Brandt F. Eichman, Ph.D.

William R. Kenan, Jr. Chair at the College of Arts & Science
Professor and Chair of Biological Sciences
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March 2025

EDUCATION

2000	Doctor of Philosophy, Biochemistry & Biophysics, Oregon State University, Corvallis, OR
1993	Bachelor of Science in Chemistry / Minor in Biology, University of Mississippi, Oxford, MS

PROFESSIONAL EXPERIENCE

2019-	**Chair**, Department of Biological Sciences, Vanderbilt University
2016-2019	**Founding Co-Director**, Vanderbilt Program in Biochemistry & Chemical Biology
2016-	**Professor**, Department of Biological Sciences, Department of Biochemistry, Vanderbilt University. Structural and chemical biology of protein-nucleic acid complexes involved in genome maintenance.
2010-2016	**Associate Professor with Tenure**, Department of Biological Sciences, Department of Biochemistry, Vanderbilt University
2007-2010	**Assistant Professor**, Department of Biochemistry, Vanderbilt University School of Medicine
2004-2010	**Assistant Professor**, Department of Biological Sciences, Vanderbilt University
2000-2004	**Postdoctoral Fellow**, Harvard Medical School, Department of Biological Chemistry and Molecular Pharmacology, Laboratory of Tom Ellenberger. Structure and function of DNA repair and replication enzymes.
1995-2000	**Graduate Student**, Oregon State University, Department of Biochemistry & Biophysics, Laboratory of P. Shing Ho. Nucleic acid structure, X-ray crystallography. Dissertation Title: “Crystal Structures of DNA Four-way Junctions”
1995	**Research Assistant**, University of Mississippi, Department of Chemistry, Laboratory of Maurice Eftink. Organic synthesis of tryptophan analogs used to probe protein structure.
1993-1994	**Research Assistant**, University of Mississippi, Department of Chemistry, Laboratory of Walter Cleland. Synthetic bioinorganic and organic chemistry; X-ray crystallography.

HONORS AND AWARDS

Kelly Gene Cook full academic scholarship, 1989-1993, 1995
First Place, Oral Presentation, Graduate Student Conference, Oregon State University, 1998
American Cancer Society Postdoctoral Fellowship, Declined, 2002
NIH National Research Service Award, Postdoctoral Fellowship, 2002-2004
Vanderbilt Nominee for Damon Runyon Scholar Award, 2004
Vanderbilt Nominee for W.M. Keck Distinguished Young Scholars in Medical Research Award, 2005
American Cancer Society Research Scholar, 2007-2010
Sigma Xi Young Investigator Award, 2009
Vanderbilt-Ingram Cancer Center Impact/Star Award, 2010, 2015, 2017
Vanderbilt Chancellor’s Award for Research, 2011
Keynote speaker at Argonne National Laboratory Annual Users Meeting, Argonne, IL, 2011
Elected Co-Organizer of 2014 FASEB Science Research Conference: *Nucleic Acids Enzymes*, 2012
Appointed to Faculty of 1000, 2013
William R. Kenan, Jr. Chair at the College of Arts & Science, Vanderbilt University, 2018-present
Elected Vice-Chair/Chair for 2023/2025 Gordon Research Conference: Nucleic Acids, 2019
Biochemical Society International Award, 2021

American Association for the Advancement of Science Fellow, 2022

PROFESSIONAL MEMBERSHIPS

American Chemical Society, 1991-present
American Crystallographic Association, 1998-present
American Society of Photobiology, 2001
American Society for Biochemistry and Molecular Biology (ASBMB), 2008-present
Sigma Xi Scientific Research Society, 2008-2018
Faculty of 1000, 2013-present
American Association for the Advancement of Science, 2017-present

UNIVERSITY AFFILIATIONS

Vanderbilt Center for Structural Biology, 2004-present
Vanderbilt Institute of Chemical Biology, 2005-present
Vanderbilt-Ingram Cancer Center, 2005-present
Vanderbilt Center in Molecular Toxicology, 2006-present
Vanderbilt Center for Matrix Biology, 2007-present
Vanderbilt Chapter of Sigma Xi president, 2012-2014

SERVICE

Professional

Ad Hoc Reviewer: *Science*, *Nature, Nature Structural and Molecular Biology, Nature Communications, Molecular Cell, Cell Reports, PNAS*, *EMBO Journal*, *Journal of Biological Chemistry*, *Structure*, *Molecular and Cellular Biology*, *Journal of Molecular Biology*, *DNA Repair*, *Chemical Research in Toxicology, PLoS One*, *ACS Chemical Biology*, *Trends in Biochemical Sciences, Nucleic Acids Research*, *Chemical Reviews*, *Biochemistry*, 2004-present
F1000Prime, Structural Biology / Structure: Replication and Repair, Reviewer, 2013-present
NSF Division of Molecular and Cellular Biosciences, *Ad Hoc* Grant Reviewer, 2011-2016, 2019
Italian Association for Cancer Research (AIRC), *Ad Hoc* Grant Reviewer, 2014-present
NIH Macromolecular Structure and Function A (MSFA) Study Section, *Ad Hoc* Member, 2015-2016
NIH NCI Program Project P01 Special Emphasis Review Panel ZCA1 RPRB-F (O1), 2016
NIH Macromolecular Structure and Function C (MSFC) Study Section, *Ad Hoc* Member, 2017
NIH NCI Program Project P01 Special Emphasis Review Panel ZCA1 RTRB-E (O1), 2018
NIH MIRA Early Stage Investigator Special Emphasis Review Panel ZRG1 CB-I (55), 2021

Educational Testing Service GRE Biochemistry Subject Test, Author and Reviewer, 2007-2016
14th Annual NIEHS Biomedical Career Fair, Research Triangle Park, NC, Panel member, 2011
FASEB Science Research Conference, *Machines on Genes: Nucleic Acid Enzymes*, Co-Organizer, 2014
Southeast Regional Meeting of the American Chemical Society, *Frontiers in Nucleic Acids Symposium*, Co-Organizer, 2014
NSF Award 1623280, Enhancement of the Life Sciences Curriculum at Fisk University, External Advisory Board member, 2016-present
Gordon Research Conference, *Nucleic Acids*, Vice-Chair 2021, Chair 2023 (postponed to 2023/2025)
Examinateur externe, Ph.D. Élise Rouleau-Turcotte (mentor: J. Pascal), Université de Montréal, 2023
NIH COBRE Center for Molecular Interactions in Cancer (CMIC), University of Arkansas for Medical Sciences, Advisory Committee member, 2024-2026
Telluride Workshop on Nucleic Acid Chemistry, Co-Organizer, 2026

University

Molecular Biophysics Training Grant Seminar Series Coordinator, 2006-2007
Molecular Biophysics Training Grant Executive Committee, 2007-2013
Interdisciplinary Graduate Program Admissions Committee, 2007-2013
X-ray Crystallography Users Committee Co-Chair, 2008-2013
Vanderbilt-Ingram Cancer Center, ACS Institutional Research Grant Committee, 2009-2012
College of Arts & Science Curriculum Committee, 2011-2015 (Chair, 2014-15)
Karpay Award in Structural Biology Selection Committee, 2012-2015
Vanderbilt Chapter of Sigma Xi President, 2012-2014

Chancellor's Academic Planning Group for Trans-Institutional Programs, 2013
Molecular Biophysics Training Grant Education Committee, 2013-present
Training Program in Environmental Toxicology (T32) Advisory Committee, 2013-2015
Senior Advisory Review Committee, 2016-2017
Undergraduate Program in Biochemistry and Chemical Biology, Founding Co-Director, 2016-2019
Vanderbilt Institute of Chemical Biology Operating Committee, 2018-2019
Department of Pathology, Microbiology, and Immunology Chair Search Committee, 2019-20
Neuroscience Program Executive Committee, 2019-present
Karpay Award Committee, Center for Structural Biology, 2023-2025

Department

Department of Biological Sciences Undergraduate Advisor, 2004-present
Department of Biological Sciences Graduate Program Committee, 2005-2007, 2013-2016
Department of Biological Sciences Interdisciplinary Graduate Program Representative, 2007-2013
Department of Biological Sciences Faculty Search Committees, 2012-13 (chair), 2013-14, 2014-15, 2016-17 (co-chair, with Chemistry), 2019-20 (with Chemistry), 2024-25 (with Physics & Astronomy)
Department of Biological Sciences Chair, 2019-present

