. **Byrnes, W. M.** (2007) The Pseudoscientific Basis of the Altered Nuclear Transfer-Oocyte Assisted Reprogramming (ANT-OAR) Proposal. *Stem Cell Reviews*—in revision.

7. **Byrnes W. M.** (2007) Partial Trajectory: The Story of the Altered Nuclear Transfer-Oocyte Assisted Reprogramming (ANT-OAR) Proposal. *The Linacre Quarterly* 74(1): 50-59.
8. **Byrnes, W. M.** and Granados, J. (2006) ANT-OAR Fails on All Counts: Method of Harvesting Stem Cells Riddled with Scientific and Ethical Flaws. *Science and Theology News* (June 2006): 23-25.
9. **Byrnes W. M.** (2006) Inconsistencies in the Pro-ANT-OAR Position (Colloquy Letter). *The NCB Quarterly* 6(2): 201-202.
10. **Byrnes, W. M.** (2006) Review of *Deeper Than Darwin: The Prospect for Religion in the Age of Evolution* by John F. Haught. *The NCB Quarterly* 6(1): 179-182
11. **Byrnes, W. M.** and Eckberg, W. R. (2006) Ernest Everett Just (1883-1941)—an Early Ecological Developmental Biologist. *Developmental Biology* 296: 1-11.
12. **Byrnes, W. M.** (2005) Holistic Systems and “Delayed Hominization” Are Incompatible (Colloquy Letter). *The NCB Quarterly* 5(3): 447-448.
13. **Byrnes, W. M.** (2005) Why Human “Altered Nuclear Transfer” is Unethical: A Holistic Systems View. *The NCB Quarterly* 5(2): 271-279.
14. **Byrnes, W. M.** (2005) Review of *Beyond Therapy: Biotechnology and the Pursuit of Happiness* by the U.S. President’s Council on Bioethics. *The NCB Quarterly* 5(1): 205-207.
15. **Byrnes, W. M.** (2004) Review of *Enough: Staying Human in an Engineered Age* by Bill McKibben. *The NCB Quarterly* 4(3): 639-641.
16. **Byrnes, W. M.** (2004) Review of *A Devil’s Chaplain* by Richard Dawkins. *The NCB Quarterly* 4(1): 216-218.
17. **Byrnes, W. M.** (2003) Holism, Determinism, and the Developing Embryo (Colloquy Letter). *The NCB Quarterly* 3(4): 664-665.
18. **Byrnes, W. M.** (2003) The Ecological Imperative and Its Application to Ethical Issues in Human Genetic Technology. *Ethics in Science and Environmental Politics* 2003: 63-65. Available online at: <http://www.int-res.com/articles/esep/2003/E36.pdf>
19. **Byrnes, W. M.** (2003) Epigenetics, Evolution, and Us. *The NCB Quarterly* 3(3): 489-500.
20. **Byrnes, W. M.** (2003) Review of *Redesigning Humans: Our Inevitable Genetic Future* by Gregory Stock. *The NCB Quarterly* 3(2): 427-429.
21. **Byrnes, W. M.** (2002) Review of *Can a Darwinian Be a Christian?: The Relationship between Science and Religion* by Michael Ruse. *The NCB Quarterly* 2(3): 564-566.
22. **Byrnes, W. M.** (2001) Human Genetic Technology, Eugenics, and Social Justice. *The NCB Quarterly* 1(4): 555-581.

FORUMS, PRESENTATIONS AND INVITED TALKS

Forums Organized	<p><u>Global Environmental Change</u>: organized and served as panel member—along with a solar engineer, a theologian, and a climate change expert—of a forum titled: “Global Climate Change and Catholic Responsibility,” held at St. Rose of Lima Catholic Church, Gaithersburg, MD, on May 10, 2005. <u>Stem Cell Research</u>: co-hosted with Dr. Karen Stohr of Georgetown University Department of Philosophy, Title: “The Science and Ethics of Stem Cell Research,” St. Rose of Lima Catholic Church, Gaithersburg, MD, January 22, 2002.</p>
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- Oral Presentations Fall 2005 Conference “Catholic Social Thought and Ecology,” Villanova Univ. (with G. Braun); 2000 annual meeting of the Society for Industrial Microbiology (SIM); 1998 annual meeting of the Louisiana Academy of Sciences; and 1993 joint meeting of the MidSouth Biochemists and the South Central Branch of the American Society of Microbiology (ASM)
- Poster Presentations 2005 annual meeting of the Society for Developmental Biology; 2006 and 2004 annual meetings of the Society for Industrial Microbiology (SIM); 2004 conference of the International Society for Extremophiles; 2006 and 2004 Research Centers in Minority Institutions (RCMI) International Symposia; 2002, 1994, and 1993 annual meetings of the American Society for Biochemistry and Molecular Biology (ASBMB); and 1995 Cornell University College of Veterinary Medicine Postdoctoral Research Exhibition
- Invited Talks Howard University (H.U.) Department of Biology, November 2005; H.U. College of Medicine, Washington, D.C., February 2006, November 2004, October 2003, and June 2001; Aventis Pharmaceuticals, Cambridge, MA, February 2002; Biotechnology Division, N.I.S.T., November 1998; Chemistry Department, Nicholls State University, Thibodaux, LA, April 1998; Chemistry Department, McNeese State University, Lake Charles, LA, October 1997; and Chemistry Department, University of Louisiana at Lafayette, March 1996

PROFESSIONAL SOCIETIES AND OTHER ORGANIZATIONS

Sigma Xi, Society for Industrial Microbiology (SIM), American Association for the Advancement of Science (AAAS), American Society for Biochemistry and Molecular Biology (ASBMB), Union of Concerned Scientists (UCS)