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Appointments

2021 - present

Principal Investigator of Membrane Protein Structural and Chemical Biology
Centre for Medicines Discovery - Nuffield Department of Medicine
The University of Oxford

Education

2012 **Ph.D. in Molecular Biophysics**, University of Texas Southwestern Medical Center
Advisor: Youxing Jiang, Ph.D.

Dissertation: Protein Structure and Ion Binding in Potassium Selective Channels

2005 **B.S. in Chemistry** (ACS, Honors Degree), Purdue University

Advisor: Jennifer Hovis, Ph.D.

Honors Thesis: Effect of Micelle Forming Lipids on Membrane Stability

Research Experience

2012 - 2021

Postdoctoral Fellow, New York University School of Medicine - Skirball Institute
Mentor: Professor Da-Neng Wang

2006 - 2012

Graduate Research Assistant, UT Southwestern Medical Center – Dept. of Physiology
Advisor: Professor Youxing Jiang

2003 - 2005

Undergraduate Research Assistant, Purdue University – Dept. of Chemistry
Advisor: Professor Jennifer Hovis

2002 **Undergraduate Research Assistant**, Univ. of Missouri St. Louis – Dept. of Chemistry

Advisor: Professor Keith Stine

Publications

16. C.D. Klinz-Thompson, M.L. Redondo, C. Mulligan, **D.B. Sauer**, J.J. Marden, J. Song, E. Tajkhorshid, J.F. Hunt, D.L. Stokes, J.A. Mindell, D.N. Wang, R.L. Gonzalez “Elevator mechanism dynamics in a sodium-coupled dicarboxylate transporter”
DOI: [10.1101/2022.05.01.490196](https://doi.org/10.1101/2022.05.01.490196)
15. **D.B. Sauer**, J.J. Marden, J.C. Sudar, J. Song, C. Mulligan, D.N. Wang “Structural basis of ion-substrate coupling in the Na⁺-dependent dicarboxylate transporter VcINDY” *Nature Comm.*, **13**:2644 (2022) DOI: [10.1101/2022.01.11.475879](https://doi.org/10.1101/2022.01.11.475879)

14. D.N. Brawley, **D.B. Sauer***, J. Li*, X. Zheng*, A. Koide*, G.S. Jedhe, T. Suwatthee, J. Song, Z. Liu, P.S. Arora, S. Koide, V.J. Torres, D.N. Wang, N.J. Traaseth “Structural basis for inhibition of the efflux pump NorA from *S. aureus*” *Nature Chem. Bio.*, (2022)
DOI: [10.1038/s41589-022-00994-9](https://doi.org/10.1038/s41589-022-00994-9)
*- Authors contributed equally
Commented on by:
A. Penmatsa “A (Fab)ulous tool to block efflux” *Nature Chemical Biology* (2022)
13. **D.B. Sauer**, B. Wang, J.C. Sudar, J. Song, J. Marden, W.J. Rice, D.N. Wang “The ups and downs of elevator-type di-/tricarboxylate membrane transporters” *FEBS J*, **289**, 1515-1523 (2022) DOI: [10.1111/febs.16158](https://doi.org/10.1111/febs.16158)
12. **D.B. Sauer**[†] and D.N. Wang[†] “Using machine learning to predict quantitative phenotypes from protein and nucleic acid sequences” DOI: [10.1101/677328](https://doi.org/10.1101/677328)
[†] - Co-corresponding author
11. **D.B. Sauer**, J. Song, B. Wang, J.K. Hilton, N.K. Karpowich, J.A. Mindell, W.J. Rice, D.N. Wang “Structure and inhibition mechanism of the human citrate transporter NaCT” *Nature*, **591**, 157-161 (2021) DOI: [10.1038/s41586-021-03230-x](https://doi.org/10.1038/s41586-021-03230-x)
10. **D.B. Sauer**, N. Trebesch, J.J. Marden, N. Cocco, J. Song, A. Koide, S. Koide, E. Tajkhorshid, D.N. Wang “Structural basis for the reaction cycle of DASS dicarboxylate transporters” *eLife*; **9**:e61350 (2020) DOI: [10.7554/eLife.61350](https://doi.org/10.7554/eLife.61350)
Commented on by:
A.W. Duster and H. Lin “Membrane Transport: Riding elevators into and out of cells” *eLife* **9**:e62925 (2020)
9. **D.B. Sauer**[†] and D.N. Wang[†] “Predicting the Optimal Growth Temperatures of Prokaryotes using only Genome Derived Features” *Bioinformatics*, **18**, 3224-3231 (2019)
DOI: [10.1093/bioinformatics/btz059](https://doi.org/10.1093/bioinformatics/btz059)
8. **D.B. Sauer**[†], N.K. Karpowich, J. Song, D.N. Wang[†] “Rapid Bioinformatic Identification of Thermostabilizing Mutations” *Biophys. J.*, **107**, 1420-1428 (2015)
DOI: [10.1016/j.bpj.2015.07.026](https://doi.org/10.1016/j.bpj.2015.07.026)
Commented on by:
C.G. Tate “Identifying Thermostabilizing Mutations in Membrane Proteins by Bioinformatics” *Biophys. J.*, **107**, 1307-1308 (2015).
7. Y.L. Lam*, W. Zeng*, **D.B. Sauer***, Y. Jiang “The Conserved Potassium Channel Filter Can Have Distinct Ion Binding Profiles - Structural Analysis of Rubidium, Cesium and Barium Binding in NaK2K” *J. Gen. Physiol.*, **114**, 181-192 (2014)
DOI: [10.1085/jgp.201411191](https://doi.org/10.1085/jgp.201411191)
6. **D.B. Sauer**, W. Zeng, J. Canty, Y. Jiang “Sodium and Potassium competition in Potassium-selective and Non-selective Channels” *Nature Comm.*, **4**:2721 (2013)
DOI: [10.1038/ncomms3721](https://doi.org/10.1038/ncomms3721)
5. C. Kong, W. Zeng, S. Ye, L. Chen, **D.B. Sauer**, Y. Lam, M.G. Derebe, Y. Jiang “Distinct Gating Mechanisms revealed by the structures of a multi-ligand gated K⁺ channel” *eLife*, **1**:e00184 (2012) DOI: [10.7554/eLife.00184](https://doi.org/10.7554/eLife.00184)