RESEARCH PUBLICATIONS

1. Mooers BHM, Eichman BF, and Ho PS (1997) The structures and relative stabilities of d(G·G) reverse Hoogsteen, d(G·T) reverse wobble, and d(G·C) reverse Watson-Crick base-pairs in DNA crystals. *J Mol Biol*., 269: 796-810
2. Eichman BF, Schroth GP, Basham B, and Ho PS (1999) The intrinsic structure and stability of out-of-alternation base pairs in Z-DNA. *Nucleic Acids Res*, 27: 543-550
3. Eichman BF, Vargason JM, Mooers BHM, and Ho PS (2000) The Holliday junction in an inverted repeat sequence: Sequence effects on the structure of four-way junctions. *Proc Nat Acad Sci, USA*, 97: 3971-397
4. Vargason JM, Eichman BF, and Ho PS (2000) E-DNA: An extended, eccentric structure induced by cytosine methylation and bromination. *Nat Struct Biol,* 7: 758-761
5. Eichman BF, Mooers BHM, Alberti M, Hearst JE, and Ho PS (2001) The crystal structures of psoralen cross-linked DNA: Drug dependent formation of Holliday junctions. *J Mol Biol*, 308: 15-26 (*cover article*)
6. Eichman BF, Ortiz-Lombardía M, Aymamí J, Coll M, and Ho PS (2002) The inherent properties of DNA four-way junctions: Comparing the crystal structures of Holliday junctions. *J Mol Biol*, 320: 1037-1051 (*cover article*)
7. Eichman BF, O'Rourke EJ, Radicella JP, and Ellenberger T (2003) Crystal structures of 3-methyladenine DNA glycosylase MagIII and the recognition of alkylated bases. *EMBO J*, 22: 4898-4909 (*Faculty of 1000 Recommended*)
8. Brieba LG, Eichman BF, Kokoska RJ, Doublié S, Kunkel TA, and Ellenberger T (2004) Structural basis for the dual coding potential of 8-oxoguanosine during nucleotide insertion and elongation by a high fidelity DNA polymerase. *EMBO J*, 23: 3452-346
9. Metz AH, Hollis T, and Eichman BF (2007) DNA damage recognition and repair by 3-methyladenine DNA glycosylase I (TAG). *EMBO J,* 26: 2411-2420
10. Robertson PD*, Warren EM*, Zhang H*, Friedman DB, Lary JW, Cole JL, Tutter AV, Walter JC, Fanning E, and Eichman BF (2008) Domain architecture and biochemical characterization of vertebrate Mcm10. *J Biol Chem*, 283: 3338-334
11. Rubinson EH, Metz AH, O'Quin J, and Eichman BF (2008) A new protein architecture for processing alkylation damaged DNA: The crystal structure of DNA glycosylase AlkD. *J Mol Biol*, 381: 13-23
12. Bowles T*, Metz AH*, O'Quin J, Wawrzak Z, and Eichman BF (2008) Structure and DNA binding of alkylation response protein AidB. *Proc Natl Acad Sci USA*, 105: 15299-15304

13. Warren EM, Vaithiyalingam S, Haworth J, Greer B, Bielinsky AK, Chazin WJ, and Eichman BF (2008) Structural basis for DNA binding by replication initiator Mcm10. *Structure*, 16: 1892-1901 (*cover article, Faculty of 1000 Must Read*)

14. Warren EM, Huang H, Fanning E, Chazin WJ, and Eichman BF (2009) Physical interactions between Mcm10, DNA, and DNA polymerase α. *J Biol Chem*, 284: 24662-24672

15. Robertson PD, Chagot B, Chazin WJ*, and Eichman BF* (2010) Solution NMR structure of the C-terminal DNA binding domain of Mcm10 reveals a conserved MCM motif. *J Biol Chem*, 285: 22942-22949 (*co-corresponding author)

16. Vaithiyalingam S, Warren EM, Eichman BF*, Chazin WJ* (2010) Insights into eukaryotic DNA priming from the structure and functional interactions of the 4Fe-4S cluster domain of human DNA primase. *Proc Natl Acad Sci USA*, 107: 13684-13689 (*co-corresponding author) (*Faculty of 1000 Recommended*)

17. Mok YG, Uzawa R, Lee J, Weiner GW, Eichman BF, Fischer RL, and Huh JH (2010) Domain structure of the DEMETER 5-methylcytosine DNA glycosylase. *Proc Natl Acad Sci USA*, 107: 19225-19230

18. Rubinson EH, Gowda AS, Spratt TE, Gold B, and Eichman BF (2010) An unprecedented nucleic acid capture mechanism for excision of DNA damage. *Nature*, 468: 406-411
    - ► Spotlight in *Chem Res Toxicol.* 2011, 24: 4-5 (DOI: 10.1021/tx1004024)
    - ► *ScienceDaily*, 5 Oct. 2010
    - ► Argonne National Laboratory highlight, Dec, 2010
    - ► Faculty of 1000 highlight

19. Adhikary S and Eichman BF (2011) Analysis of substrate specificity of *Schizosaccharomyces pombe* Mag1 Alkylpurine DNA Glycosylase. *EMBO Rep*, 12: 1286-92

20. Bétous R, Mason AC, Rambo RP, Bansbach CE, Badu-Nkansah A, Sirbu BM, Eichman BF, and Cortez D (2012) SMARCAL1 catalyzes fork regression and Holliday junction migration to maintain genome stability during DNA replication. *Genes Dev*, 26:151-62

21. Shi M, Pedchenko V, Greer BH, Van Horn WD, Santoro SA, Sanders CR, Hudson BG, Eichman BF, Zent R, Pozzi A (2012) Enhancing integrin α1 I-domain affinity to ligand potentiates integrin α1β1-mediated downregulation of collagen synthesis. *J Biol Chem*, 287:35139-5

22. Adhikary S, Cato MC, McGary K, Rokas A, and Eichman BF (2013) Non-productive DNA damage binding by glycosylase-like protein Mag2 from *Schizosaccharomyces pombe*. *DNA Repair*, 12: 196-204 (*Faculty of 1000 Recommended*)

23. Bétous R, Couch FB, Mason AC, Eichman BF, Manosas M.*, and Cortez D* (2013) Substrate-selective repair and restart of replication forks by DNA translocases. *Cell Rep*, 3: 1958-1969

24. Du W, Josephrajan A, Adhikary S, Bowles T, Bielinsky AK, and Eichman BF (2013) Mcm10 self-association is mediated by an N-terminal coiled-coil domain. *PLoS One*, 8: e70518

25. Mullins EA*, Rubinson EH*, Pereira KN, Calcutt MW, Christov PP, and Eichman BF (2013) An HPLC-tandem mass spectrometry method for simultaneous detection of alkylated base excision repair products. *Methods*, 64: 59-66

26. Rubinson EH, Christov PP, and Eichman BF (2013) Depurination of *N*7-methylguanine by DNA glycosylase AlkD is dependent on the DNA backbone. *Biochemistry*, 52: 7363-7365.
    - ► Spotlight in *Chem Res Toxicol*, 2013, 26: 1776-1777
    - ► #1 most downloaded article in *Biochemistry*, Oct 2013

27. Vaithiyalingam S, Arnett DR, Aggarwal A, Eichman BF, Fanning E*, and Chazin WJ* (2014) Insights into eukaryotic priming from structures of the p48 subunit of human DNA primase in pre-catalytic conformations. *J Mol Biol*, 426: 558-69

28. Mullins EA*, Rubinson EH*, and Eichman BF (2014). The substrate binding interface of alkylpurine DNA glycosylase AlkD. *DNA Repair*, 13: 50-54

29. Brooks SC, Fischer RL, Huh JH, and Eichman BF (2014) 5-methylcytosine recognition by *Arabidopsis thaliana* DNA glycosylases DEMETER and DML3. *Biochemistry*, 53: 2525-2532

30. Jang H, Shin H, Eichman BF, Huh JH (2014) Excision of 5-hydroxymethylcytosine by DEMETER family DNA glycosylases. *Biochem Biophys Res Commun,* 446: 1067-1072

