Carla M. R. Lacerda

The Jasper Department of Chemical Engineering
University of Texas at Tyler, RBN 3012, Tyler, TX 75799
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Google Scholar: https://scholar.google.com/citations?user=DiY0jnkAAAAJ&hl=en
NIH publications: https://www.ncbi.nlm.nih.gov/myncbi/carla.lacerda.2/bibliography/public

Education

Ph.D. in Chemical Engineering, 2008
Colorado State University, Fort Collins, CO
Thesis Advisor: Prof. Kenneth F. Reardon
Dissertation: *Environmental Proteome Profiling Applied to the Study of Polybacterial Metal Resistance and Adaptation*

B.S. in Food Engineering, 2002
Universidade Federal de Viçosa, Viçosa, MG, Brazil
École Nationale Supérieure d'Agronomie et des Industries Alimentaires - INPL, Nancy, France

Professional Experience

Sep 2021 – present	University of Texas at Tyler, Tyler, TX *Assistant Professor, Jasper Department of Chemical Engineering*
Jan. 2013 – Aug 2021	Texas Tech University, Lubbock, TX *Assistant Professor, Department of Chemical Engineering*
Nov. 2010 – Dec. 2012	Colorado State University, Fort Collins, CO *Research Scientist I, Department of Clinical Sciences*
Feb. 2008 – Oct. 2010	Colorado State University, Fort Collins, CO *Postdoctoral Fellow, Department of Clinical Sciences*

Selected Honors/Awards

Career Champion Award – 2024/2025
Jack and Dorothy Fay White Fellowship for Teaching Excellence – 2023/2024
Jasper Dept. of Chemical Engineering Faculty of the Year – 2023/2024
UT Tyler Academy of Distinguished Teachers Inductee – 2023/2024
stEm PEER Academy Fellow Cohort II - 2023/2025
NIH PRIDE Fellow, UCSD FOCUS Cohort IV - 2022/2023
Whitacre College of Engineering Dr. Charles L. Burford Faculty Award, March 2021
Air Force Research Lab Summer Fellow, Summer 2020
TTU Teaching Academy Elected Member, September 2019 to present
UT Austin Institute of Computational Engineering and Science Fellow, December 2018
NSF ASSIST Travel Grant, SACNAS National Diversity in STEM Conference, October 2018
Women Faculty Writing Group Fellow, TTU Gender Equity Council, January 2018 to December 2019
Institute for Inclusive Excellence Fellow, TTU TLPDC, 2017-2018
WCOE Nominee for Chancellor's Council Distinguished Teaching Award, November 2016
Outstanding Professor 2015/2016, AIChE Texas Tech University, May 2016
TTU Alumni Association New Faculty Award, Texas Tech University, March 2016
Outstanding Professor 2013/2014, AIChE Texas Tech University, May 2014
Outstanding Graduate Research Assistant, Dept. of Chemical and Biological Engineering, May 2007
Proteomlux 2006 International Conference Fellowship, October 2006
American Electrophoresis Society Travel Grant, November 2005
PASI Program Grant, Training in Molecular Techniques for Biofilm Community Analysis, July 2004
Undergraduate International Exchange Scholarship, CAPES, Brazil, January 2000 – January 2001

Publications and Citations - Complete List of Published Work: http://orcid.org/0000-0003-3571-0750

- Patent Applications: 2 published.
- Refereed Journal Articles: 33 published.
- Conference Presentations: 31 presentations.
- 1054 total citations as of Aug 25.
- Average number of citations per paper: 32 as of Aug 25.
- h-index: 19 as of Aug 25.

Refereed Journal Publications - Asterisk indicates corresponding author(s).

35. G. Nyarko, I. Nsofor, A. Mathews, and C.M.R. Lacerda*. A perspective on bioprinting for tissue engineering. In preparation. To be submitted to Frontiers in Bioengineering and Biotechnology. IF 5.700.

34. X. Wang, and C.M.R. Lacerda*. Interactome of tryptophan hydroxylase from normal aortic valve cusps. Submitted to Proteome Science. IF 2.900.

33. B. Jafari, C.M.R. Lacerda, and G.G. Botte*. Facile electrochemical preparation of hydrophobic antibacterial fabrics using reduced graphene oxide/silver nanoparticles. ChemElectroChem. doi.org/10.1002/celc.202201111 JAN 2023. IF 4.782. Cover Feature.

