
Daniel L. Kober

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UT Southwestern Medical Center
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Education

- **University of Texas Southwestern Medical Center** July 2017-present
 - Postdoctoral Training
 - Mentors: Dan Rosenbaum and Arun Radhakrishnan
- **Washington University in St. Louis** May 2017
 - Ph.D. in Biomedical Sciences GPA: 3.81
 - Thesis: Structural, Biophysical, and Functional Studies of TREM2 In Neurodegenerative Disease
 - Mentor: Tom Brett
- **Evangel University** May 2012
 - B.S. in Biology and Chemistry awarded Summa Cum Laude GPA: 3.96

Awards and Honors

- **Postdoctoral**
 - NIGMS K99 Pathway to Independence Award 2021-present
 - American Heart Association Post-Doctoral Fellowship 2018-2020
 - Helmsley Scholarship to attend the Cryo-EM course at Cold Spring Harbor 2018
- **Graduate**
 - American Heart Association Pre-Doctoral Fellowship 2017
 - American Heart Association Pre-Doctoral Fellowship 2015-2017
 - Cell Molecular Biology Training Grant 2012-2014
 - NSF-GRF Fellowship Honorable Mention 2014
- **Undergraduate**
 - Outstanding graduate in Chemistry 2012
 - Endowed Scholarship, Science and Technology 2009-2012
 - Founder's Scholarship, Half Tuition Award 2008-2012
 - Dean's list, Evangel University 2008-2012

Current Research Support

- UT Southwestern Endowed Scholars Program 2022
- UT Science and Technology Acquisition and Retention Program (STARS) Award 2022
- NIGMS K99 (NIGMS) (1K99GM141261-01) 2021-present
 - Biophysical study of the recognition of ER proteins for degradation and lipid homeostasis

Previous Research Support

- American Heart Association (18POST34080141) 2018-2020
 - Structural and biophysical investigation of Scap-SREBP activation
- American Heart Association (17PRE32780001) 2017
 - Structural, biophysical, and functional investigation of TREM2 interaction with ligands
- American Heart Association (15PRE22110004) 2015-2017
 - Structural and functional consequences of TREM-2 mutants linked to neuroinflammation

Teaching and Mentoring Experience

- **Teaching goals**
 - As a PI, my goal is to maintain a lab with five to ten members where I can provide personal training and supervision for graduate students and postdoctoral scholars.
 - As an educator, I look forward to teaching medical and graduate student courses and would also be able to contribute to undergraduate education.
- **Mentoring**
 - As a postdoctoral fellow, I mentored two graduate rotation students and one summer undergraduate student.
 - As a graduate student, I mentored two graduate rotation students and two summer undergraduate students.
- **Graduate Teaching Assistant** 2014
 - Washington University in St. Louis • Molecular Microbiology and Pathogenesis
 - Coursemaster: Dr. Joseph Vogel
 - Duties: Exam writing and grading, journal club, and tutoring
- **Laboratory Teaching Assistant** 2010-2012
 - Evangel University • Microbiology, Genetics, Organic Chemistry
 - Coursemasters: Dr. Glenner Richards, Dr. Fred Fortunato
 - Duties: Lab prep and teaching, held office hours, and tutoring

Publications

12. *Scap Structures Highlight Key Role for Rotation of Intertwined Luminal Loops in Cholesterol Sensing.* **Kober DL**, Radhakrishnan A, Goldstein JL, Brown MS, Clark LD, Bai X-C, and Rosenbaum DM. *Cell*. (2021) PMID: 34139175.
11. *Identification of a degradation signal at the carboxy terminus of SREBP2: A new role for this domain in cholesterol homeostasis* **Kober DL***, Xu S*, Li S, Bajaj B, Liang G, Rosenbaum DM, and Radhakrishnan A. *Proceedings of the National Academy of Sciences*. (2020) PMID: 33106423.
*Contributed equally.