31. Troll CJ, Adhikary S, Mitra I, Eichman BF, and Camps M (2014) Interplay between base excision repair activity and toxicity of 3-methyladenine DNA glycosylases in an *E. coli* complementation system. *Mutat Res*, 763-764: 64-73

32. Feldkamp MD, Mason AC, Eichman BF, Chazin WJ (2014) Structural analysis of RPA recruitment of the DNA damage response protein SMARCAL1. *Biochemistry*, 53:3052-3061

33. Mason AC, Rambo RP, Greer B, Pritchett M, Tainer JA, Cortez D, and Eichman BF (2014) A structure-specific nucleic acid-binding domain conserved among DNA repair proteins. *Proc Natl Acad Sci USA,* 111: 7618-7623

34. Szulik MW, Pallan PS, Nocek B, Voehler M, Banerjee S, Brooks SC, Joachimiak A, Egli M, Eichman BF, and Stone MP (2015) Differential stabilities and sequence-dependent base pair opening dynamics of Watson-Crick base pairs with 5-hydroxymethylcytosine, 5-formylcytosine, and 5-carboxylcytosine. *Biochemistry*, 54:1294-305

35. Mullins EA, Shi R, Kotsch LA, and Eichman BF (2015) A New Family of HEAT-Like Repeat Proteins Lacking a Critical Substrate Recognition Motif Present in Related DNA Glycosylases. *PLoS One*, 10:e0127733

36. Kile AC, Chavez DA, Bacal J, Eldirani S, Korzhnev DM, Bezsonova I, Eichman BF*, Cimprich KA* (2015) HLTF's Ancient HIRAN Domain Binds 3′-DNA Ends to Drive Replication Fork Reversal. *Mol Cell*, 58: 1090-1100 (* co-corresponding author)
    ► Preview: Tsutakawa SE and Tainer JA (2015) Bending Forks and Wagging Dogs—It's about the DNA 3′ Tail. *Mol Cell*, 58: 972-973

37. Mullins EA, Shi R, Parsons ZD, Yuen PK, David SS, Igarashi Y, and Eichman BF (2015) The DNA glycosylase AlkD uses a non-base-flipping mechanism to excise bulky lesions. *Nature*, 527: 254-258
    ► News & Views: Shin DS and Tainer JA (2015) Molecular biology: DNA repair without flipping out. *Nature*, 527: 168-169
    ► Faculty of 1000 highlight
    ► *ScienceDaily*, 29 Oct 2015

38. Meyer PA, Socias S, Key J, Ransey E, Tjon EC, Buschiazzo A, Lei M, Botka C, Withrow J, Neau D, Rajashankar K, Anderson KS, Baxter RH, Blacklow SC, Boggon TJ, Bonvin AM, Borek D, Brett TJ, Caflisch A, Chang CI, Chazin WJ, Corbett KD, Cosgrove MS, Crosson S, Dhe-Paganon S, Di Cera E, Drennan CL, Eck MJ, Eichman BF, Fan QR, Ferré-D'Amaré AR, Fromme JC, Garcia KC, Gaudet R, Gong P, Harrison SC, Heldwein EE, Jia Z, Keenan RJ, Kruse AC, Kvansakul M, McLellan JS, Modis Y, Nam Y, Otwinowski Z, Pai EF, Pereira PJ, Petosa C, Raman CS, Rapoport TA, Roll-Mecak A, Rosen MK, Rudenko G, Schlessinger J, Schwartz TU, Shamoo Y, Sondermann H, Tao YJ, Tolia NH, Tsodikov OV, Westover KD, Wu H, Foster I, Fraser JS, Maia FR, Gonen T, Kirchhausen T, Diederichs K, Crosas M, Sliz P (2016) Data publication with the structural biology data grid supports live analysis. *Nat Commun*, 7:10882

39. Badu-Nkansah A, Mason AC, Eichman BF, Cortez D (2016) Identification of a Substrate Recognition Domain in the Replication Stress Response Protein Zinc Finger RAN-binding Domain Containing 3 (ZRANB3). *J Biol Chem*, 291: 8251-7

40. Parsons ZD, Bland JM, Mullins EA, and Eichman BF (2016) A catalytic role for C-H/π interactions in base excision repair by *Bacillus cereus* DNA glycosylase AlkD. *J Am Chem Soc*, 138: 11485-8

41. Mullins EA, Warren GM, Bradley NP, Eichman BF (2017) Structure of a DNA glycosylase that unhooks interstrand cross-links. *Proc Natl Acad Sci USA*, 114: 4400-4405

42. Mullins EA, Shi R, and Eichman BF (2017) Toxicity and repair of DNA adducts produced by the natural product yatakemycin. *Nat Chem Biol*, 13: 1002-1008
    ► Viewpoint: Herzon SB (2018) DNA Repair: Unconventional Lesions Require Unconventional Repair. *Biochemistry*, 57: 1057-8

43. Shi R, Mullins EA, Shen X, Lay K, Yuen P, David SS, Rokas A, Eichman BF (2018) Selective base excision repair of DNA damage by the non-base-flipping DNA glycosylase AlkC. *EMBO J*, 37: 63-74

44. Chavez DA, Greer BH, Eichman BF (2018) The HIRAN domain of helicase-like transcription factor positions the DNA translocase motor to drive efficient DNA fork regression. *J Biol Chem*, 293: 8484-94

45. Warren GM, Stein RA, Mchaourab HS, and Eichman BF (2018) Movement of the RecG motor domain upon DNA binding is required for efficient DNA fork reversal. *Int J Mol Sci*, 19: 3049

46. Mohni KN, Wessel SR, Zhao R, Wojciechowski AC, Luzwick JW, Layden H, Eichman BF, Thompson PS, Mehta KPM, Cortez D (2019) HMCES maintains genome integrity by shielding abasic sites in single strand DNA. *Cell*, 176: 144-153 (PMC6329640)

47. Steenwyk JL, Opulente DA, Kominek J, Shen X, Zhou X, Labella AL, Bradley NP, Eichman BF, Čadež N, Libkind D, DeVirgilio J, Hulfachor AB, Kurtzman CP, Hittinger CT*, and Rokas A* (2019) Extensive loss of cell cycle and DNA repair genes in an ancient lineage of bipolar budding yeasts. *PLOS Biology*, 17:e3000255 (PMC6528967)

48. Thompson PS§, Amidon KM§, Mohni KN, Cortez D*, and Eichman BF* (2019) Protection of abasic sites during DNA replication by a stable thiazolidine protein-DNA crosslink. *Nat Struct Mol Biol*, 26: 613-618 (PMC6628887) (* co-corresponding author)
    ► News & Views: Nowotny M (2019) Crosslink and shield: protecting abasic sites from error-prone repair. *Nat Struct Mol Biol*, 26: 530-532

49. Paulson CN, John K, Baxley RM, Kurniawan F, Kurahashi K, Francis R, Sobeck A, Eichman BF, Chazin WJ, Aihara H, Georg GI, Hawkinson JE, and Bielinsky AK (2019) The anti-parasitic agent suramin and several of its analogs are inhibitors of the DNA binding protein Mcm10. *Open Biol*, 9: 190117 (PMC6731595)

50. Imani Nejad M, Housh K, Rodriguez AA, Haldar T, Kathe S, Wallace SS, Eichman BF*, and Gates KS* (2020) Unhooking of an interstrand cross-link at DNA fork structures by the DNA glycosylase NEIL3. *DNA Repair*, 86: 102752 (PMC7027961)

51. Bradley NP, Washburn LA, Watanabe CMH, and Eichman BF (2020) *Escherichia coli* YcaQ is a DNA glycosylase that unhooks interstrand crosslinks. *Nucleic Acids Res*, 48: 7005–7017 (PMC7367128) (*cover article*)
    ► Selected as a Breakthrough Article by the Editors of *Nucleic Acids Research*

52. Bai G, Kermi C, Stoy H, Schiltz CJ, Bacal J, Zaino AM, Hadden MK, Eichman BF, Lopes M, Cimprich KA (2020) HLTF promotes fork reversal, limiting replication stress resistance and preventing multiple mechanisms of unrestrained DNA synthesis. *Mol Cell*, 78: 1237-1251 (PMC7305998)