32. X. Wang, D. Kuban-Johnston, P. Lapuerta and C.M.R. Lacerda*. Effect of telotristat ethyl on myxomatous mitral valvular degeneration. Frontiers in Cardiovascular Medicine. Women in Heart Valve Disease Special Issue. doi.org/10.3389/fcvm.2022.945672 AUG 2022. IF 5.846.

31. N. Deb, and C.M.R. Lacerda*. The individual and combined effects of shear, tension, and flexure on aortic heart valve endothelial cells in culture. Cardiovascular Engineering and Technology, 13(3):443-451. doi: 10.1007/s13239-021-00592-1 JUN 2022. IF 2.677.

30. X. Zhao, M.U. Raman, T. Dissanayaka, F. Gharagheizi, C.M.R. Lacerda, S. Senadheera, R.C. Hedden, G.F. Christopher*. Rheological behavior of a low crystallinity polyolefin-modified asphalt binder for flexible pavements. Case Studies in Construction Materials. doi.org/10.1016/j.cscm.2021.e00640 DEC 2021. IF 3.328.

29. N. Deb, and C.M.R. Lacerda*. Valvular endothelial cell response to the mechanical environment – a review. In press. Cell Biochemistry and Biophysics. doi.org/10.1007/s12013-021-01039-z OCT 2021. IF 2.073.

28. L. Lesanpezeshki, H. Qadota, M.N. Darabad, K. Kashyap, C.M.R. Lacerda, N.J. Szewczyk, G.M. Benian, S.A. Vanapalli*. Investigating the correlation of muscle function tests and sarcomere organization in C. elegans. Journal of Molecular Biology. doi.org/10.1186/s13395-021-00275-4 AUG 2021. IF 4.760.

27. X. Wang, N. Deb, M. Ali, and C.M.R. Lacerda*. Comparison of serotonin-regulated calcific process in aortic and mitral valvular interstitial cells. ACS Omega. 6, 30, 19494–19505 doi.org/10.1021/ acsomega.1c01723 JUL 2021. IF 3.512.

26. N. Deb, M. Ali, A. Mathews, Y. Chang and C.M.R. Lacerda*. Shear type and magnitude affect aortic valve endothelial cell morphology, orientation, and differentiation. Experimental Biology and Medicine, doi.org/10.1177/15353702211023359 JUL 2021. IF 3.666.

25. W.D. Meador, M. Mathur, G.P. Sugerman, M. Malinowski, T. Jazwiec, X. Wang, C.M.R. Lacerda, T.A. Timek, M.K. Rausch*. The tricuspid valve also maladapts as shown in sheep with biventricular heart failure. eLife 9:e63855 doi: 10.7554/eLife.63855 DEC 2020. IF 7.080.

24. L. Lesanpezeshki, J.E. Hewitt, R. Laranjeiro, M. Driscoll, N.J. Szewczyk, J. Blawzdziewicz, C.M.R. Lacerda, and S.A. Vanapalli*. Pluronic gel-based burrowing assay for rapid assessment of neuromuscular health in C. elegans. Scientific Reports, 9, 15246 https://doi.org/10.1038/s41598-019-51608-9 OCT 2019. IF 5.516.

23. J.O. Marston* and C.M.R. Lacerda. Characterization of jet injection efficiency into mouse cadavers. Journal of Controlled Release, 10(305):101-109. doi: 10.1016/j.jconrel.2019.05.023 JUL 2019. IF 7.877.

22. X. Wang, M. Ali, and C.M.R. Lacerda*. Osteogenesis inducers promote distinct biological responses in aortic and mitral valve interstitial cells. Journal of Cellular Biochemistry, doi: 10.1002/jcb.28392 120 (7): 11158-11171 JUL 2019. IF 3.448.

