

Samantha K. Zepeda, Ph.D.

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Professional Appointments

Adjunct Chemistry Faculty (2026- Present) Texas A&M University- San Antonio, TX
Instructor of Biochemistry (2025-Present) University of California San Diego - San Diego, CA
Postdoctoral Research Associate (2025) Yale University- New Haven, CT
Postdoctoral Research Assistant (2024-2025) University of Washington- Seattle, WA
Graduate Research Assistant (2019-2024) University of Washington- Seattle, WA
Graduate Research Assistant (2017-2019) Texas State University- San Marcos, TX
Undergraduate Research Assistant (2016-2017) Texas State University- San Marcos, TX

Education

Fall 2024	Ph.D., BIOCHEMISTRY	University of Washington
Spring 2019	M.S., BIOCHEMISTRY	Texas State University
Spring 2017	B.S., BIOCHEMISTRY ^{ACS/ASBMB certified}	Texas State University
Spring 2017	B.S., BIOLOGY	Texas State University
Fall 2013	A.S., PRE-PHARMACY	South Texas College

Teaching Experience**Fall 2026**

- Texas A&M University- San Antonio- Department of Natural Sciences
Adjunct Faculty
CHEM 2325- Organic Chemistry II Lecture
CHEM 2025- Organic Chemistry II Recitation
CHEM 2125- Organic Chemistry II Lab
CHEM 1311- General Chemistry I Lecture
CHEM 1011- General Chemistry I Recitation

Summer 2026

- Texas A&M University- San Antonio- Department of Natural Sciences
Adjunct Faculty
CHEM 2123- Organic Chemistry I Lab
CHEM 2125- Organic Chemistry II Lab

Spring 2026

- Texas A&M University- San Antonio- Department of Natural Sciences
Adjunct Faculty
CHEM 2323- Organic Chemistry I Lecture
CHEM 2123- Organic Chemistry I Lab
CHEM 2125- Organic Chemistry II Lab
CHEM 2023- Organic Chemistry I Recitation
CHEM 1111- General Chemistry I Lab
CHEM 1112- General Chemistry II Lab

Fall 2025, Winter 2026, Spring 2026, Summer 2026

- University of California San Diego, Extended Studies Program, *Instructor*
BIOL-40357 Biochemistry

Spring 2021

- University of Washington, Department of Biochemistry, *Teaching Assistant*
BIOC 426- Basic Techniques in Biochemistry

Autumn 2020

- University of Washington, Department of Biochemistry, *Teaching Assistant*
BIOC 450- Honors Biochemistry
Fall 2018
- Texas State University, Department of Chemistry & Biochemistry, *Instructional Assistant*
CHEM 4481- Advanced Biochemistry
Spring 2017, Spring 2018
- Texas State University, Department of Chemistry & Biochemistry, *Instructional Assistant*
CHEM 3275/3381- Biochemistry Techniques

Training and Professional Development

- Protein Science and Peptides (Webinar) *Royal Society of Chemistry*, July 2026
- Building an Integrated Safety Approach in Your Chemistry Department. (Webinar). ACS. June 2026
- Quantitative Proteomics for Understanding Epigenetic Mechanisms. (Webinar). ACS. June 2026.
- Society of Experiential Learning Inquiry, Growth, and Networking through Immersive Transformative Experience Regional Collaborative. (Workshop). San Antonio, Texas. SEE. June 2026.
- NCAAT Single Particle Analysis (Workshop) New York City, NY. *New York Structural Biology Center*. March 2022.

Outreach and Service

- September 2024-December 2024
Organizer, Student Seminar, Seattle, WA
- June 2024- January 2025
Mentor, Casey Family Programs, Seattle, WA
- February 2023- June 2024
Mentor, Biochemistry Undergraduate Reading Program, Seattle, WA
- September 2023- May 2024
Student Representative, UW Biochemistry Department Faculty Hiring Committee
Seattle, WA
- September 2022- May 2023
Committee Member, UW Biochemistry Department Graduate Admissions
Committee Seattle, WA
- September 2020-May 2022
Committee Member, UW Biochemistry Graduate Student Recruitment
Committee. Seattle, WA
- May 2020-July 2023
Mentor, Big Brothers Big Sister of America, Seattle, WA
- March 2020- May 2022
Founder and Committee Member, UW Biochemistry and Biological Protein
Structure and Design (BPSD) Peer Mentorship Program. Seattle, WA
- October 2018- January 2019
San Marcos CSID Science Coach, SACNAS, San Marcos, TX
- July 2018
Instructor ACS Food Chemistry Outreach, San Marcos Public Library,
San Marcos, Tx

- June 2018
Tour Guide for STEM field trips to Texas State, San Marcos, Tx
- April 2016
Booth Attendant/Instructor PREM Blanco Elementary School, Kyle, Tx
Volunteer Hernandez Elementary School, San Marcos, Tx