53. Rodriguez AA, Wojtaszek JL, Greer B, Haldar T, Gates KS, Williams RS*, and Eichman BF* (2020) An autoinhibitory role for the GRF zinc finger domain of NEIL3 DNA glycosylase. *J Biol Chem*, 295: 15566–15575 (PMC7667957)

54. Mullins EA§, Dorival J§, Tang G-L, Boger DL, and Eichman BF (2021) Structural evolution of a DNA repair self-resistance mechanism targeting genotoxic secondary metabolites. *Nat Commun*, 12: 6942 (PMC8626424)

55. Chen X§, Bradley NP§, Lu W, Wahl KL, Zhang M, Yuan H, Hou X-F, Eichman BF*, Tang G-L* (2022) Base excision repair system targeting DNA adducts of trioxacarcin/LL-D49194 antibiotics for self-resistance. *Nucleic Acids Res*, 50: 2417-2430 (* co-corresponding author) (PMC8934636)

56. Bradley NP§, Wahl KL§, Steenwyk JL, Rokas A, Eichman BF (2022) Resistance-guided mining of bacterial genotoxins defines a family of DNA glycosylases. *mBio*, 13: e03297-21 (PMC9040887)

57. Paulin KA, Cortez D, and Eichman BF (2022) The SOS response-associated peptidase (SRAP) domain of YedK catalyzes ring opening of abasic sites and reversal of its DNA-protein crosslink. *J Biol Chem*, 298: 102307 (PMC9436759)

58. Campos LV, Greer BH, Heintzman DR, Kavlashvili T, McDonald WH, Rose KL, Eichman BF, Dewar JM (2023) RTEL1 and MCM10 overcome topological stress during vertebrate replication termination. *Cell Reports*, 42: 112109 (PMC10432576)

59. Dorival J and Eichman BF (2023) Human and bacterial TatD enzymes exhibit apurinic/apyrimidinic (AP) endonuclease activity. *Nucleic Acids Res*, 51: 2838-2849 (PMC10085689)

60. Ngo K, Gittens TH, Gonzalez DI, Hatmaker EA, Plotkin S, Engle M, Friedman GA, Goldin M, Hoerr RE, Eichman BF, Rokas A, Benton ML, and Friedman KL (2023) A comprehensive map of hotspots of de novo telomere addition in *Saccharomyces cerevisiae*. *Genetics*, 224: iyad076 (PMC10474931)
61. Cordoba JJ, Mullins EA, Salay LE, Eichman BF, and Chazin WJ (2023) Flexibility and distributive synthesis regulate RNA priming and handoff in human DNA polymerase α–primase. *J Mol Biol*, 435: 168330 (PMC10872500)
62. Rua-Fernandez J, Lovejoy CA, Mehta KPM, Paulin KA, Toudji YT, Giansanti C, Eichman BF, Cortez D (2023) Self-reversal facilitates the resolution of HMCES-DNA protein crosslinks in cells. *Cell Rep*, 42: 113427 (PMC10842721)
63. Mullins EA, Salay LE, Durie CL, Bradley NP, Jackman JE, Ohi MD, Chazin WJ*, and Eichman BF* (2024) A mechanistic model of primer synthesis from catalytic structures of DNA polymerase α–primase. *Nat Struct Mol Biol*, 31: 777–790 (PMC11102853)
64. Kunkle DE§, Cai Y§, Eichman BF*, Skaar EP* (2024) An interstrand DNA crosslink glycosylase aids *Acinetobacter baumannii* pathogenesis. *Proc Natl Acad Sci USA*, 121: e2402422121 (*co-corresponding authors) (PMC11228520)
65. Bai G, Endres T, Kühbacher U, Mengoli V, Greer BH, Peacock EM, Newton MD, Stanage T, Stritto MRD, Lungu R, Crossley MP, Sathirachinda A, Cortez D, Boulton SJ, Cejka P, Eichman BF, Cimprich KA (2024) HLTF Prevents G4 Accumulation and Promotes G4-induced Fork Slowing to Maintain Genome Stability. *Mol Cell*, 84: 3044-3060 (PMC11366124)
66. Dorival J§, Yuan H§, Walker AS, Tang G-L*, Eichman BF* (2024) Yatakemycin biosynthesis requires two deoxyribonucleases for toxin self-resistance. *RSC Chem Biol*. 6: 94-105 (*co-corresponding authors) (PMC11621827)

REVIEW ARTICLES (Peer-Reviewed)

67. Ho PS* and Eichman BF (2001) The crystal structures of DNA Holliday junctions. *Curr Opin Struct Biol*, 11: 302-308 (*corresponding author) (*Invited review*)
68. Rubinson EH and Eichman BF (2012) Nucleic acid recognition by tandem helical repeats. *Curr Opin Struct Biol*, 22: 101-109 (*Invited review*)
69. Brooks SC, Adhikary S, Rubinson EH, and Eichman BF (2013) Recent advances in the structural mechanisms of DNA glycosylases. *Biochem Biophys Acta – Proteins and Proteomics*, 1834: 247-271 (PMC3530658) (*Invited review*)
70. Shi R, Shen X, Rokas A, and Eichman BF (2018) Structural biology of the HEAT-like repeat family of DNA glycosylases. *BioEssays*, 40: 1800133 (*Invited review*)
71. Mullins EA, Rodriguez AA, Bradley NP, and Eichman BF (2019) Emerging roles of DNA glycosylases and the base excision repair pathway. *Trends in Biochemical Sciences*, 44: 765-781 (PMC6699911) (*Invited review, cover article*)
72. Amidon KM and Eichman BF (2020) Structural biology of DNA abasic site protection by SRAP proteins. *DNA Repair*, 94: 102903 (PMC7494546) (*Invited review*)
73. Eichman BF (2023) Repair and tolerance of DNA damage at the replication fork: a structural perspective. *Curr Opin Struct Biol*, 81: 102618 (PMC10525001) (*Invited review*)
74. Oswalt LE and Eichman BF (2024) NEIL3: a unique DNA glycosylase involved in interstrand DNA crosslink repair. *DNA Repair*, 139: 103680 (PMC11162926) (*Invited review*)

BOOK CHAPTERS (Indicates Peer-Reviewed)**

75. Basham B, Eichman BF, and Ho PS (1999) The single crystal structures of Z-DNA. In Neidle, S. (ed.), *The Oxford Handbook of Nucleic Acid Structure*. Oxford University Press, Oxford, UK, Vol. 1, pp. 199-252.
76. ** Rubinson EH, Adhikary, S, and Eichman BF (2010) Structural studies of alkylpurine DNA glycosylases. In Stone, M.P. (ed.), *ACS Symposium Series: Structural Biology of DNA Damage and Repair*. American Chemical Society, Washington, D.C., Vol. 1041, pp. 29-45.

77. Du W, Stauffer M, and Eichman BF (2012) Structural biology of replication initiation factor Mcm10. In MacNeill, S. (ed.), *The Eukaryotic Replisome: A Guide to Protein Structure and Function*. Springer Publishing Company, New York. *Subcell Biochem*, 62:197-216.

PREVIEWS / NEWS & VIEWS

1. Eichman BF and Fanning E (2004) The power of pumping together; deconstructing the engine of a DNA replication machine. *Cell*, 119: 3-4.
2. Camps M and Eichman BF (2011) Unraveling a connection between DNA demethylation repair and cancer. *Mol Cell*, 44: 343-4.
3. Eichman BF (2017) Preface. *Methods Enzymol*, 591: xv-xvii and 592: xvii-xx.
4. Eichman BF (2021) Preface. *Methods Enzymol*, 661: xvii-xx.
5. Eichman BF (2024) Preface. *Methods Enzymol*, 705: xxi-xxii.

EDITED VOLUMES

1. Eichman BF, ed. (2017) *Methods in Enzymology, Vol. 591. DNA Repair Enzymes: Cell, Molecular, and Chemical Biology*. London: Academic Press.
2. Eichman BF, ed. (2017) *Methods in Enzymology, Vol. 592*. *DNA Repair Enzymes: Structure, Biophysics, and Mechanism*. London: Academic Press.
3. Eichman BF, ed. (2021) *Methods in Enzymology, Vol. 661*. *The DNA replication-repair interface*. London: Academic Press.
4. Eichman BF, ed. (2024) *Methods in Enzymology, Vol. 705*. *Chemical and Genomic Methods in Nucleic Acid Biology*. London: Academic Press.