21. M. Ali, X. Wang, and C.M.R. Lacerda*. The effect of physiological stretch and the valvular endothelium on mitral valve proteomes. Experimental Biology and Medicine, 244(3):241-251 MAR 2019. IF 3.666.
20. M. Ali, N. Deb, X. Wang, M. Rahman, G.F. Christopher and C.M.R. Lacerda*. Correlation between valvular interstitial cell morphology and phenotypes: a novel way to detect activation. Tissue and Cell, 54, 38-46 OCT 2018. IF 2.466.
19. J. Lee, Z. Estlack, H. Somaweera, X. Wang, C.M.R. Lacerda and J. Kim*. A microfluidic cardiac flow profile generator for studying the effect of shear stress on the valvular endothelial cell. Lab on a Chip, 18, 2946-2954 AUG 2018. IF 6.914.
18. X. Wang, M. Ali, and C.M.R. Lacerda*. A three-dimensional collagen-elastin scaffold for heart valve tissue engineering. Bioengineering, 5(3) 69-80 AUG 2018. IF 5.046.
17. M. Ali, X. Wang, and C.M.R. Lacerda*. Progenitor subpopulations of valvular cells resembling hematopoietic and mesenchymal stem cells and their role in myofibroblastic activation. Journal of Regenerative Medicine, doi: 10.4172/2325-9620.1000141 7:1 APR 2018. IF 1.330.
16. A. Basu, C.M.R. Lacerda, and Z. He*. Mechanical properties and composition of the basal leaflet-annulus region of the tricuspid valve. Cardiovascular Engineering and Technology, 9: 217.225 FEB 2018. IF 2.677.
15. J.F. Chignell, S. Parks, C.M.R. Lacerda, S.K. DeLong, K.F. Reardon*. Label-free proteomics of a defined, binary co-culture reveals diversity of competitive responses between members of a model soil microbial system. Microbial Ecology, 75: 701-719 OCT 2017. IF 3.862.
14. X. Wang, J. Lee, M. Ali, J. Kim, and C.M.R. Lacerda*. Phenotype transformation of aortic valve interstitial cells due to applied shear stresses within a microfluidic chip. Annals of Biomedical Engineering, 45 (10): 2269-2280 OCT 2017. IF 3.378.
13. M. Ali, X. Wang, and C.M.R. Lacerda*. A survey of membrane receptor regulation in valvular interstitial cells cultured under mechanical stresses. Experimental Cell Research, 351 (2): 150-156 FEB 2017. IF 3.383.
12. J. Lee, M.E. Razu, X. Wang, C.M.R. Lacerda, and J. Kim*. Biomimetic cardiac microsystems for pathophysiological studies and drug screens. Journal of Lab Automation, 20 (2): 96-106 APR 2015. IF 2.632.
11. C.M.R. Lacerda*, H.B. Maclea, C.J. Duncan, J.D. Kisiday, and E.C. Orton. Human myxomatous mitral valves exhibit focal expression of cartilage-related proteins. Journal of Hypertension and Cardiology, 1 (1): 21-30 JAN 2013. IF 1.800.
10. C.M.R. Lacerda*, J.D. Kisiday, B. Johnson, and E.C. Orton. Local serotonin mediates cyclic strain-induced phenotype transformation, matrix degradation, and glycosaminoglycan synthesis in cultured sheep mitral valves. American Journal of Physiology – Heart and Circulatory, 302 (10): H1983-1990 MAY 2012. IF 4.170.
9. C.M.R. Lacerda*, H.B. Maclea, J.D. Kisiday, and E.C. Orton. Static and cyclic tensile strains induce myxomatous effector proteins and serotonin in canine mitral valves. Journal of Veterinary Cardiology, 14 (1): 223-230 MAR 2012. IF 1.701.
8. E. C. Orton*, C.M.R. Lacerda, and H.B. Maclea. Signaling pathways in mitral valve degeneration. Journal of Veterinary Cardiology, 14 (1): 7-17 MAR 2012. IF 1.701.
7. C.M.R. Lacerda* and E.C. Orton. Evidence of a role for tensile loading in the pathogenesis of mitral valve degeneration. Journal of Clinical & Experimental Cardiology, Epub: doi:10.4172/2155-9880.S3-004. JAN 2012. IF 0.758.
6. S. Arai, C.M.R. Lacerda, and E.C. Orton*. Tissue-gel electrophoresis enhances antigen removal from porcine aortic valve and bovine pericardium. Journal of Heart Valve Disease, 19 (6): 753-758 NOV 2010. IF 0.549.
5. S. Disatian, C.M.R. Lacerda, and E.C. Orton*. Tryptophan hydroxylase 1 expression is increased in phenotype-altered canine and human myxomatous mitral valves. Journal of Heart Valve Disease, 19 (1): 71-78 JAN 2010. IF 0.549.

4. C.M.R. Lacerda*, S. Disatian, and E.C. Orton. Differential protein expression between normal, early-stage, and late-stage myxomatous mitral valves from dogs. Proteomics - Clinical Applications, 3 (12): 1422-1429 DEC 2009. IF 3.494.
3. C.M.R. Lacerda and K.F. Reardon*. Environmental proteomics: Applications of proteome profiling in environmental microbiology and biotechnology. Briefings in Functional Genomics and Proteomics, 8 (1): 75-87 MAR 2009. IF 4.241.
2. C.M.R. Lacerda, L. Xin, I. Rogers, and K.F. Reardon*. Analysis of iTRAQ data using Mascot and Peaks quantification algorithms. Briefings in Functional Genomics and Proteomics, 7: 119-126 MAR 2008. IF 4.241.
1. C.M.R. Lacerda, L.H. Choe, and K.F. Reardon*. Metaproteomic analysis of a bacterial community response to cadmium exposure. Journal of Proteome Research, 6 (3): 1145-1152 MAR 2007. IF 4.074.

