Charles E. Bell
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EDUCATION

1987 – 1991	Bucknell University, Lewisburg PA	B.S. (Chemistry)
1991 – 1996	University of California at Los Angeles	Ph.D. (Chemistry)
1997 – 2001	University of Pennsylvania	Postdoctoral (Structural Biology)

POSITIONS AND EMPLOYMENT

1992 – 1996	Graduate Student with Dr. David Eisenberg, University of California at Los Angeles
1997 – 2001	Postdoctoral Fellow with Dr. Mitch Lewis, University of Pennsylvania
2001 – 2007	Assistant Professor, Department of Molecular and Cellular Biochemistry, Ohio State University, College of Medicine
2007- present	Associate Professor, Department of Molecular and Cellular Biochemistry, Ohio State University, College of Medicine
2001 – present	Member, Ohio State University Comprehensive Cancer Center
2001 – present	Member, NIH Chemistry/Biology Training Grant Program, Ohio State University
2009 – present	Adjunct Associate Professor, Department of Biochemistry, Ohio State University
2010 – present	Co-Director, Biophysics Graduate Program, Ohio State University

SCIENTIFIC AFFILIATIONS

1993-	The Protein Society
1993-	American Crystallographic Association
1997-	American Association for the Advancement of Science
2004-	Biophysical Society

HONORS, AWARDS, AND FELLOWSHIPS

1990	NSF Summer Research Stipend Recipient at Bucknell University
1990	Sigma Xi Scientific Research Society, nominated member, Bucknell University chapter
1992	Departmental Prize for Excellence in the First Year of Graduate Study, Department of Chemistry and Biochemistry, UCLA
1993-1995	NIH Cellular and Molecular Biology Training Grant, Department of Chemistry and Biochemistry, UCLA
1994	Bauer prize for Excellence in Research, Department of Chemistry and Biochemistry, UCLA
1995-1996	Dissertation Year Fellowship, UCLA
1998-2000	NIH Post-Doctoral Fellowship (3-year Individual NRSA), University of Pennsylvania. Title: “Structural Studies of the *E. coli* Lactose Repressor”
2006	Ohio State University College of Medicine School of Biomedical Sciences Excellence in Research and Teaching Award
2010	Elizabeth L. Gross Award for Faculty Excellence, Ohio State Biophysics Graduate Program

CURRENT RESEARCH SUPPORT

"Structural Biology of DNA Repair by Single-Strand Annealing"
Principal Investigator: Charles E. Bell — Effort: 18%
Agency: National Science Foundation — Amount: $532,507 (total)
Project: MCB-1021966 — Period: 08/01/10 – 07/31/13

"Class II Aminoacyl-tRNA Synthetase Substrate Recognition"
Principal Investigator: Karin Musier-Forsyth (Co-PI Bell) — Effort: 5%
Agency: NIH/NIGMS — Amount: $7,000 (annual direct to Bell)
Project: RO1 GM49928 — Period: 09/01/09 – 08/31/13

"Recognition and Catalysis of Phosphotyrosyl Proteins."
Principal Investigator: Dehua Pei (Co-PI Bell) — Effort: 5%
Agency: NIH/NIGMS — Amount: $20,000 (annual direct to Bell)
Project: RO1 GM62820 — Period: 04/01/2012 – 3/31/16

COMPLETED RESEARCH SUPPORT

"Structural Studies of RecA-DNA complexes."
Principal Investigator: Charles E. Bell — Effort: 35%
Agency: NIH/NIGMS — Amount: $1,290,625 (total)
Project: RO1 GM067947-04 — Period: 05/01/03 – 04/30/10

"Structural Studies of RecA-DNA Complexes"
Principal Investigator: Charles E. Bell — Effort: no additional effort
Agency: NIH/NIGMS — Amount: $98,901 (total)
Project: Administrative Supplement to RO1 GM067947 — Period: 09/30/09 – 10/31/10

"Mechanism and Inhibition of S-Ribosylhomocysteinase (LuxS)
Principal Investigator: Dehua Pei (Co-PI Bell) — Effort: 5%
Agency: NIH/NIAID — Amount: $15,000 (annual direct to Bell)
Project: RO1 AI062901 — Period: 07/01/05 – 03/31/10

INVITED REVIEWER

Journals

Journal of Molecular Biology, Journal of Biological Chemistry, Biochemistry, Molecular Microbiology, Nucleic Acids Research, Protein Science, PLOS One, DNA Repair.