FUNDING

Active

NIH R35 GM136401 (Eichman)
Structural biology of the DNA replication stress response
06/01/20 – 05/31/25, $2,765,348 total / $1,746,738 direct
Role: PI, 27% effort
Administrative Supplements
NIH R35 GM136401-01S1; 06/01/20 – 05/31/21, $249,875 direct
NIH R35 GM136401-03S1; 06/01/22 – 05/31/23, $128,040 direct
NIH R35 GM136401-05S1; 06/01/24 – 05/31/25, $36,919 total

NSF MCB-2341288 (Eichman)
DNA glycosylases involved in interstrand crosslink repair and antibiotic self-resistance
04/01/24 – 3/31/28, $1,300,000 total / $827,144 direct
Role: PI, 8.3% effort

NIH P01 CA092584 (Tainer)
Structural cell biology of DNA repair machines
09/01/21 – 08/31/26, $15,229,374 total / $10,922,596 direct
Project 4: Fork Repair: Mechanisms and consequences of stalled replication fork processing (Cortez, Eichman)
$1,268,000 total / $800,000 direct ($225,000 direct to Eichman lab)
Role: Project Leader, 10% effort

NSF GRFP (Oswalt)
Determining a mechanism of abasic site interstrand crosslink repair by the DNA glycosylase NEIL3
07/01/25 — 06/30/28, $111,000 direct costs
Predoctoral Fellowship
Role: Mentor

Pending

NIH R35 GM136401-06 (Eichman)
The DNA replication-repair interface: mechanisms and regulation
06/01/25 – 05/31/30, $3,347,068 total / $2,119,798 direct
Role: PI, 25% effort

Completed

Extramural as PI

NSF MCB-1928918 (Eichman)
DNA repair mechanisms of self-resistance to genotoxic secondary metabolites
09/01/19 – 11/30/24 (NCE), $1,320,000 total / $844,563 direct
Role: PI, 8% effort

NIH R01 GM131071, Mechanisms of DNA glycosylase mediated interstrand crosslink repair
09/15/19 – 08/31/21 (NCE)*, $1,818,858 total / $1,259,792 direct
Role: PI, 17% effort
*Original end date 8/31/23, relinquished to accept R35 GM136401

NIH R01 GM117299, Mechanisms of replication fork repair
01/01/16 – 06/30/20, $1,239,460 total / $790,000 direct
Role: PI, 17% effort

NSF MCB-1517695, A New Structural Architecture for Recognition of DNA Damage
08/01/15 – 07/31/19, $660,000 total / $420,382 direct
Role: PI, 12.5% effort

NSF MCB-1122098, A New Structural Architecture for DNA Processing
08/15/11 – 07/31/15 (1-year NCE), $690,000 / $446,888 direct
Role: PI, 12.5% effort

NIH R01 GM080570, Structural Mechanisms of Mcm10 in DNA Replication
04/15/07 – 03/31/13 (2-year NCE), $1,121,279 / $737,917 direct
Role: PI, 28% effort

American Cancer Society RSG-07-063-01-GMC, Structural Basis for Repair of DNA Alkylation Damage
01/01/07 – 12/31/11 (1-year NCE), $719,000 / $600,000 direct
Role: PI, 25% effort

NIH F32 GM065714, Structural Studies of DNA Repair Proteins
Ruth L. Kirschstein National Research Service Award, Postdoctoral Fellowship
03/20/02 – 04/30/04, $86,468 direct
Role: PI

Extramural as co-Investigator

NIH R01 ES030575-A1 (Cortez)
Functions of SRAP domain proteins in DNA metabolism
04/01/19 – 12/31/23, $2,875,809 total ($190,230 direct to Eichman lab)
Role: Co-Investigator, 10% effort

NIH F31 ES032334-01 (Amidon)
The molecular basis of SRAP domain DNA-protein crosslinking
02/01/20 – 02/01/23, $89,640 total costs
Predoctoral Fellowship
Role: Mentor

NIH S10 S10OD032234 (Smith)
GPU-Accelerated Parallel Computer for Life Sciences Research
07/01/22 – 06/30/23, $599,454
Role: Major user

NIH P01 CA092584 (Tainer)
Structural cell biology of DNA repair machines
09/01/16 – 08/31/21, $19,616,540 total / $11,367,715 direct
Project 2: Replication fork repair and signaling (Cortez)
$2,151,820 total / $1,405,000 direct ($175,000 direct to Eichman lab)
Role: Sr. Investigator, 8% effort

NSF DGE-1445197 (Rodriguez)
Understanding NEIL3 glycosylase structure and specificity for DNA fork-like substrates
7/01/18 – 6/30/21, $102,000 direct costs
Predoctoral Fellowship
Role: Mentor

NSF DGE-1445197 (Bradley)
Mechanism of Azinomycin B-DNA Interstrand Crosslink Removal by the Glycosylase AlkZ
7/01/18 – 6/30/21, $102,000 direct costs
Predoctoral Fellowship
Role: Mentor

NIH F32 ES027332 (Parsons)
Preparation and biophysical characterization of cationic methylpurine lesions and their role in damage recognition by DNA glycosylases
09/01/16 – 08/31/17, $56,118 total costs
NRSA Postdoctoral Fellowship
Role: Mentor

NIH R01 ES019625 (Camps)
Mechanisms of Selective Excision and Oxidative Repair of Alkylated DNA
07/25/11 – 06/30/17 (NCE), $1,692,809 total / $1,408,037 direct ($534,147 direct to Eichman lab)
Role: co-PI, 17% effort

NIH R01 GM065484 (Chazin)
Structural Basis for RPA and DNA Primase Functions
01/01/12 – 12/31/16 NCE, $1,344,720 total / $862,000 direct
Role: co-Investigator, 5% effort cost-shared

ACS PF-12-220-01-DMC (Mason)
Structural Mechanisms of Smarcal1 Mediated Replication Fork Stabilization
07/01/12 – 06/30/15, $150,000 direct costs
Postdoctoral Fellowship
Role: Mentor

NIH P01 DK065123 (Hudson), Cell-Matrix Interactions in the Glomerulus
Project 2: The Role of Integrins α1β1 and α2β1 in Collagen IV Homeostasis (PI, Ambra Pozzi)
07/18/08 – 06/30/13, P01: $5,502,855 (P01 total); Project 2: $1,229,660 total / $850,000 direct
Role: co-Investigator, 6% effort

NIH S10 RR024687 (Chazin), Acquisition of an Analytical Ultracentrifuge
12/13/08 – 11/30/09, $341,531
Role: Major user

NIH S10 RR025677 (Sanders), Console Upgrades for Biological NMR Spectrometers
05/18/09 – 05/17/10, $459,900
Role: Minor user

Intramural
Vanderbilt University Evolutionary Studies Initiative Pilot Research Grant
Structural and molecular evolution of DNA repair proteins

06/01/23 – 06/31/23, $5,635 total direct
Role: PI

Vanderbilt University Interdisciplinary Discovery Grant (Eichman, Chazin, Ohi)
Coordination of RNA and DNA Synthesis Activities in Polymerase α-Primase
07/01/15 – 06/30/17, $100,000 total direct
Role: co-PI

Vanderbilt Center in Molecular Toxicology Pilot Project Grant (P30 ES000267, PI, Guengerich)
Structural Studies of DNA Damage Response Protein Smarcal1
04/01/11 – 03/31/12, $37,500 direct
Role: PI

Vanderbilt University, Interdisciplinary Discovery Grant (Eichman, Gamse)
Structural Basis for Regulation of Asymmetric Brain Development
05/01/10 – 06/30/12, $95,000 total direct
Role: Co-PI

Vanderbilt University Discovery Grant (Friedman)
Structure/Function Analysis of the Est3 Protein of Yeast Telomerase
05/01/07 – 06/30/09, $50,000 direct
Role: Co-Investigator, 5% effort

Vanderbilt University Discovery Grant (Eichman)
Molecular Mechanism of Eukaryotic DNA Replication Initiation
05/01/05 – 06/30/07, $48,000 direct
Role: PI