Conference Presentations

34. C. M. R. Lacerda. Understanding pathological valvular degeneration in bicuspid aortic valves. 41st Southern Biomedical Engineering Conference 2025. Tyler, TX, September 11 – 14th, 2025.
33. D.B. Mustafa, C. M. R. Lacerda and S. Chou. Electrospun Core-Shell Microfibers for Controlled Drug Delivery and Cellular Activities. 41st Southern Biomedical Engineering Conference 2025. Tyler, TX, September 11 – 14th, 2025.
32. F. Perez, C. M. R. Lacerda and S. Tabassum. Development of pH-Responsive Hydrogels for Plant Stress Sensing Applications. 41st Southern Biomedical Engineering Conference 2025. Tyler, TX, September 11 – 14th, 2025.
31. G. Nyarko, J. Kim and C.M.R. Lacerda. Developing an Elastic Dome for the Study of Cell Mechanobiology. 2024 AIChE Annual Meeting. San Diego, CA, October 27 – 31st, 2024.
30. C.M.R. Lacerda. An intervention to assess and improve sense of belonging in Engineering. ASEE Annual Meeting & Exposition, Portland, OR, June 23-26th, 2024.
29. C.M.R. Lacerda. Transcriptomics of Murine Bicuspid Aortic Valves – Effect of Age and Sex. NIH PRIDE Annual Conference, Bethesda, MD, April 24 – 27th, 2023.
28. I. Nsofor and C.M.R. Lacerda. Print Fidelity and Reproducibility in 3D Bioprinting. 8th Annual Lyceum Research Showcase, Tyler, TX, April 14th, 2023.
27. B. Jafari, C.M.R. Lacerda, G.G. Botte. Evaluation of Electrochemically Reduced Graphene Composites As Antibacterial Materials. ECS - The Electrochemical Society Meeting, Digital Meeting, May 30th – June 3rd, 2021.
26. N. Deb, C.M.R. Lacerda. Correlation between fluid shear stress and morphological behavior of valvular endothelial cells. Annual Meeting of the American Institute of Chemical Engineers, Orlando, FL, November 10 – 15th, 2019.
25. X. Wang, D. Kuban-Johnston, P. Lapuerta, C.M.R. Lacerda. Effect of telotristat ethyl on cardiac valve degeneration. North American Neuroendocrine Tumor Society Symposium, Boston, MA, October 3 – 5th, 2019.
24. L. Lesanpezeshki, K. Kashyap, J.E. Hewitt, R. Laranjeiro, M. Driscoll, N.J. Szewczyk, G.M. Benian, C.M.R. Lacerda, S.A. Vanapalli. Functional evaluation of muscle contractile apparatus genes in C. elegans using burrowing and NemaFlex assays. 22nd International C. elegans Conference, Los Angeles, CA, June 20 – 24th, 2019.
23. B. Pina-Watson, C.M.R. Lacerda, D. Lavender-Bratcher, K. Alvina, N. Flores, S. Mendez-Morse. Women Owning Writing. 7th Annual Faculty Women of Color in the Academy National Conference, Blacksburg, VA, April 11th – 13th, 2019.
22. X. Wang, M. Ali, G. Mendiola, H. Scott and C.M.R. Lacerda. Collagen-elastin scaffolds for heart valve tissue engineering. Annual Meeting of the American Institute of Chemical Engineers, Pittsburgh, PA, October 28th – November 2nd, 2018.
21. L. Lesanpezeshki, J.E. Hewitt, R. Laranjeiro, M. Driscoll, N. Szewczyk, J. Blawzdziewicz, C.M.R. Lacerda, S.A. Vanapalli. Hydrogel-based burrowing assay for rapid assessment of neuromuscular health in C. elegans. C. elegans Topic Meeting: Neuronal Development, Synaptic Function ad Behavior, UW Madison, June 25 - 28th, 2018.

20. M. Ali, X. Wang, and C.M.R. Lacerda. Interactome analysis of valve cell mechanobiology. Heart Valve Society Annual Meeting, New York, NY, April 12 – 14th, 2018.