Study Sections

Department of Defense: Prostate Cancer Research Program study section (Ad hoc member, 2005)
Department of Defense: Breast Cancer Study Section (Ad hoc member, 2006 – 2007)
Advanced Photon Source: Ad hoc reviewer (2006 – present)
NIH: Postdoctoral fellowships in Biochemistry and Biophysics study section (Ad hoc member, 2007)
American Cancer Society: DNA Mechanisms in Cancer study section (Ad hoc member, 2007 – 2008)
American Cancer Society: DNA Mechanisms in Cancer study section (Member, 2009-present)
Other Ad hoc: Cancer Research UK (2008), Netherlands Organization for Scientific Research (2010)
NSF: Mechanisms of Inheritance study section (Ad hoc member, April 2011)
NIH: Postdoctoral fellowships in Biochemistry and Biophysics (Ad hoc, Feb 2012, June 2012)

INVITED PRESENTATIONS

2000, Washington University, Dept. of Biochemistry and Biophysics
2000, University of Arizona, Dept. of Biochemistry
2000, Dartmouth University, Dept. of Biochemistry
2000, University of Maryland at Baltimore, School of Pharmacy
2000, University of Colorado at Boulder, Dept. of Chemistry and Biochemistry
2000, University of North Carolina at Chapel Hill, Dept. of Biochemistry and Biophysics
2001, Ohio State University, Dept. of Molecular and Cellular Biochemistry
2003, Bucknell University, Dept. of Chemistry
2005, University of Missouri at Columbia, Dept. of Biochemistry
2006, University of Toledo, Structural Biology Workshop
2008, University of Massachusetts at Amherst, Dept. of Microbiology
2008, University of California at Riverside, Dept. of Biochemistry
2009, Case Western University, Dept. of Biochemistry
2010, University of Cincinnati, Dept. of Molecular Genetics, Biochemistry, and Microbiology
2010, Ohio State University, Dept. of Microbiology

TEACHING

2001-2008	IBGP, four lectures on protein structure and function
2002-present	Biophysics 702, three lectures on protein crystallography
2003-present	MED I, Small Group Discussion on Sickle Cell Anemia, 4 lectures hours
2006, 2008	MOLBIOCH 840, Practical Macromolecular Crystallography, 20 lectures
2006-2007	Dental Biochemistry, 10 lectures on lipids and amino acid metabolism
2007-present	MOLBIOCH 761, Advanced Biochemistry of Proteins, 15-30 lectures

INSTITUTIONAL COMMITTEES

2002-present	Biophysics Graduate Studies Committee
2005	OSBP Revitalization Committee
2009-present	OSBP Curriculum Committee
2008-2009	MCB Departmental Search Committee
2009-present	Faculty Council, College of Medicine
2009-present	Biomedical Partnership Team, Metro High School
2010-present	MCB Departmental Curriculum Committee
2011-present	Dept. of Chemistry & Biochemistry, Structural Biology Search Committee

STUDENTS GRADUATED AND OTHER TRAINEES

Graduate Students

2002-2007	Xu Xing, Ohio State Biochemistry Program, Ph.D
2002-2007	Rakhi Rajan, Ohio State Biophysics Graduate Program, Ph.D.
2004-2009	Jinjin Zhang, Ohio State Biochemistry Program, Ph.D
2011-present	Xinlei Pan, Ph.D. Student, Ohio State Biochemistry Graduate Progam
2011-present	Christopher E. Smith, Ph.D. Student, Ohio State Biochemistry Program

Post Doctoral

2003-2007	Dieudonne Njonka, Postdoctoral Researcher

Undergraduate Students

2004-2007	Jim Wisler, Biochemistry Major, Undergraduate Honors Thesis Research
2008-2011	Jinwei Hu, Biochemistry Major
2011	Grant Oakley, Biochemistry Major, H200 student
2011-present	Ryan Moll, Biochemistry Major, H200 student
2011-present	Michael Stauber, Biology Matjor

High School Students

2010-2011	Alburuj Rahman, Metro High School, U. California at Berkeley
2010-present	Trevor Johns, Westerville Central High School, Case Western Reserve
2011	Logan Michel, Westerville Central High School, University of Dayton
2011-present	Sai Korada, Metro High School
2011-present	Amelia Roche, Metro High School