Vanderbilt Center for Molecular Toxicology Pilot Project Grant (P30 ES000267, PI, Guengerich)
Molecular Mechanism of Eukaryotic DNA Replication Initiation
04/01/05 – 03/31/06, $40,000 direct
Role: PI

Vanderbilt-Ingram Cancer Center Pilot Award (Eichman)
American Cancer Society Institutional Research Grant (ACS IRG-58-009-47, PI, Jennifer Pietenpol)
Structural Studies of DNA Repair Proteins
07/01/05 – 06/30/06, $20,000 direct
Role: PI

INVITED ACADEMIC LECTURES

2003 Boston DNA Repair and Mutagenesis Group. Massachusetts Institute of Technology, Boston, MA
2003 Department of Biochemistry and Molecular Biology, University of Maryland School of Medicine, Baltimore, MD
2004 Department of Molecular Biology, Cell Biology, & Biochemistry, Brown University, Providence, RI
2004 Department of Biochemistry & Molecular Biology, University of Connecticut, Storrs, CT
2004 Department of Biological Sciences, Vanderbilt University, Nashville, TN
2007 Department of Biochemistry and Molecular Biology, University of Maryland School of Medicine, Baltimore, MD.
2008 Department of Biochemistry & Molecular Biology, Pennsylvania State University School of Medicine, Hershey, PA
2009 Department of Biochemistry and Molecular Biology, Colorado State University, Fort Collins, CO
2009 Department of Biological Chemistry, University of Michigan, Ann Arbor, MI
2010 Sigma Xi Annual Banquet, Vanderbilt University Chapter, Nashville, TN
2011 Vanderbilt Institute of Chemical Biology, Vanderbilt University, Nashville, TN
2011 Department of Chemistry, Vanderbilt University, Nashville, TN

2011 Department of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, Little Rock, AR
2012 Department of Chemistry, University of Alabama at Birmingham
2013 Department of Microbiology and Environmental Toxicology, University of California, Santa Cruz
2013 Department of Biochemistry, Molecular Biology, & Biophysics, University of Minnesota, Minneapolis, MN
2013 Laboratory of Structural Biology Annual Retreat, National Institute of Environmental Health Sciences, Durham, NC
2014 Department of Structural Biology, St. Jude Children's Research Hospital, Memphis, TN
2014 Life-Sciences Collaborative Access Team, Advanced Photon Source, Argonne National Laboratory, Chicago, IL
2014 Department of Biochemistry and Molecular Biology, University of Chicago
2015 Department of Biology, Technische Universität, Darmstadt, Germany
2015 Department of Chemistry, Ludwig-Maximilians-Universität, Munich, Germany
2015 Institute of Chemical Biology, Colorado State University, Fort Collins, CO
2015 Department of Biochemistry & Molecular Biology, Belmont University, Nashville, TN
2015 NIEHS Training Program in Environmental Health Sciences, University of California, Davis
2016 Department of Molecular & Cellular Biochemistry, Indiana University, Bloomington, IN
2016 Department of Microbiology and Physiological Systems, University of Massachusetts Medical School, Worcester, MA
2017 Department of Microbiology and Environmental Toxicology, University of California, Santa Cruz
2017 Department of Molecular Medicine, Cornell University, Ithica, NY
2017 Department of Chemistry and Biochemistry, Baylor University, Waco, TX
2017 Department of Biochemistry and Biophysics, George W. Raiziss Biochemical Rounds, University of Pennsylvania, Philadelphia, PA.
2018 Department of Biochemistry, Wake Forest School of Medicine, Winston-Salem, NC
2018 Department of Medicinal Chemistry, University Of Minnesota, Minneapolis, MN
2018 Department of Chemistry and Biochemistry, The Ohio State University, Columbus, OH
2018 Department of Genetics and Biochemistry, Clemson University, Clemson, SC
2018 Department of Biochemistry & Structural Biology, University of Texas Health Science Center, San Antonio, TX
2019 Department of Radiation Oncology, University of Texas Southwestern Medical Center, Dallas, TX
2019 Department of Biophysics, University of Texas Southwestern Medical Center, Dallas, TX
2019 Department of Chemistry, Yale University, New Haven, CT
2020 Department of Chemistry, Texas A&M University, College Station, TX
2020 Vanderbilt Institute of Chemical Biology Student Symposium, Nashville, TN
2021 Genome Maintenance and Cancer (GMaC) Seminar Series, Washington University, St. Louis, MO
2023 Molecular Biology, Cell Biology and Biochemistry Graduate Program, Brown University, Providence, RI
2023 Structural Biology Program, Sloan Kettering Institute of Memorial Sloan Kettering Cancer Center, New York, NY
2023 Department of Chemistry, University of Vermont, Burlington, VT
2023 Department of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, Little Rock, AR
2023 Department of Biochemistry and Molecular Medicine, Université de Montréal, Canada
2024 The Francis Crick Institute, London, England
2024 Imperial College London, England
2024 Department of Biochemistry & Molecular Biology, University of Florida, Gainesville, FL
2024 Department of Biophysics, University of Michigan, Ann Arbor, MI

2024 Laboratory of Molecular Biology, MRC, Cambridge, England
2024 Department of Biophysics, University of Texas Southwestern Medical Center, Dallas, TX
2024 Department of Biochemistry and Molecular Biology, University of South Alabama, Mobile, AL
2025 (Scheduled) Department of Biological Chemistry, University of Michigan
2025 (Scheduled) Department of Biomolecular Chemistry, University of Wisconsin–Madison
2025 (Scheduled) Division of Chemical Biology and Medicinal Chemistry, University of Texas at Austin
2025 (Scheduled) Department of Pathology & Immunology, Washington University in St. Louis

INVITED CONFERENCE LECTURES

1998 American Crystallographic Association Annual Meeting, Arlington, VA
2000 13th Annual International Congress of Photobiology, San Francisco, CA
2006 36th Mid-Atlantic Macromolecular Crystallography Meeting, Winston-Salem, NC
2008 236th American Chemical Society National Meeting, Philadelphia, PA
2008 The Southeastern Regional Meeting of the American Chemical Society, Nashville, TN
2009 237th American Chemical Society National Meeting, Salt Lake City, UT
2009 SBGrid Annual Meeting and Computing School, Harvard Medical School, Boston, MA
2009 American Society for Microbiology Conference on DNA Repair and Mutagenesis, Whistler, Canada
2009 Sigma Xi Annual Meeting and International Research Conference, The Woodlands, TX
2010 FASEB Science Research Conference: Nucleic Acid Enzymes, Vermont Academy, Saxtons River, VT (unable to attend)
2010 Danforth Plant Science Center 12th Annual Fall Symposium, St, Louis, MO
2010 Zing Conference: Nucleic Acids, Puerto Morelos, Mexico
2011 Argonne National Laboratory Annual Users Meeting, Argonne, IL (***keynote address***)
2012 FASEB Science Research Conference: Nucleic Acid Enzymes, Snowmass Village, CO
2012 Meeting of the American Crystallographic Association, Boston, MA
2012 Zing Conference: Nucleic Acids, Xcaret, Mexico
2013 Gordon Research Conference: Nucleic Acids, University of New England, Biddeford, ME
2013 Southeast Regional Meeting of the American Chemical Society, Atlanta, GA
2014 Fusion Conference: Dynamic Structures in DNA Damage Responses and Cancer, Cancun, Mexico
2014 Zing Conference: Nucleic Acids, Cancun, Mexico
2015 Gordon Research Conference: Nucleic Acids, University of New England, Biddeford, ME
2015 FASEB Science Research Conference: Helicases, Steamboat Springs, CO
2015 Southeast Regional Meeting of the American Chemical Society, Memphis, TN
2016 Fusion Conference: 2nd Dynamic DNA and RNA Structures in Damage Responses and Cancer, Cancun, Mexico
2016 Biochemical Society 80th Harden Conference: Machines on Genes IV, Macclesfield, UK
2016 Meeting of the American Crystallographic Association, Denver, CO (unable to attend)
2016 Zing Conference: Nucleic Acids, Tampa, FL
2017 Gordon Research Conference: RNA Editing—Biology and Mechanisms of RNA and DNA Modification, Ventura, CA
2017 Gordon Research Conference: Nucleic Acids, University of New England, Biddeford, ME
2017 EMBO/Harden Conference: Helicases and Nucleic Acid-Based Machines, Kloster Banz, Germany
2018 Fusion Conference: 3rd DNA Replication/Repair Structures and Cancer, Cancun, Mexico
2018 Midwest Chromatin and Epigenetics Meeting, Purdue University (unable to attend)
2018 ASBMB Annual Meeting Spotlight Session, San Diego, CA (unable to attend)
2018 DNA Repair Symposium honoring Susan Wallace, University of Vermont, Burlington, VT
2019 Gordon Research Conference: Nucleic Acids, Sunday River Resort, Newry, ME