4. J. Liao, H. Li, W. Zeng, **D.B. Sauer**, R. Belemares, Y. Jiang “Structural Insight into the Ion Exchange Mechanism of Sodium/Calcium Exchanger” *Science*, **335**, 686-690 (2012)
DOI: [10.1126/science.1215759](https://doi.org/10.1126/science.1215759)
Commented on by:
J. Abramson, A. Paz, K.D. Philipson “It's All in the Symmetry” *Science*, **335**, 669-670 (2012).
3. **D.B. Sauer**, W. Zeng, S. Raghunathan and Y. Jiang “Protein Interactions Central to Stabilizing the K⁺ Channel Selectivity Filter in a 4-sited Configuration for Selective K⁺ Permeation” *Proc. Natl. Acad. Sci. USA*, **108**, 16634-16639 (2011)
DOI: [10.1073/pnas.1111688108](https://doi.org/10.1073/pnas.1111688108)
2. M.G. Derebe*, **D.B. Sauer***, W. Zeng, A. Alam, N. Shi and Y. Jiang “Tuning the Ion Selectivity of Tetrameric Cation Channels by Changing the Number of Ion Binding Sites” *Proc. Natl. Acad. Sci. USA*, **108**, 598-602 (2011) DOI: [10.1073/pnas.1013636108](https://doi.org/10.1073/pnas.1013636108)
1. M.C. Hull, **D.B. Sauer**, and J.S. Hovis “The Influence of Lipid Chemistry on the Osmotic Response of Cell Membranes: Effect of Non-Bilayer Forming Lipids,” *J. Phys. Chem. B*, **108**, 15890 -15895 (2004) DOI: [10.1021/jp049845d](https://doi.org/10.1021/jp049845d)

Funding

2022	Royal Society Research Grant RGS\R1\221212
2017 - 2019	American Cancer Society Postdoctoral Fellowship 129844-PF-17-135-01-TBE
2016 - 2017	Department of Defense Horizon Award W81XWH-16-1-0153
2007 - 2010	National Institutes of Health Predoctoral Institutional Research Training Grant GM008297-19

Honors & Awards

2020	Poster Award, New York Structural Biology Discussion Group
2014	Biophysics Wiki-edit Contest Winner, Biophysical Society
2013	Outstanding Poster Presentation, NYU Medical Center Skirball Institute Retreat
2005	Dale W. Margerum Undergraduate Research Award, Purdue Univ. - Dept. of Chemistry
2005	Outstanding Research Award, Purdue University - Undergraduate Research Symposium
2004	Harrison M. Stine Memorial Scholarship, Purdue University - Dept. of Chemistry
2004	Best Science Paper Award, Butler University Undergraduate Research Conference

Professional Activities

2021-present	Organizer, Centre for Medicines Discovery Internal Seminar Series
2020	Co-organizer, Biophysical Society Membrane Transport Mini-Symposium
2019-2021	Organizer, NYU Medical Center CryoEM Discussion Group
2019	Organizing Committee, NYU Medical Center Skirball Institute Retreat
2018-2021	Associate Faculty Member, F1000Prime
2004	President, Purdue Science Student Council
2002-2005	Member, Purdue Science Student Council

Peer Reviewer

Nature Communications
Journal of Molecular Biology
Microbes and Environments
Protein Expression and Purification

Invited Seminars and Presentations

2022 EFMC-ACS MEDI Joint Symposium
2022 University of Oxford – Division of Structural Biology
2022 University of British Columbia – Department of Biochemistry
2021 Target2035 Webinar
2021 University of Oxford – Centre for Medicines Discovery
2020 Biophysical Society Membrane Transport Mini-Symposium

Poster Presentations

2021 Biophysical Society Annual Meeting
2020 New York Structural Biology Discussion Group Winter Meeting
2019 New York Area CryoEM Second Meeting
2019 New York Structural Biology Discussion Group Summer Meeting
2019 New York Area CryoEM First Meeting
2018 American Cancer Society Jiler Conference
2015 Biophysical Society Annual Meeting
2012 Howard Hughes Medical Institute - Janelia Research Campus
2012 Gordon Research Conference - Ion Channels
2011 Howard Hughes Medical Institute Annual Meeting
2005 Biophysical Society Annual Meeting
2004 Biophysical Society Annual Meeting
2004 Butler University Undergraduate Research Conference