GRADUATE STUDENT DISSERTATION COMMITTEES

Danyetta Davis, OSBP, 2002
Johan Misquitta, Biophysics, 2002
Song Qin, MCDB, 2002-2005
Erica Mersfelder, IBGP, 2002-2007
Nathan Cobb, OSBP, 2002-2006
Patrick Kang, OSBP, 2003-2009
Nathan Kreel, OSBP, 2002-2008
Xi Ai, OSBP, 2003-2007
Manoj Nair, Biophysics, 2003-2008
Ran Zhao, OSBP, 2003-2008
Natalie Goldberger, Biophysics, 2003-2008
Casey Bohl, Pharmacy, 2004-2008
Yiren Zu, OSBP, 2004-2009
Ross Wilson, OSBP, 2004-2009
Yanyan Zhang, OSBP, 2005-2009
Xin Li, Biophysics, 2005-2011
Veer Bhat, Biophysics, 2006-2011
Jordan Jensen, IBGP, 2006-2011
Ravindra Amunugama, Biophysics, 2007-present
Tiffany Waller, OSBP, 2009-present
Ziwei Liu, OSBP, 2009-present
Ryan Pavlovicz, Biophysics, 2010-present
Rohan Balakrishnan, OSBP, 2010-present
Nicole, Schafer, Biophysics, 2010-present
Brandon Crowe, Biophysics, 2010-present
Elihu Ihms, Biophysics, 2011-present
Sana Shaikh, OSBP, 2011-present

PUBLICATIONS (32 in chronological order)

1. Weiss, M.S., **Bell, C.E.**, Bennett, M.J., Collier, R.J., Schlunegger, M.P., Steere, B.S., and Eisenberg, D. (1996) A structure-based model of diphtheria toxin action. in *Protein Toxin Structure.* (Parker, M.J., Ed.) pp 25-47, R.G. Landes company, Texas.
2. **Bell, C.E.**, and Eisenberg, D. (1996) Crystal structure of diphtheria toxin bound to nicotinamide adenine dinucleotide. *Biochemistry* 35, 1137-1149.
3. **Bell, C.E.**, and Eisenberg, D. (1997) Crystal structure of nucleotide-free diphtheria toxin. *Biochemistry* 36,481-488.

4. **Bell, C.E.**, and Eisenberg, D. (1997) Crystal Structure of diphtheria toxin bound to nicotinamide adenine dinucleotide. *Adv. Exp. Med. Biol.* 419, 35-43.
5. **Bell, C.E.**, Poon, P.H., Schumaker, V.N., and Eisenberg, D. (1997) Oligomerization of a 45 kilodalton fragment of diphtheria toxin at pH 5.0 to a molecule of 20-24 subunits. *Biochemistry* 36, 15201-15207.
6. **Bell, C.E.**, Yeates, T.O., and Eisenberg, D. (1997) Conformation of nicotinamide adenine dinucleotide (NAD) bound to diphtheria toxin: comparison with NAD bound to the oxidoreductase enzymes. *Protein Sci.* 6, 2084-2096.
7. **Bell, C.E.**, and Lewis, M. (2000) A closer view of the conformation of the Lac repressor bound to operator. *Nat. Struct. Biol.* 7, 209-214.
8. **Bell, C.E.**, Frescura, P., Hochschild, A., and Lewis, M. (2000) Crystal structure of the λ repressor C-terminal domain provides a model for cooperative operator binding. *Cell* 101, 801-811.
9. **Bell, C.E.**, and Lewis M. (2001) The Lac repressor: a second generation of structural and functional studies. *Curr. Opin. Struct. Biol*. 11, 19-25.
10. **Bell, C.E.,** and Lewis M. (2001) Crystallographic analysis of Lac repressor bound to natural operator *O1*. *J. Mol. Biol.* 312,921-926.
11. **Bell, C.E.**, Barry J., Matthews, K.S., and Lewis M. (2001) Structure of a variant of lac repressor with increased thermostability and decreased affinity for operator. *J. Mol. Biol.* 313, 99-109.
12. **Bell, C.E.**, and Lewis M. (2001) Crystal structure of the λ repressor C-terminal domain octamer. *J. Mol. Biol.* 314,1127-1136.
13. Xing, X., and **Bell, C.E.** (2004) Crystal structures of *Escherichia coli* RecA in a compressed helical filament. *J. Mol. Biol.* 342, 1471-1485.
14. Rajan, R., and **Bell, C.E.** (2004) Crystal structure of RecA from *Deinococcus radiodurans*: insights into the structural basis of extreme radioresistance, *J. Mol. Biol.* 344, 951-963.
15. Xing, X., and **Bell, C.E.** (2004) Crystal structures of *Escherichia coli* RecA in complex with MgADP and MnAMP-PNP. *Biochemistry* 43, 16142-16152.
16. Rajan R., Zhu, J., Hu, X., Pei, D., and **Bell, C.E.** (2005) Crystal structure of S-Ribosylhomocysteinase (LuxS) in complex with a catalytic 2-ketone intermediate. *Biochemistry* 44, 3745-3753.
17. Bohl, C.E., Gau, W., Miller, D.D., ***Bell, C.E.**, and *Dalton, J.T. (2005) Structural basis for antagonism and resistance of bicalutamide in prostate cancer. *Proc. Natl. Acad. Sci. USA* 102, 6201-6206.
18. **Bell, C.E.** (2005) MicroReview: Structure and mechanism of *Escherichia coli* RecA ATPase. *Mol. Microbiol.* 58, 358-366.
19. Bohl, C.E., Miller, D.D., Chen, J., ***Bell, C.E.**, and *Dalton, J.T. (2005) Structural basis for accommodation of nonsteroidal ligands in the androgen receptor. *J. Biol. Chem.* 280, 37747-37754.
20. Wilson, R.C., Bohlen, C.J., *Foster, M.P., and **Bell, C.E.** (2006) Structure of Pfu Pop5, an archaeal RNase P protein. *Proc. Natl. Acad. Sci. U.S.A.* 103, 873-878.
21. Shen, G., Rajan, R., Zhu, J., **Bell, C.E.**, and Pei, D. (2006) Design and synthesis of substrate and intermediate analogue inhibitors of S-ribosylhomocysteinase (LuxS). *J. Med. Chem.* 49, 3003-3011.
22. Rajan, R., Wisler, J.W., and **Bell, C.E.** (2006) Probing the sequence specificity of *E. coli* RecA protein. *Nucl. Acids. Res.* 34, 2463-2471.
23. Wu, Z., Xing, X., Bohl, C.E., *Dalton, J.T., and ***Bell, C.E.** (2006) Domain structure and DNA binding regions of beta protein from bacteriophage lambda. *J. Biol. Chem.* 281, 25205-25214.
24. Ndjonka, D., and **Bell, C.E.** (2006) Structure of a hypercleavable monomeric fragment of phage lambda repressor containing the cleavage site region. *J. Mol. Biol.* 362, 479-489.
25. Bohl, C.E., Wu, Z., Miller, D.D., ***Bell, C.E.**, and *Dalton, J.T. (2007) Crystal structure of the T877A human androgen receptor ligand-binding domain complexed to cyproterone acetate provides insight for ligand-induced conformational changes and structure-based drug design. *J. Biol. Chem.* 282, 13648-13655.