2019 Meeting of the American Crystallographic Association, Cincinnati, OH

2020 Fusion Conference: 4th DNA Repair/Replication Structures and Cancer, Nassau, Bahamas

2021 (Postponed) 2nd Annual Southern Structural Biology Symposium, Mobile, AL (***keynote address***)

2022 Fusion Conference: 5th DNA Repair/Replication Structures and Cancer, Cancun, Mexico (session chair)

2022 FEBS 3+ Meeting: 86th Harden Conference - Machines on Genes, Alicante, Spain (***Biochemical Society International Award lecture***)

2022 Telluride Workshop on Nucleic Acid Chemistry, Telluride, CO

2023 Gordon Research Conference: Nucleic Acids, Sunday River Resort, Newry, ME

2023 FASEB Science Research Conference: Helicases and Nucleic Acid-based Machines, Southbridge Hotel & Conference Center, Southbridge, MA

2023 American Chemical Society Division of Chemical Toxicology (TOXI) Symposium, ACS National Meeting, San Francisco, CA

2024 Fusion Conference: 6th DNA Repair/Replication Structures and Cancer, Cancun, Mexico (speaker, session chair)

2024 Mid-South Biophysics Symposium, Tuscaloosa, AL (***keynote speaker***; unable to attend)

2024 Southeast Regional Meeting of the American Chemical Society, Atlanta, GA (unable to attend)

2024 Meeting of the American Crystallographic Association, cryo-EM SIG, Denver, CO

2024 Telluride Workshop on Nucleic Acid Chemistry, Telluride, CO

2025 (Scheduled) FASEB Science Research Conference: Machines on Genes, Nashville, TN

2025 (Scheduled) Helicases and Nucleic Acid-based Machines, Lisbon, Portugal

STUDENT & POSTDOC AWARDS

1. Audrey (Herrin) Metz, Vanderbilt University Summer Research Program Fellowship, 2005
2. Audrey (Herrin) Metz, First Prize Best Poster Award, Vanderbilt Institute of Chemical Biology Annual Retreat. Nashville, TN, July 2006
3. Audrey (Herrin) Metz, Award for Outstanding Research in Biological Sciences, Vanderbilt University, 2006
4. Eric M. Warren, Ann Bernard Martin Award (demonstrating exceptional promise in research), Vanderbilt University Department of Biological Sciences, 2006
5. Eric M. Warren, Gisela Mosig Outstanding Graduate Student Presenter Award, Vanderbilt University Department of Biological Sciences Annual Retreat. Chapel Hill, TN, Oct 2007
6. Eric M. Warren, Best Poster Award, 38th Mid-Atlantic Crystallography Meeting, Chapel Hill, NC, 2008
7. Emily H. Rubinson, Second Prize Best Poster Award, Vanderbilt Institute of Chemical Biology Annual Retreat. Nashville, TN, Aug 2008
8. Emily H. Rubinson, Student Travel Award, ASM Conference on DNA Repair and Mutagenesis: From Molecular Structure to Human Disease. Whistler, Canada, May 2009
9. Emily H. Rubinson, Second Prize Best Poster Award, Vanderbilt Institute of Chemical Biology Annual Retreat. Nashville, TN, Aug 2009
10. Emily H. Rubinson, Gisela Mosig Outstanding Graduate Student Presenter Award, Vanderbilt University Department of Biological Sciences Annual Retreat. Oct 2009
11. Emily H. Rubinson, Best Poster Award (co-winner), FASEB Science Research Conference: Nucleic Acid Enzymes. Vermont Academy, Saxtons River, VT, June 2010
12. Emily H. Rubinson, Best Oral Presentation Award, Vanderbilt Institute of Chemical Biology Annual Retreat. Nashville, TN, Aug 2010
13. Suraj Adhikary, Second Prize Best Poster Award, Vanderbilt Institute of Chemical Biology Annual Retreat. Nashville, TN, Aug 2010
14. Sonja Brooks, NSF Predoctoral Fellowship, 2010-2013
15. Claire Cato, Dean's Beckman Scholar, Vanderbilt University, 2012-13, $19,300 direct costs
16. Michael Pritchett, Vanderbilt University Summer Research Program Fellowship, 2012

17. Aaron Mason, American Cancer Society Postdoctoral Fellowship, 2012-2015, $150,000 direct costs
18. Aaron Mason, NIH NRSA Postdoctoral Fellowship, 2012, declined
19. Claire Cato, Vanderbilt nominee for Goldwater Scholarship, 2013
20. Claire Cato, Beckman Scholars Symposium, July 25-27, 2013, Irvine, CA, invited speaker
21. Lyla Kotsch, Vanderbilt University Summer Research Program Fellowship, 2014
22. Diana (Tafoya) Chavez, Ann Bernard Martin Award, Vanderbilt Dept of Biological Sciences, 2014
23. Elwood Mullins, Leon W. Cunningham Outstanding Postdoctoral Fellow Award, Vanderbilt Dept of Biochemistry, 2016
24. Elwood Mullins, ASBMB Annual Meeting, Selected Talk, Chicago, IL, 2016
25. Elwood Mullins, Meeting of the American Crystallographic Association, Travel Award, 2016
26. Zachary Parsons, NIH NRSA Postdoctoral Fellowship, 2016-17, $56,118 total costs
27. Kristen Gardner, ABRCMS 2016 Presentation Award, Annual Biomedical Research Conference for Minority Students, 2016
28. Elwood Mullins, Vanderbilt Ingram Cancer Center Postdoc of the Year, 2017
29. Rongxin Shi, Vanderbilt Institute of Chemical Biology Symposium, poster award, 2017
30. Alyssa Rodriguez, NSF Graduate Research Fellowship, 2018-20
31. Noah Bradley, NSF Graduate Research Fellowship, 2018-20
32. Katherine Amidon, NSF Graduate Research Fellowship, Honorable Mention, 2019
33. Noah Bradley, Ann Bernard Martin Award, Vanderbilt Dept of Biological Sciences, 2019
34. Noah Bradley, Junior Investigator Award, Fusion 4th DNA Repair/Replication Structures and Cancer Conference, 2020
35. Noah Bradley, Best Poster, Fusion 4th DNA Repair/Replication Structures and Cancer Conf, 2020
36. Katherine Amidon, Ann Bernard Martin Award, Vanderbilt Dept of Biological Sciences, 2020
37. Katherine Amidon, Vanderbilt Prize Student Scholar, 2020
38. Katherine Amidon, NIH NRSA F31 Pre-doctoral Fellowship, 2020-22
39. Alyssa Rodriguez, Vanderbilt Institute of Chemical Biology Symposium, oral presentation award, 2020
40. Katherine Amidon, Vanderbilt Institute of Chemical Biology Symposium, poster award, 2020
41. Noah Bradley, Vanderbilt Institute of Chemical Biology Symposium, poster award, 2021
42. Noah Bradley, Vanderbilt Karpay Award in Structural Biology, 2022
43. Noah Bradley, Edward Ferguson Jr. Graduate Award, Vanderbilt University, 2022
44. Leah Oswalt, NSF Graduate Research Fellowship, 2025-28

TRAINING GRANT AFFILIATIONS

Molecular Biophysics Training Grant, NIH T32 GM008320
Vanderbilt Training Program in Environmental Toxicology, NIH T32 ES07028
Biochemical and Chemical Training for Cancer Research NIH T32 CA009582
Vanderbilt Chemistry-Biology Interface Training Grant NIH T32 GM065086
Medical Scientist Training Program, NIH T32 GM007347
Viruses, Nucleic Acids and Cancer, NIH T32 CA009385 (past)

TEACHING

Undergraduate

BSCI 2520, Biochemistry. Structure and mechanism of action of biological molecules, proteins, nucleic acids, lipids, and polysaccharides. Enzymology. Carbohydrate metabolism.