19. L. Lesanpezeshki, M. Rahman, J.E. Hewitt, F. Van-Bussel, H. Edwards, J. Blawzdziewicz, N. Szewczyk, M. Driscoll, C.M.R. Lacerda, S.A. Vanapalli. Using NemaFlex to investigate the contribution of specific muscle genes to muscle strength. 21st International C. elegans Conference, Los Angeles, CA, June 21 – 25th, 2017.

18. M. Ali, X. Wang, and C.M.R. Lacerda. Heterogeneity in valvular interstitial cell phenotype is a predictor of cell activation and acquisition of degenerative properties. Annual Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 13 – 18th, 2016.

17. M. Ali, X. Wang, M. Dinh, A. Curtis, M. Kim, E. Hui, and C.M.R. Lacerda. Effect of cell migration and endothelial cell contact upon phenotype activation of valvular interstitial cells. 2016 Annual Meeting of the Heart Valve Society, New York City, NY, March 17 – 19th, 2016.

16. X. Wang, M. Ali, and C.M.R. Lacerda. Serotonin control of the activated and osteoblastic phenotypes of valvular interstitial cells. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 8 – 13th, 2015.

15. M. Ali, X. Wang, and C.M.R. Lacerda. Effect of endothelial cells and matrix stiffness on phenotype change of valvular interstitial cells. Annual Meeting of the Biomedical Engineering Society, Tampa FL, October 7 – 10th, 2015.

14. J. Lee, X. Wang, C.M.R. Lacerda, and J.J. Kim. Development of a biomimetic microfluidic flow profile generator enabling mechanobiological responses of valvular interstitial cells. Annual Meeting of the Biomedical Engineering Society, Tampa FL, October 7 – 10th, 2015.

13. C.M.R. Lacerda. Acquisition of a contractile cell phenotype due to mechanical stresses in the extracellular environment. Annual Meeting of the American Institute of Chemical Engineers, Atlanta, GA, November 16 – 21st, 2014.

12. H.B. MacLea, C.M.R. Lacerda, J.D. Kisiday, and E.C. Orton. Canine and human degenerative mitral valve disease mimics chondrogenesis. ACVIM Forum, Denver, CO, June 15–18th, 2011.

11. C.M.R. Lacerda and E.C. Orton. Differential protein expression between normal and myxomatous canine mitral valves. Experimental Biology, New Orleans, LA, April 18- 22nd, 2009.

10. E.C. Orton, S. Disatian, and C.M.R. Lacerda. Phenotype-transformed interstitial cells in canine and human myxomatous mitral valves express tryptophan hydroxylase 1. Experimental Biology, New Orleans, LA, April 18- 22nd, 2009.

9. C.M.R. Lacerda and E.C. Orton. Differential protein expression in myxomatous valve disease. CVMBS Research Day, Fort Collins, CO, February 21st, 2009.

8. C.M.R. Lacerda, P.C. Wright and K.F. Reardon. Quantitative proteomic analysis of a soil bacterium under different levels of cadmium stress. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 4 – 9th, 2007.

7. C.M.R. Lacerda and K.F. Reardon. Quantitative proteomics as a tool for systems biology: assessment of metal stresses in Burkholderia cepacia. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 4 – 9th, 2007.

6. M.D. Wallenstein, C.M.R. Lacerda and K.F. Reardon. New insights into microbial community functional response to stress using environmental proteomics. ESA/SER Joint Meeting, San Jose, CA, August 5 – 10th, 2007.

5. C.M.R. Lacerda and K.F. Reardon. Use of metaproteomics as a tool to characterize stress-related changes in microbial communities. Proteomlux Conference, Luxembourg, Luxembourg, October 11 – 15th, 2006.

4. C.M.R. Lacerda and K.F. Reardon. Use of metaproteomics as a tool to detect stress-related changes in microbial communities. 3rd Annual WEF/AWWA Regional Student Conference. Fort Collins, CO, May 19th, 2006.

3. C.M.R. Lacerda and K.F. Reardon. Use of metaproteomics as a tool to detect stress-related changes in microbial communities. 35th Annual Biochemical Engineering Symposium. Rapid City, SD, April 29th, 2006.

2. C.M.R. Lacerda and K.F. Reardon. Metaproteomics as a tool to study microbial communities: effect of cadmium exposure. Annual Meeting of the American Inst. of Chemical Engineers, Cincinnati, OH, November 1 – 4th, 2005.