26. Pauff, J.M., Zhang, J., **Bell, C.E.**, Hille, C.R. (2008) Substrate orientation in xanthine oxidase, crystal structure with 2-hydroxy-6-methylpurine. *J. Biol. Chem.* 283, 4818-4824.
27. Bohl, C.E., Wu, Z., Chen, J., Mohler, M.L., Yang, J., Hwang, D.J., Mustafa, S., Miller, D.D., **Bell, C.E.**, and Dalton, J.T. (2008) Effect of B-ring substitution pattern on binding mode of propionamide selective androgen receptor modulators. *Bioorg. Med. Chem. Lett.* 18, 5567-5570.
28. Galkin, V.E., Yu, X., Bielnicki, J., Ndonka, D., **Bell, C.E.**, and Egelman, E.H. (2009) Cleavage of bacteriophage lambda cI repressor involves the RecA C-terminal domain. *J. Mol. Biol.* 385, 779-787.
29. Gopishetty, B., Zhu, J., Rajan, R., Sobczak, A.J., Wnuk, S.F., **Bell, C.E.**, and Pei, D. (2009) Probing the catalytic mechanism of S-ribosylhomocysteinase (LuxS) with catalytic intermediates and substrate analogues. *J. Am. Chem. Soc.* 131, 1243-1250.
30. Zhang, J., Xing, X., Herr, A.B., and **Bell, C.E.** (2009) Crystal structure of *E. coli* RecE protein reveals a toroidal tetramer for processing double-stranded DNA breaks. *Structure* 17, 690-702.
31. Zhang, J., McCabe, K., **Bell, C.E.** (2011) Crystal structures of λ exonuclease in complex with DNA suggest an electrostatic ratchet mechanism for processivity. *Proc. Natl. Acad. Sci. USA* 108, 11872-11877.
32. Zhang, Y., Zhang, J., Yuan, C., Hard, R.L., Park, I.-H., Li, C., **Bell, C.E.**, and Pei, D. (2011) Simultaneous binding of two peptidyl ligands by a Src homology 2 domain. *Biochemistry* 50, 7637-7646.