Research Publications

- Hendricks, G.G., Grigoryan, L., Navarro, M.J., Nicholas J., Catanzaro, N.J., Hubbard, M.L., Powers, J.M., Mattocks, M., Treichel, C., Walls, A.C., Lee, J., Ellis, D., Wang, J.W., Cheng, S., Miranda, M.C., Valdez, A., Chao, C.W., Chan, S., Men, C., Max R. Johnson, M.R., **Zepeda, S.K.**, Ols, S., Hui, H., Wu, S.-W., Lujan, V., Muramatsu, H., Lin, P.J.C., Sung, M.M.H., Tam, Y.K., Leaf, E.M., Pardi, N., Baric, R.S., Pulendran, B., Veesler, D., Schäfer, A., King, N.P. Computationally designed mRNA-launched protein nanoparticle immunogens as an integrated vaccine platform. *Sci. Transl. Med.* 17,eadu2085(2025).DOI:10.1126/scitranslmed.adu2085
- Alfajaro, M.M., Keeler, E.L., Li, N., Catanzaro, N.J, Teng, I.-T., Zhao, Z., Grunst, M.W., Yount, B., Schäfer, A., Wang, D., Kim, A.S., Synowiec, A., Peña-Hernández, M.A., **Zepeda, S.**, Arinola, R., Kaur, R., Menasche, B.L., Wei, J., Russell, G.A., Huck, J., Song, J., Ring, A., Iwasaki, A., Jangra, R.K., Lee, S., Martinez, D.R., Mothes, W., Uchil, P.D., Doench, J.G., Spaulding, A.B., Baric, R.S., Serebryanny, L., Tsybovsky, Y., Zhou, T., Douek, D.C., Wilen, C.B. (2025) HKU5 bat merbecoviruses engage bat and mink ACE2 as entry receptors. *Nat. Comm.* <https://doi.org/10.1038/s41467-025-61583-7>
- Addetia, A., Schäfer, A., Sprouse, K., Valdez, A., Taylor, A., Navarro, M.J., Brown, J., Leaf, E., Miranda, M., Walls, L., Lee, J., Catanzaro, N.J., Treichel, C., Willoughby, I., Powers, J., Martinez, D.R., Vesari, B., Ravichandran, R., Seo, A.J., Stewart, C., Merz, B., Beirne, E., **Zepeda, S.**, Cook, A., Pessaint, L., Sharma, A., Edwards, D., Lee, K., Smith, K., Starr, T., Baric, R., King, N.P., Veesler, D. (2025). "Phylogeny-driven design of broadly protective sarbecovirus receptor-binding domain nanoparticle vaccines." *bioRxiv*: 2025.2005.2011.652904. (**Preprint**)
- Park YJ, Liu C, Lee J, Brown JT, Ma CB, Liu P, Gen R, Xiong Q, **Zepeda SK**, Stewart C, Addetia A, Craig CJ, Tortorici MA, Alshukairi AN, Starr TN, Yan H, Veesler D. Molecular basis of convergent evolution of ACE2 receptor utilization among HKU5 coronaviruses. *Cell*. 2025 Mar 20;188(6):1711-1728.e21. doi: 10.1016/j.cell.2024.12.032. Epub 2025 Feb 7. PMID: 39922192; PMCID: PMC12237432.
- Rosen, L., Tortorici, M.A., De Marco, A., Pinto, D., Foreman, W.B., Taylor, A.L., Bohan, D., Rietz, T., Errico, J.M., Hauser, K., Dang, H.V., Chartron, J.W., Giurdanella, M., Cusumano, G., Saliba, C., Zatta, F., Sprouse, K., Park, Y.P., Addetia, A., **Zepeda, S.K.**, Brown, J., Dellota, E., Rajesh, A., Noack, J., Tao, Q., DaCosta, Y., Dias de Melo, G., Kergoat, L., Zhang, I., Liu, Z., Guarino, B., Schmid, M.A., Miller, J.L., Lempp, F.A., Czudnochowski, N., Cameroni, E., Whelan, S.P.J., Bourhy, H., Purcell, L.A., Benigni, F., di Iulio, J., Pizzuto, M.S., Lanzavecchia, A., Telenti, A., Snell, G., Corti, D., Veesler, D., Starr, T.N. (2024) A potent pan-sarbecovirus neutralizing antibody resilient to epitope diversification. *Cell*. doi: 10.1016/j.cell.2024.09.026. PMID: 39383863
- Lee, J.*, **Zepeda, S.K.***, Park, Y., Taylor, A.L., Quispe, J., Leaf, E.M., Treichel, C., Corti, D., King, N.P., Starr, T.N., Veesler, D. (2023) Broad receptor tropism and immunogenicity of a clade 3 sarbecovirus. *Cell Host and Microbe*. 31(12):1961-1973.e11

- Muenks, A., **Zepeda, S.**, Zhou, G., Veessler, D., and Dimaio, F. (2023) Automatic and accurate ligand structure determination guided by cryo-electron microscopy maps. *Nat. Commun.* 14(1):1164
- Starr, T.N.*, **Zepeda, S.K.*** et al. (2022). ACE2 binding is an ancestral and evolvable trait of sarbecoviruses. *Nature*. 603, 913–918
- Meng, B., Abdullahi, A., Ferreira, I.A.T.M., Goonawardane, N., Saito, A., Kimura, I., Yamasoba, D., Gerber, P.P., Fatihi, S., Rathore, S., **Zepeda, S.K.**, Papa, G., Kemp, S.A., Ikeda, T., Toyoda, M., Tan, T.S., Kuramochi, J., Mitsunaga, S., Ueno, T., Shirakawa, K., Takaori-Kondo, A., Brevini, T., Mallery, D.L., Charles, O.J. (2022). "Altered TMPRSS2 usage by SARS-CoV-2 Omicron impacts infectivity and fusogenicity." *Nature* **603**(7902): 706-714.
- McCallum, M., Czudnochowski, N., Rosen, L.E., **Zepeda, S.K.**, Bowen, J.E., Walls, A.C., Hauser, K., Joshi, A. Stewart, C., Dillen, J.R., Powell, A.E., Croll, T.I., Nix, J., Virgin, H.W., Corti, D., Snell, G., and Veessler, D. (2022) "Structural basis of SARS-CoV-2 Omicron immune evasion and receptor engagement." *Science* **0**(0): eabn8652.
- Park, Y.-J., De Marco, A., Starr, T.N., Liu, Z., Pinto, D., Walls, A.C., Zatta, F., **Zepeda, S.K.**, Bowen, J., Sprouse, K., Joshi, A., Giordanella, M., Guarino, B., Noack, J., Abdelnabi, R. Foo, C. -L., Rosen, L. Lempp, F., Benigni, F., Snell, G., Neyts, J., Whelan, S.P., Virgin, H.W., Bloom, J.D., Corti, D., Pozzuto, M.S., Veessler, D. (2022) "Antibody-mediated broad sarbecovirus neutralization through ACE2 molecular mimicry." *Science* **0**(0): eabm8143.
- Camerini, E., Bowen, J.E., Rosen, L.E., Saliba, C., **Zepeda, S.K.**, Culap, K., Pinto, D., VanBlargan, L.A., De Marco, A., di Iulio, J., Zatta, F., Kaiser, H., Noack, J., Farhat, N., Czudnochowski, N., Havenar-Daughton, C., Sprouse, K.R., Dillen, J.R., Powell, A.E., Chen, A., Maher, C., Yin, L., Sun, D., Soriaga, L., Bassi, J., Silacci-Fregni, C., Gustafsson, C., Franko, N.M., Logue, J., Iqbal, N.T., Mazzitelli, I., Geffner, J., Grifantini, R., Chu, H., Gori, A., Riva, A., Giannini, O., Ceschi, A., Ferrari, P., Cippà, P.E., Franzetti-Pellanda, A., Garzoni, C., Halfmann, P.J., Kawaoka, Y., Hebner, C., Purcell, L.A., Piccoli, L., Pizzuto, M.S., Walls, A.C., Diamond M.S., Telenti, A., Virgin, H.W., Lanzavecchia, A., Snell, G., Veessler, D., Corti D. (2021). "Broadly neutralizing antibodies overcome SARS-CoV-2 Omicron antigenic shift." *Nature*. <https://doi.org/10.1038/s41586-021-04386-2>
- Walls AC, Miranda MC, Schäfer A, Pham MN, Greaney A, Arunachalam PS, Navarro MJ, Tortorici MA, Rogers K, O'Connor MA, Shirreff L, Ferrell DE, Bowen J, Brunette N, Kepl E, **Zepeda SK**, Starr T, Hsieh CL, Fiala B, Wrenn S, Pettie D, Sydeman C, Sprouse KR, Johnson M, Blackstone A, Ravichandran R, Ogohara C, Carter L, Tilles SW, Rappuoli R, Leist SR, Martinez DR, Clark M, Tisch R, O'Hagan DT, Van Der Most R, Van Voorhis WC, Corti D, McLellan JS, Kleanthous H, Sheahan TP, Smith KD, Fuller DH, Villinger F, Bloom J, Pulendran B, Baric RS, King NP, Veessler D. Elicitation of broadly protective sarbecovirus immunity by receptor-binding domain nanoparticle vaccines. *Cell*. 2021 Oct 14;184(21):5432-5447.e16. doi: 10.1016/j.cell.2021.09.015. Epub 2021 Sep 15. PMID: 34619077; PMCID: PMC8440233.
- Tortorici MA, Czudnochowski N, Starr TN, Marzi R, Walls AC, Zatta F, Bowen JE, Jacini S, Di Iulio J, Wang Z, De Marco A, **Zepeda SK**, Pinto D, Liu Z, Beltramello M, Bartha I, Housley MP, Lempp FA, Rosen LE, Dellota E Jr, Kaiser H, Montiel-Ruiz M, Zhou J, Addetia A, Guarino B, Culap K, Sprugasci N, Saliba C, Vetti E, Giacchetto-Sasselli I, Fregni CS, Abdelnabi R, Foo SC, Havenar-Daughton C, Schmid MA, Benigni F, Camerini E, Neyts J, Telenti A, Virgin HW, Whelan SPJ, Snell G, Bloom JD, Corti D, Veessler D, Pizzuto MS. (2021) "Broad sarbecovirus neutralization by a human

monoclonal antibody". *Nature*. 597(7874):103-108. doi: 10.1038/s41586-021-03817-4. Epub 2021 Jul 19. PMID: 34280951.

- McCallum M, De Marco A, Lempp F, Tortorici MA, Pinto D, Walls A, Betramello M, Chen A, Liu Z, Zatta F, **Zepeda S**, Di Iulio J, Bowen J, Montiel-Ruiz M, Zhou J, Rosen L, Bianchi S, Guarino B, Fregni CS, Abdelnabi R, Foo SC, Rothlauf PW, Bloyet L, Benigni F, Cameroni E, Neyts J, Riva A, Snell G, Telenti A, Whelan SP, Virgin HW, Corti D, Pizzuto MS, and Veesler D. N-terminal domain antigenic mapping reveals a site of vulnerability for SARS-CoV-2. (2021) *Cell*. 184(9):2332-2347.e16. doi: 10.1016/j.cell.2021.03.028
- Villarreal MA, Biediger NM, Bonner NA, Miller JN, **Zepeda SK**, Richard BJ, Garcia DM, and Lewis KA. Determining Zebrafish Epitope Reactivity to Commercially Available Antibodies. *Zebrafish*. 2017;14(4):387-389. doi:10.1089/zeb.2016.1401.

Presentations

- **Samantha K. Zepeda** et. al. Structure, Antigenicity and Receptor Usage of a Cambodian Bat Sarbecovirus Spike. **Lecture** (2024) American Virology Society, Columbus, OH.
- **Samantha K. Zepeda** et. al. Structure, Antigenicity and Receptor Usage of bat born sarbecoviruses. **Lecture** (2024) Rising Stars Symposium, Salt Lake City, UT.
- **Samantha K. Zepeda** et. al. Role of Receptor Binding Domain Conformation on Spillover Potential of Cambodian Sarbecovirus. **Lecture** (2023) American Crystallography Association, Baltimore, MD.
- **Samantha K. Zepeda** et al. Spillover potential of Cambodian bat sarbecovirus. **Poster** (2022) HHMI Science Meeting, Chevy Chase, MD.
- **Samantha K. Zepeda**, Tyler Starr, et al. Molecular Basis of Rhinolophus ACE2 Receptor Association with Cambodian bat sarbecovirus RshTT200 Spike Glycoprotein. **Poster** (2022) Emerging Infectious Disease in Bats Conference, Fort Collins, CO
- **Samantha K. Zepeda**, and Karen A. Lewis. Mechanisms of Nuclear Export of RNA Binding Protein LARP6. **Poster** (2019) Experimental Biology Research Conference, Orlando, FL
- **Samantha K. Zepeda**, and Karen A. Lewis. Mechanisms of Nuclear Export of Human LARP6 (2019) Texas State University 3 Minute Thesis, San Marcos, TX
- **Samantha K. Zepeda**, and Karen A. Lewis. Nuclear Export of Human LARP6. **Poster** (2018) College of Science Research Conference, University of Texas at San Antonio, San Antonio TX
- **Samantha K. Zepeda**, and Karen A. Lewis. Nuclear Export of Human LARP6. **Lecture** (2018) Chemistry and Biochemistry Research Colloquium, Texas State University, San Marcos TX

Awards

- National Institute of Allergy and Infectious Disease, Ruth Kirshtein Predoctoral Award (F31AI174573-01) (January 2023- December 2024)
- National Institute of General Medical Sciences, Molecular Biophysics Training Grant (T32GM008268-32) (July 2020-July 2022)
- ASBMB Travel Award, \$1000, American Society of Biochemistry and Molecular Biology (April 2019)
- Thesis Research Support Fellowship, \$1,970, Texas State University Graduate College (2019)
- University of Texas at San Antonio Department of Chemistry Poster Award (October 2018)