1. C.M.R. Lacerda, L. Rui, T.K. Wood, and K.F. Reardon. Proteomic approach to identify physiological changes in E. coli metabolically engineered for enhanced TCE degradation and toxicity reduction. Annual Meeting of the American Institute of Chemical Engineers, Austin, TX, November 7 – 12th, 2004.

Book Chapter

1. C.M.R. Lacerda*. Biomaterials for Bone Tissue Engineering. Bone Regeneration: Concepts, Clinical Aspects and Future Directions. Published by Nova Science Publishers (part of a collaborative book with other authors from TTUHSC). ISBN: 978-1-53613-990-7, AUG 2018.

Patent Applications

2. World Patent Application WO 2016/004394 "Microfluidic Cardiovascular System and Method". J Kim, CM Lacerda, J Lee. Publication date: January 7, 2016.

1. World Patent Application WO 2011/038023 "Methods for Processing Biological Tissues". EC Orton, S Arai, CM Lacerda, LG Griffiths. Publication date: March 31, 2011.

Invited Talks

5. Follow Me. International Day of Women and Girls in Science Colloquium at TVCC. Athens TX. Feb 11th, 2025.

4. Engineering micro-devices to study human disease. TJC Chemistry Week 2024. Tyler TX. Oct 22nd, 2024.

3. Endothelial cell mechanobiology and mechanotransduction used to inform tissue engineering. Texas Women's University, Denton, TX. September 21st, 2019.

2. Role of serotonin in mechanically-induced valvular degeneration. Lexicon Pharmaceuticals, Houston, TX. January 18th, 2017.

1. Valvular cell transformation due to mechanical stresses in the extracellular environment, TTUHSC Department of Pharmacy, Amarillo, TX. November 12th, 2014.

Grants - Pending:

- US$526,713 NIH: New Fabrication Methods for Micro-Vasculature (2026-2029)
- US$142,300 (co-I with Liu) NIH: Polyelectrolyte Complex Nanoparticles as a Scalable and Tunable Platform for Extended Insulin Release (2025-2027)
- US$749,204 (co-I with Khajah) Training Undergraduate Students In Precision Plant Sensing Technologies to Enhance the Cross-disciplinary Semiconductor and Agricultural Workforces in East Texas (2025-2029)
- US$398,790 (co-I with Deba) NSF: MRI: Track 1 Acquisition of Fourier Transform Infrared Microscopy for Multidisciplinary Materials Research and Education (2025-2028)

In progress:

- US$828,570 (co-I with Tabassum) NSF: MRI: Track 1 Acquisition of a micro/nanofabrication tool for fabricating 3D devices, enabling cleanroom-free research, education, and training in East TX (2024-2027)
- US$8,000 ASEE-EOP: Integration of Sustainability Principles in the Chemical Engineering Undergraduate Curriculum (2025-2026)

Completed:

- US$ 23,000 (PI) NHLBI/UCSD: Transcriptomics investigation of murine bicuspid aortic valves - effect of age and sex (2022-2023)
- US$33,000 (PI) UT Tyler Interdisciplinary Seed Grant: Development of a novel EGF-eluting scaffold for wound healing applications (2022-2023)
- US$177,661 (PI) Lexicon Pharma: Effect of telotristat ethyl on myxomatous mitral valves (2017-2019)

Courses Taught at UT Tyler

CHEN 4310	Separation Processes
CHEN 4330	Process Safety and Control
CHEN 4340	Chemical Reaction Engineering
CHEN 4341	Special Topics in ChemE
CHEN 4360	Lab II

Courses Taught at TTU

CHE 2410	Introduction to Chemical Process
CHE 3323	Chemical Reaction Engineering
CHE 4363	Biochemical Engineering
CHE 5343	Reaction Kinetics

Student Teaching Evaluations

Course	CHEN 4310	CHEN 4330	CHEN 4340	CHEN 4341	CHEN 4360
Mean Class Sizes	3	3	5	10	4
2024/25	5.0	5.0		4.7	4.9
2023/24	4.6	4.5		4.2	
2022/23			4.6		
2021/22			4.9		

Scores out of a max of 5.0 (average of five criteria).

Course	CHE 2410	CHE 3323	CHE 4363/5363	CHE 5343
Mean Class Sizes	84	70	40	25
2020/21	4.0		4.6	
2019/20	4.6		4.8	
2018/19	4.4			
2017/18	4.2			
2016/17	3.8			
2015/16		4.7		3.4
2014/15		4.5		4.2
2013/14		4.1	4.0	
2012/13		4.5		

Scores out of a max of 5.0 (average of three criteria).