10. *Functional insights from biophysical study of TREM2 interactions with ApoE and A β ₁₋₄₂.*
Kober DL, Stuchell-Brereton SD, Kluender CE, Dean HB, Strickland MR, Steinberg DF, Nelson SS, Baban B, Holtzman DM, Frieden C, Alexander-Brett J, Roberson ED, Song Y, and Brett TJ. **Alzheimer's & Dementia**. (2021) PMID: 33090700.
 9. *YbtT is a low-specificity type II thioesterase that maintains production of the metallophore yersiniabactin in pathogenic enterobacteria.*
 Ohlemacher SI, Xu Y, **Kober DL**, Malik M, Nix JC, Brett TJ, Henderson JP. **J Biol Chem**. (2018) PMID: 30355735.
 8. *Limiting Respiratory Viral Infection by Targeting Antiviral and Immunological Functions of BST-2/Tetherin: Knowledge and Gaps.*
 Berry KN, **Kober DL**, Su A, Brett TJ. **Bioessays**. (2018) PMID: 30113067.
 7. *TREM2-ligand interactions in health and disease.*
Kober DL and Brett TJ. **Journal of Molecular Biology**. (2017) PMID: 28432014.
 6. *Neurodegenerative disease mutations in TREM2 reveal a functional surface and distinct loss-of-function mechanisms.*
Kober DL, Alexander-Brett JM, Karch CM, Cruchaga C, Colonna M, Holtzman MJ, Brett TJ. **eLife** (2016) PMID: 27995897.
- Featured in highlight: *Detailing the Molecular Roots of Alzheimer's Disease*
<https://www.aps.anl.gov/APS-Science-Highlight/2016-12-21/detailing-the-molecular-roots-of-alzheimers-disease>
5. *First comprehensive structural and biophysical analysis of MAPK13 inhibitors targeting DFG-in and DFG-out binding modes.*
 Yurtsever Z, Patel DA, **Kober DL**, Su A, Miller CA, Romero AG, Holtzman MJ, Brett TJ. **Biochimica et Biophysica Acta** (2016) PMID: 27369736.
 4. *Efficient Mammalian Cell Expression and Single-step Purification of Extracellular Glycoproteins for Crystallization.*
Kober DL*, Yurtsever Z*, Brett TJ. **Journal of Visualized Experiments** (2015) PMID: 26780656.
 *Contributed equally.
 3. *TREM-2 promotes macrophage survival and lung disease after respiratory viral infection.*
 Wu K, Byers DE, Jin X, Agapov E, Alexander-Brett JM, Patel AC, Cella M, Gilfilan S, Colonna M, **Kober DL**, Brett TJ, Holtzman MJ. **Journal of Experimental Medicine** (2015) PMID: 25897174.
 2. *Preparation, crystallization, and preliminary crystallographic analysis of wild-type and mutant human TREM-2 ectodomains linked to neurodegenerative and inflammatory diseases.*
Kober DL, Wanhainen KM, Johnson BM, Randolph DT, Holtzman MJ, Brett TJ. **Protein Expression and Purification** (2014) PMID: 24508568.
 1. *Microfibril-associated Glycoprotein 2 (MAGP2) Loss of Function Has Pleiotropic Effects in Vivo.*

Combs MD, Knutsen RH, Broekelmann TJ, Toennies HM, Brett TJ, Miller CA, **Kober DL**, Craft CS, Atkinson JJ, Shipley JM, Trask BC, Mecham RP. **Journal of Biological Chemistry** (2013) PMID: 23963447.

Presentations

6. **Kober DL**, Xiaochen Bai, Arun Radhakrishnan, and Daniel M. Rosenbaum. *Structural basis of cholesterol regulation by Scap and Insig*. **The ASBMB Deuel Conference on Lipids**. March 2022. Monterey, CA. (Poster)
5. **Kober DL**. *Scap Structures Highlight Key Role for Rotation of Intertwined Luminal Loops in Cholesterol Sensing*. **Future Stars in CryoEM II**. June 16, 2021. Medical College of Wisconsin. (Talk)
4. **Kober DL**, Shimeng Xu, Shili Li, Bilkish Bajaj, Guosheng Liang, Arun Radhakrishnan, and Daniel M. Rosenbaum. *Functional and biophysical investigation of the Scap-SREBP pathway*. **The ASBMB Deuel Conference on Lipids**. March 2020. Coronado, CA. (Poster)
3. **Kober DL**, Shimeng Xu, Shili Li, Lindsay Clark, Guosheng Liang, Arun Radhakrishnan, and Daniel M. Rosenbaum. *A molecular dissection of the interaction between SREBP2 and Scap*. **Gordon Research Conference Molecular Membrane Biology**. July 2019. Andover, NH. (Poster)
2. **Kober DL**, Alexander-Brett J, Cruchaga C, Colonna M, and Brett TJ. *Neurodegenerative disease mutations in TREM2 reveal a functional surface and two distinct loss-of-function mechanisms*. Poster Presentation, **Gordon Research Conference Neuroimmune Communication in Health & Disease**. January 2017. Ventura Beach, CA. (Poster)
1. **Kober DL**, Brett TJ: *Structural Studies of TREM-2 Mutants Linked to Neurodegenerative Diseases*. Acta Crystallographica Section A: Foundations and Advances 08/2014; 70(a1). DOI:10.1107/S2053273314097514. Abstract for poster presentation, **23rd conference, International Union of Crystallography**. September 2014. Montreal, Canada. (Poster)