- 2010-2011 (Fall), 22 lecture hours, enrollment: 118-119
- 2012-2018 (Fall), 22 lecture hours, enrollment: 137-149
- 2019 (Spring), 21 lecture hours, enrollment: 116

BSCI 4265/5265, Nucleic Acid Transactions. Biochemistry of the expression, transmission, and maintenance of genetic information. DNA transcription, replication, recombination, and repair.

- 2006-2013 (Spring), 21 lecture hours, enrollment: 20-36 ** *Revised course* **
- 2014-2018 (Spring), 42 lecture hours, enrollment: 12-28

BSCI 4274, Proteins. Detailed functional, structural and chemical nature of proteins, biophysical and chemical methods to probe protein structure, and the relationship between protein structure and biological function.
- 2006-2008 (Fall), 42 lecture hours, enrollment: 9-15 ** *New course* **

BSCI 3850, Independent Reading
- 2004, 1 student

BSCI 3860, Research Internship
- 2011, 1 student

BSCI 3861/3961/4999 Directed/Independent/Honors Research
- 2005-07, 2011-16, mentored 14 students (3 Honors)
- 2018-19, 2021-2 (Fall), BSCI 3961 course coordinator, enrollment: 30-40
- 2024 (Fall), BSCI 3861 course coordinator, enrollment: 42

BCB 3201 Independent Laboratory Research
- 2019-20, 2020-21, 2022-24, mentored 3 students

CAL 3300 Beer Me! The Science, History, and Culture of Brewing
- 2025 (Spring), 24 students

Graduate

BSCI 5890: Special Topics in Biological Sciences. 3 hrs. Concurrent with BSCI 2520 Biochemistry
- 2019, 22 lecture hours, 1 student

BSCI 6320, Graduate Seminar in Biological Sciences
- 2005, 2009, 14 lecture hours, enrollment: 13-16

BCHM 8303, Macromolecular X-ray Crystallography
- 2006-2010, 2012 (Spring), 4-5 lecture hours, enrollment 3-17

BCHM 8336, Biochemical Toxicology & Carcinogenesis
- 2014-present (Fall), 2 lecture hours, enrollment: 5-10

BCHM 8349, Graduate Seminar in Molecular Biophysics
- 2005-2010, 2012-2013, 2015, 2017, 2019, 2021, 2023 (Spring), 1.5 lecture hours, enrollment: 7-16

IGP 300A, Bioregulation: Cell Division and Cancer
- 2009, 2 lecture hours, enrollment: 125

IGP Flex Time, How to read a scientific paper
- 2004-2005, 4 lecture hours, enrollment: 22-25

PERSONNEL SUPERVISED

Research Faculty

1. Elwood Mullins, Ph.D., Oct 2018 - present, Research Assistant Professor

Postdoctoral Fellows

1. William Wolfle, Ph.D., Nov 2005 – Oct 2007, Viruses and Nucleic Acids Training Grant. Research Associate, Vanderbilt Medical Center
2. Emily Rubinson, Ph.D., Feb 2011 – Aug 2012, Molecular Toxicology Training Grant. External Technology Lead, R&D Innovation, The Coca-Cola Company, Atlanta, GA
3. Aaron Mason, Ph.D., Jul 2010 – June 2015, Molecular Toxicology Training Grant, American Cancer Society Postdoctoral Fellow. Lead Scientst, Avitide, Inc., Lebanon, NH

4. Elwood Mullins, Ph.D., Oct 2012 – Sept 2018, Molecular Toxicology Training Grant. Research Assistant Professor, Vanderbilt University
5. Zachary Parsons, Ph.D., Sep 2014 – Aug 2017, Molecular Toxicology Training Grant, NIH F32 NRSA Postdoctoral Fellowship. Principal Scientist, Bristol Meyers Squibb, Boston, MA
6. Meng Su, Ph.D., Nov 2016 – Oct 2017. Postdoctoral Scholar, MRC Laboratory of Molecular Biology, Cambridge, England
7. Diana Chavez, Ph.D., Jul 2018 – Sept 2019, Molecular Toxicology Training Grant, Scientist, Molecular Templates, Austin, TX
8. Jonathan Dorival, Ph.D., Oct 2018 – Mar 2023, Senior Scientist in Protein Biochemistry at AstraZeneca, Gothenburg, Sweden
9. Carl Schiltz, Ph.D., July 2019 – Jan 2023, Biochemical and Chemical Training for Cancer Research Training Grant. Senior Research Scientist, IDEXX, Westbrook, ME
10. Yujuan Cai, Ph.D., Feb 2022 – present

Graduate Students

1. Eric Warren, Ph.D., Mar 2005 – Jul 2009, Molecular Biophysics Training Grant. Co-Founder, SEP Forensic Consultants, LLC, Nashville, TN
2. Patrick Robertson, Ph.D., Nov 2005 – Jun 2010. Vice President, CMC Strategy & Program Management at Asklepios BioPharmaceutical, Inc., Raleigh-Durham, NC
3. Emily Rubinson, Ph.D., Oct 2006 – Jan 2011, Director, Strategic Innovation, NAOU Technical & Innovation, The Coca-Cola Company, Atlanta, GA
4. Suraj Adhikary, Ph.D., Jan 2008 – Feb 2013, Senior Scientist, Janssen Pharmaceuticals, Spring House, PA
5. Wenyue Du, Ph.D., Apr 2009 – Dec 2013, Manager, Business Development and Licensing, Cedars Sinai Medical Center, Los Angeles, CA
6. Sonja (Brooks) Fulmer, Ph.D., Mar 2010 – Jul 2014, Molecular Biophysics Training Grant, NSF Predoctoral Fellow. Deputy Director, Digital Health Center of Excellence, FDA, Washington, DC
7. Kevin Pereira, Mar 2011 – Jul 2013, Molecular Biophysics Training Grant. Physical Scientist Instructor, Currey Ingram Academy, Nashville, TN
8. Rongxin Shi, Ph.D., Feb 2013 – May 2018, Senior Scientist, Moderna, Lexington, MA
9. Diana (Tafoya) Chavez, Ph.D., Mar 2013 – Jun 2018, Molecular Biophysics Training Grant. Scientist, Molecular Templates, Austin, TX
10. Garrett Warren, Ph.D., Apr 2014 – Jun 2019, Molecular Toxicology Training Grant, Postdoctoral Research Associate, Memorial Sloan Kettering Cancer Center
11. Alyssa Rodriguez, Ph.D., Apr 2017 – Jun 2021, Molecular Biophysics Training Grant, NSF Graduate Research Fellowship. IRACDA Postdoctoral Fellow, University of California San Diego
12. Noah Bradley, Ph.D., Apr 2017 – May 2022, Molecular Toxicology Training Grant, NSF Graduate Research Fellowship. Senior Scientist, AbbVie, Evanston, IL
13. Katherine Amidon, Ph.D., May 2018 – Jul 2022, Molecular Biophysics Training Grant, NIH F31 Postdoctoral Fellowship. Clinical Researcher, TruDataRx, White River Junction, VT
14. Matthew Petrovich, M.S., Apr 2019 – Jun 2022, Molecular Biophysics Training Grant. Protein Purification Associate, Abcam, Waltham, MA
15. Leah Oswalt, Mar 2023 – present, Molecular Toxicology Training Grant, NSF Graduate Research Fellowship
16. Emma Peacock, Apr 2023 – present, Molecular Biophysics Training Grant
17. Cassandra Probert, Mar 2024 – present, Molecular Toxicology Training Grant
18. Ellie Lokken, Mar 2025 – present

Additional Graduate Rotation Students – 28
Graduate Thesis Committees – 71 (10 current; 4 chaired)
Technicians – 20 (2 current)
Undergraduate Students – 40 (22 mentored, 18 co-mentored)
Undergraduate Honors Thesis Committees – 33 (4 as mentor)
Undergraduate Advisees – 40 (0 current)