Graduate Students Supervised at UT Tyler

Current: 1 M.S. student

Damola Agboola, M.S. ME May 2027: Machine learning applied to cardiac ultrasound of mice.

Completed: 1 M.S. student

Gideon Nyarko, M.S. ME May 2024: Developing an elastic dome for mechanobiology studies.

Graduate Students Supervised at TTU

Completed: 4 Ph.D. and 7 M.S. students

Nandini Deb, Ph.D. ChE Aug 2021: Valvular cell properties correlate with mechanical stimuli.
Leila Lesanpezeshki, Ph.D. ChE Dec 2020: Linking force assays to proteome responses in *C. elegans*.
Arielle Efotte, M.S. Bioengineering May 2020: Micropatterning for capillary growth.
Andrea Reano, M.S. Bioengineering May 2020: Kinetic studies of bacterial-mammalian co-cultures.
Mir Ali, Ph.D. ChE Aug 2018: Endothelial mesenchymal transition induced by environmental changes.
George Mendiola, M.S. Bioengineering May 2018: Integrin-based cell recruitment.
Xinmei Wang, Ph.D. ChE Aug 2017: Mechanosensing in osteogenic tissue degeneration.
Mai Dinh, M.S. ChE May 2017: Collective cell migration driven by differentiated endothelial cells.
Caleb Shaw, M.S. Bioengineering May 2017: Biological scaffold preparation for mechanobiology studies.
Oscar Sias, M.S. Biotechnology (TTUHSC) May 2017: Effect of selenoproteins on stem cell differentiation.
Stephanie Lopez, M.S. ChE Dec 2014: Focal adhesion interactome.

Undergraduate Research Supervised

Darlene Gonzalez-Soto (Fall 2023 to Spring 2025)
Isabela Nix (Fall 2021 to Fall 2022)
Kennedy Reyes (Spring 2019)
Anam Mahmood (Summer 2017 to Spring 2018)
Brenda McGovern (Spring 2017 to Spring 2018)
Francisco Almeida (Summer 2017 to Spring 2018)
Thomas Fitzgerald (Summer 2016, Fall 2016)
Sarah Crawford (Summer, Fall 2015, Fall 2016)
Stephanie Yanez (Summer 2016)
Nick Sebasco (Spring, Fall 2015)
Mai Dinh (Summer 2015)
Wardleison Martins (Fall 2014)
Arlene Soto Maldonado (Summer 2014)
Tim Kim (Summer 2014)
Brenna Lumongsud (Fall 2013)
Danielle Zulaica (Fall 2013)

Thesis Committees (not as Principal Advisor; Advisor's name is in parentheses)

Derrick Phanos (Z. Cao)m M. S. ME 2026
Elvis Sangmen (S. Tabassum), M.S. EE 2025
Maliha Kabir (P. Sundaradivel), M.S. EE 2024
Bikal Suwal (P. Indic), M.S. EE 2024
Diala Mustafa (S. Chou), M.S. ME 2024
Soniya Chhetri (P. Indic), M.S. EE 2023
Srikumar Krishnamoorthy (C. Xu), Ph.D. IMSE 2020
Shamim Ahmmed (S. Vanapalli), Ph.D. ChE 2020
Jen Hewitt (S. Vanapalli), Ph.D. ChE 2019
Derek Fleming (K. Rumbaugh, TTUHSC), Ph.D. Biomedical Sciences 2018
Kailiang Zhang (Z. He), Ph.D. Mechanical Eng. 2018
Avik Basu (Z. He), Ph.D. Mechanical Eng. 2017
Nabi Kamyabi (S. Vanapalli), Ph.D. ChE 2017
Mizanur Rahman (S. Vanapalli), Ph.D. ChE 2016
Wenqian Tao (H. Gill), Ph.D. ChE 2015
Lan Ma (R. C. Hedden), Ph.D. ChE 2014
Md Nazir Hossain (H. Gill), M.S. ChE 2014

Faculty Development Workshops Attended

stEm PEER Academy Fellow, online, 2023 to 2025
ACUE Fostering a Culture of Belonging Certification, online, August 2023 to December 2023
NSF Game Changer Academics, online, Spring 2022
ACUE Effective Teaching Certification, online, August 2021 to May 2022
MAES Faculty Development Symposium, NSF LEVERAGE Program, El Paso, TX, April 2018
National Effective Teaching Institute NETI-2 Workshop, ASEE Annual Meeting, Montreal, QC, July 2014
National Effective Teaching Institute NETI-1 Workshop, ASEE Annual Meeting, Atlanta, GA, June 2013

