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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 **PhD 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 **BS 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

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” (accepted)
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” (in revision) 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 decarboxylate 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)
*- Authors contributed equally
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)
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

- 2017 - 2019 American Cancer Society Postdoctoral Fellowship
2016 - 2017 Department of Defense Horizon Award
2007 - 2010 National Institutes of Health Predoctoral Institutional Research Training Grant

Honors & Awards

- 2019 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

Peer Reviewer

- Nature Communications
Journal of Molecular Biology
Microbes and Environments

Professional Activities

- 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

Presentations

- 2021 University of Oxford – Centre for Medicines Discovery
2021 Biophysical Society Annual Meeting
2020 Biophysical Society Membrane Transport Mini-Symposium
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