Outreach

Co-instructor Math and Science Summer Camp – 2022 to present
Mentor at Patriot Student Mentoring Program – 2021/2022
Mentor at TTU MentorTech – 2017/2018
Speaker at the Catch the Engineering Bug – November 2017
Invited speaker at the Science It's a Girl's Thing Summer Camp – July 2017
Leader of the TTU Raider Introduction to Science and Engineering - RISE – July 2015
Instructor of Shake Hands with your Future Biomedical Engineering course – 2013

Professional Service

University Service at UT Tyler

Director of the COE Summer Bridge Program – 2025 to present
Chair of Ratliff Relays – 2024 to present
Faculty Advisor of the AIChE Student Chapter - 2023 to present
Mentor for the Chemical Engineering Mentoring Program – 2023 to present
Founding member of the Chemical Engineering Meet & Greet event – 2023 to present
COEFGO Secretary – 2023 to 2024
CETL Learning Cohort Leader - 2023 to 2024
Member of the College of Engineering Ratliff Relays Taskforce – 2022 to 2023
Member of the Chemical Engineering Faculty Search Committee – 2022 to present
Poster judge at the Lyceum and East Texas Research Conference – 2022 to present
Member of the Mechanical Engineering Graduate Admissions committee – 2021 to present
Chemical Engineering Faculty Recruiter at Patriot Premier and Top 25% - 2021 to present

Reviewer for ORSSP Seed Grant Program – 2023
Safety Officer for Chemical Engineering – 2021 to 2023
Member of the ABET accreditation taskforce for Chemical Engineering – 2021 to 2023

University Service at TTU
Faculty advisor for the MS Bioengineering Program – 2020 to 2021
Member of the Teaching Academy Executive Council – 2020 to 2021
Member of the Undergraduate committee for the CHE Department – 2020 to 2021
Founding Advisor for the Computational Thinking Club – 2020 to 2021
Founding Advisor for the Latinas in CHE Student Organization – 2019 to 2021
Member of the ChE Department Recruitment Squad – 2019 to 2021
Member of the Mech.E. Department Faculty Search Committee – 2019 to 2020
Member of the Bioengineering Program Advisory Committee – 2019 to 2021
Member of the WCOE Scholarships ad hoc Committee – 2019 to 2021
Member of the Visibility Committee of the Teaching Academy – 2019 to present
Member of the Memberships Committee of STEM-CORE – 2017 to 2021
Advisor for the AIChE Student Chapter - 2015 to 2021
Member of the ChE Department Chair Search Committee – 2018 to 2019
Member of the WCOE Awards Committee - 2017 to 2018
Co-organizer of the AIChE Annual Meeting TTU Reception - 2014
Member of the ChE Dept. Safety Committee - 2014
Member of the Whitacre Chair Search Committee – 2013 to 2014

Professional Society Service
Standing member of BBT-10 NIH Study Section
Topical Advisory Panel Member and Guest Editor for Bioengineering
Organizer of 2019 AIChE Southwest Student Regional Conference
DoD panelist – Medical Research Program
2018 HVS Annual Meeting Session Discussant
NSF panelist – CBET EBMS and CBE programs
Regular panelist for AHA – Cardiac Biology
2016 HVS Annual Meeting Program Committee Member
Conference abstract reviewer for BMES
Session Chair/Co-Chair for AIChE at 2015 through 2017 Annual Meetings

- Biomaterial-Cell Interactions in Tissue Engineering
- Tissue Engineering Microenvironment
- Cell Adhesion and Migration

Guest Editor/Editorial Boards/Reviewer
Reviewer for:

- ACS Biomaterials Science & Engineering
- Acta Biomaterialia
- American Journal of Veterinary Science
- Annals of Biomedical Engineering
- Biochemical Engineering Journal
- BioChip Journal
- Bioengineering & Translational Medicine
- Cardiovascular Engineering and Tech
- Current Cancer Drug Targets
- Current Microbiology
- Environmental Science & Technology
- Journal of Biomedical Materials Research
- Journal of Heart Valve Disease
- Journal of Veterinary Cardiology
- Lab-on-a-Chip
- Royal Society of Open Science
- Scientific Reports
- Tissue Engineering
- Translational Research
- Water Research

Professional Affiliations

American Institute of Chemical Engineers (AIChE)
Biomedical Engineering Society (BMES)
American Heart Association (AHA)
Society for Experimental Biology (SEBM)
Society for the Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS)