

CURRICULUM VITAE

Susan T. Sharfstein
College of Nanotechnology, Science and Engineering
University at Albany

CONTENTS

A. NAME AND ADDRESS	2
B. EARNED DEGREES	2
C. CURRENT AND PREVIOUS EDUCATIONAL EMPLOYMENT	2
D. HONORS AND AWARDS	2
E. SCHOLARLY ACTIVITIES	3
E.1 Publications in peer-reviewed journals (~3400 citations; h-index = 29)	3
E.2 Invited book chapters	8
E.3 Peer-reviewed Conference Proceedings	9
E.4 Articles recently submitted to peer-reviewed journals	9
E.5 Manuscripts in preparation for submission	9
E.6 Commentaries and Book and Meeting Reviews (Not peer-reviewed)	9
E.7 Internal Technical Reports (Not peer-reviewed)	10
E.8 Patents and Disclosures	10
E.9 Editorial Activities	11
E.10 Oral Presentations	11
E.11 Funding	23
F. TEACHING ACTIVITIES	26
F.1 Curriculum Development	26
F.2 Courses taught (including guest lectures)	27
F.2b Invited Workshops/Courses	29
F.3 Student Mentoring	29
G. SERVICE ACTIVITIES	34
G.1 University Service	34
G.2 Curricular advising	36
G.3 Professional Service	36
G.4 Community Service/Outreach Activities	38
H. PROFESSIONAL AFFILIATIONS	39
I. CONSULTING ACTIVITIES	39
J. PROFESSIONAL DEVELOPMENT ACTIVITIES	39

A. NAME AND ADDRESS

Susan T. Sharfstein

Professor of Nanoscale Science and Engineering
University at Albany, State University of New York
NanoFab East, 257 Fuller Road, Albany NY 12203
Ph: 518-442-8642 Fax: 518-437-8685

ssharfstein@albany.edu

ORCID ID: 0000-0002-0908-4197

<https://www.linkedin.com/in/susan-sharfstein-b7552111/>

B. EARNED DEGREES

1993 Ph.D. in Chemical Engineering, University of California, Berkeley

1987 B.S. with honors in Chemical Engineering, California Institute of Technology, Pasadena, CA

C. CURRENT AND PREVIOUS EDUCATIONAL EMPLOYMENT

Professor of Nanoscale Science and Engineering, College of Nanotechnology, Science and Engineering, University at Albany, Albany, NY, 2023-present

Visiting Research Scholar (sabbatical position), Australian Institute for Bioengineering and Nanotechnology, University of Queensland, Brisbane, Australia, Spring 2018

Visiting Research Scholar (sabbatical position), National Institute for Cellular Biotechnology, Dublin City University, Dublin, Ireland, Fall 2017

Professor of Nanobioscience, College of Nanoscale Science and Engineering, SUNY Polytechnic Institute, Albany, NY, 2017-2023

Associate Professor of Nanobioscience, College of Nanoscale Science and Engineering, SUNY Polytechnic Institute, Albany, NY, 2014-2017

Associate Professor of Nanobioscience, College of Nanoscale Science and Engineering, University at Albany, Albany, NY, 2010-2014. Continuing appointment (tenure) granted 2013

Research Professor of Chemical and Biological Engineering and Biology, Rensselaer Polytechnic Institute, Troy, NY, 2009-2010

Assistant Professor of Biology (joint appointment), Rensselaer Polytechnic Institute, Troy, NY, 2007-2009

Assistant Professor of Chemical and Biological Engineering, Rensselaer Polytechnic Institute, Troy NY, 2001-2009

Visiting Assistant Professor, Center for Cell Biology & Cancer Research, Albany Medical College, Albany, NY, Spring-Summer 2001

Adjunct Professor of Chemical Engineering, Rensselaer Polytechnic Institute, Troy, NY, Spring 2001

Visiting Scientist, Wadsworth Laboratories, New York State Department of Health, Albany, NY, 2000-2002

Assistant Professor of Bioengineering, University of Toledo, Toledo, OH, 1996-2001

Postdoctoral Research Assistant, School of Medicine, University of California, Los Angeles, 1994-1996

Postdoctoral Research Assistant, Department of Chemical Engineering, University of California, Berkeley, 1993-1994

Acting Instructor, Biochemical Engineering, Department of Chemical Engineering, University of California, Berkeley, Fall 1992

D. HONORS AND AWARDS

2024 UAlbany RNA Institute Excellence in Service

2023 SUNY Chancellor's Award for Excellence in Scholarship and Creative Activities

2021-23 Fulbright Alumni Ambassador

2017-18 Fulbright Global Scholar Award

2015-19 Biotechnology Subject Editor, Elsevier Life Science Reference Module

2015-16	SUNY Research Foundation Faculty Fellow
2007	RPI Class of '51 Outstanding Teaching Award
2007	RPI School of Engineering Excellence in Education Award
2000	CAREER: National Science Foundation Early Career Development Award
1998	Nominated for Outstanding Teacher Award, University of Toledo
1997	Inducted into Sigma Xi at University of Toledo
1993	National Institutes of Health Postdoctoral Fellowship
1988	National Science Foundation Graduate Fellowship
1987	The Berkeley Graduate Fellowship
1986	Inducted into Tau Beta Pi, California Beta Chapter (Caltech)
1983-87	Society of Women Engineers National and Section Awards
1986	Richard P. Shuster Award in Chemical Engineering, Caltech
1985	Caltech Merit Award

E. SCHOLARLY ACTIVITIES

* Indicates graduate students under the direct supervision of Dr. Sharfstein; + indicates postdoctoral fellows or research scientists under the direct supervision of Dr. Sharfstein; # indicates undergraduate students under the direct supervision of Dr. Sharfstein; ^ indicates industrial collaborator.

E.1 Publications in peer-reviewed journals (~3889 citations; h-index = 30)

These are publications since I became an independent investigator. In most cases, the corresponding author is the last author on the citation.

1. J. Allisha, J. Das, T. Dunnigan, **S.T. Sharfstein**, P. Datta, *Stipulations of Cell and Gene Therapy and the ties to Biomanufacturing*, Biotechnology Progress, in press.
2. S.C.R. Kollampally, X. Zhang, N. Moskwa, D.A. Nelson, **S.T. Sharfstein**, M. Larsen, and Y. Xie, *Evaluation of Alginate Hydrogel Microstrands for Stromal Cell Encapsulation and Maintenance*, Bioengineering, 11(4): 375 (2024) <https://doi.org/10.3390/bioengineering11040375>,
3. E. Oduah, **S.T. Sharfstein**, N. Seetharamu, S. Grossman, and L. Litovchick, *Proteasome inhibition paradoxically degrades gain-of-function mutant p53 R273H in NSCLC and could have therapeutic implications*, Frontiers in Oncology, 14: 1363543 (2024) doi.org/10.3389/fonc.2024.1363543.
4. *S.C. Rose, M. Larsen, Y. Xie, and **S.T. Sharfstein**, *Salivary Gland Bioengineering*, Bioengineering 11: 28 (2024) <https://doi.org/10.3390/bioengineering11010028>
5. H.O. Masson, M. Samoudi, C.M. Robinson, C-C. Kuo, L. Weiss, K.S.U. Doha, A. Campos, V. Tejawani, H. Dahodwala, P. Menard, B.G. Voldborg, B. Robasky, **S.T. Sharfstein**, and N.E. Lewis, *Inferring secretory and metabolic pathway activity from omic data with secCellFie*, Metabolic Engineering, 81: 273-285 (2024) <https://doi.org/10.1016/j.ymben.2023.12.006>
6. *F. Pesantez Torres, N. Tokranova, #E. Amodeo, T. Bertucci, T.R. Kiehl, Y. Xie, N.C. Cady, and **S.T. Sharfstein**, *Interfacing Neural Cells with Typical Microelectronics Materials for Future Manufacturing*, Biosensors and Bioelectronics, 242: 115749 (2023) doi: 10.1016/j.bios.2023.115749
7. ^K.Y. Torrejon, L. Beardslee, J.R. Halman, ^A.M. Unser, Y. Xie, J. Danias, M. Bergkvist, and **S.T. Sharfstein**, *Recreating the Trabecular Outflow Tissue on Implantable, Micropatterned, Ultrathin, Porous Polycaprolactone Scaffolds*, Bioengineering, 10: 679 (2023) doi: [10.3390/bioengineering10060679](https://doi.org/10.3390/bioengineering10060679)

8. **S.T. Sharfstein**, *Bio-hybrid electronic and photonic devices*, Experimental Biology and Medicine, 247: 2128-2141 (2022) doi: [10.1177/15353702221144087](https://doi.org/10.1177/15353702221144087)
9. H. Dahodwala, S.D. Amenyah, *S. Nicoletti, *M. Henry, D.J. Lees-Murdock, and **S.T. Sharfstein**, *Evaluation of site-specific methylation of the CMV promoter and its role in CHO cell productivity of a recombinant monoclonal antibody*, Antibody Therapeutics, 5: 121-129 (2022) doi: 10.1093/abt/tbac010
10. *P. Ramesh, N. Moskwa, #Z. Hanchon, #A. Koplas, D.A. Nelson, K.L. Mills, J. Castracane, M. Larsen, **S.T. Sharfstein**, and Y. Xie, *Engineering cryoelectrospun elastin-alginate scaffolds to serve as stromal extracellular matrices*, Biofabrication, 14: 035010 (2022) doi: 10.1088/1758-5090/ac6b34
11. ^B.E. Thacker, K. J. Thorne, C. Cartwright, J.Park, K. Glass, A. Chea, B. P. Kellman, N. E. Lewis, Z. Wang, A. Di Nardo, **S.T. Sharfstein**, W. Jeske, J. Walenga, J. Hogwood, E. Gray, B. Mulloy, J. D. Esko, ^C.A. Glass, *Multiplex genome editing of mammalian cells for producing recombinant heparin*, Metabolic Engineering, 70: 155-165 (2022) doi: [10.1016/j.ymben.2022.01.002](https://doi.org/10.1016/j.ymben.2022.01.002)
12. M. Jorgensen, P. Ramesh, M. Toro, E. Evans, N. Moskwa, X. Zhang, **S.T. Sharfstein**, M. Larsen and Y. Xie, *Alginate Hydrogel Microtubes for Salivary Gland Cell Organization and Cavitation*, Bioengineering 9:38-58 (2022) doi: 10.3390/bioengineering9010038
13. V. Tejwani, M. Chaudari, T. Rai, and **S.T. Sharfstein**, *High-throughput and automation advances for accelerating single-cell cloning, monoclonality and early phase clone screening steps in mammalian cell line development for biologics production*, Biotechnology Progress, Sep 3:e3208 (2021) doi: 10.1002/btpr.3208
14. +V. Muralidharan-Chari, ^Z. Wurz, F. Doyle, *M. Henry, A. Diendorfer, S.A. Tenenbaum, N. Borth, ^E. Eveleth, **S.T. Sharfstein**, *PTSelect™: A post-transcriptional technology that enables rapid establishment of stable CHO cell lines and surveillance of clonal variation*, Journal of Biotechnology, 325:360-371 (2021) doi: [10.1016/j.jbiotec.2020.09.025](https://doi.org/10.1016/j.jbiotec.2020.09.025)
15. *N. Amini, J.L. Paluh, Y. Xie, ^V. Saxena, and **S.T. Sharfstein**, *Insulin production from hiPSC-derived pancreatic cells in a novel wicking matrix bioreactor*, Biotechnology and Bioengineering, 117: 2247-2261 (2020) doi: 10.1002/bit.27359
16. H. Dahodwala, P. Kaushik, +V. Tejwani, C.-C. Kuo, P. Menard, M. Henry, B.G. Voldborg, N. E. Lewis, P. Meleady, and **S.T. Sharfstein**, *Increased mAb production in amplified CHO cell lines is associated with increased interaction of CREB1 with transgene promoter*, Current Research in Biotechnology, 1: 49-57 (2019) doi: 10.1016/j.crbiot.2019.09.001
17. S. Li, S.W. Cha, K. Heffner, D. Baycin-Hizal, M. Bowen, R. Chaerkady, R. Cole, +V. Tejwani, P. Kaushik, M. Henry, P. Meleady, **S.T. Sharfstein**, M.J. Betenbaugh, V. Bafna, N.E. Lewis, *Proteogenomic annotation of the Chinese hamster reveals extensive novel translation events and endogenous retroviral elements*. Journal of Proteome Research, 18: 2433–2445 (2019) doi: [10.1021/acs.jproteome.8b00935](https://doi.org/10.1021/acs.jproteome.8b00935)
18. ^B.E. Thacker and **S.T. Sharfstein**, *Metabolic Engineering of Mammalian Cells to Produce Heparan Sulfates*, Emerging Topics in Life Sciences, 2 (3) 443-452 (2018) DOI: 10.1042/ETLS20180007
19. +V. Tejwani, M.R. Andersen, J-H. Nam, and **S.T. Sharfstein**, *Glycoengineering in CHO cells: Advances in systems biology*, Biotechnology Journal 13(3):e1700234 (2018) DOI: 10.1002/biot.201700234 **Featured on inside back cover and one of the most read papers in the journal issue**
20. **S.T. Sharfstein**, *Non-protein biologic therapeutics*, Current Opinion in Biotechnology 53: 65-75 (2018) doi: 10.1016/j.copbio.2017.12.014
21. *J.J. Terracina, **S.T. Sharfstein**, M. Bergkvist, *In Silico Characterization of Enantioselective Molecularly Imprinted Binding Sites*, Journal of Molecular Recognition, 31: e2612 (2018) doi: 10.1002/jmr.2612

22. ⁺S. Zhang, [^]D.E. Speed, [^]S.R. Trammell, and **S.T. Sharfstein**, *Reactivity of Deposited Byproducts Generated from ZrO₂ Atomic Layer Deposition*, Journal of Loss Prevention in the Process Industries, 45: 78-87 (2017) doi: 10.1016/j.jlp.2016.11.008
23. ^{*}K.Y. Torrejon, [#]E.L. Papke, [#]J.R. Halman, M. Bergkvist, J. Danias, **S.T. Sharfstein**, and Y. Xie, *TGFβ₂-induced outflow alterations in a bioengineered trabecular meshwork are offset by a Rho-associated kinase inhibitor*, Scientific Reports, 6: 38319 (2016) doi:10.1038/srep38319
24. ^{*}E. Oduah, R.J. Linhardt, and **S.T. Sharfstein**, *Heparin: Past, Present, and Future*, Pharmaceuticals, 9: 38 (2016) doi:10.3390/ph9030038
25. ^{*}J.J. Terracina, **S.T. Sharfstein**, and M. Bergkvist, *Computational Investigation of Stoichiometric Effects, Binding Site Heterogeneities, and Selectivities of Molecularly Imprinted Polymers*, Journal of Molecular Modeling, 22: 139 (2016) doi: 10.1007/s00894-016-3005-1
26. ^{*}K.Y. Torrejon, E.L. Papke, [#]J.R. Halman, J. Stolwijk, ^{*}C.N. Dautriche, M. Bergkvist, J. Danias, **S.T. Sharfstein**, and Y. Xie, *Bioengineered Glaucomatous 3D Human Trabecular Meshwork as an in vitro Disease Model*, Biotechnology and Bioengineering, 113: 1357-68 (2016) doi:10.1002/bit.25899
27. ^{*}C.N. Dautriche, Y. Tian, Y. Xie, and **S.T. Sharfstein**, *A Closer Look at Schlemm's Canal Cell Physiology: Implications for Biomimetics*, Journal of Functional Biomaterials, 6: 963-985 (2015) doi:10.3390/jfb6030963
28. ^{*}C.N. Dautriche, [#]D. Szymanski, [#]M. Kerr, ^{*}K.Y. Torrejon, M. Bergkvist, Y. Xie, J. Danias, W.D. Stamer, and **S.T. Sharfstein**, *A biomimetic Schlemm's canal inner wall: A model to study outflow physiology, glaucoma pathology and high-throughput drug screening*, Biomaterials 65: 86-92 (2015) doi:10.1016/j.biomaterials.2015.06.034
29. ⁺J-Y Baik, ⁺H. Dahodwala, ^{*}E. Oduah, [#]L. Talman, T.R. Gemmill, ^{*}P. Datta, ^{*}L. Gasimli, B. Yang, G. Li, F. Zhang, L. Li, R.J. Linhardt, [^]A.M. Campbell, [^]S.F. Gorfien, and **S.T. Sharfstein**, *Optimization of bioprocess conditions improves production of a CHO cell-derived, bioengineered heparin*, Biotechnology Journal, 10: 1067–1081 (2015) DOI 10.1002/biot.201400665
30. ^{*}P. Datta, B. Yang, R.J. Linhardt, and **S.T. Sharfstein**, *Modulation of heparan sulfate biosynthesis by sodium butyrate in recombinant CHO cells*. Cytotechnology, 67: 223-235 (2015) DOI 10.1007/s10616-013-9677-9
31. ^{*}M. Mason, [^]B. Sweeney, [^]K. Cain, [^]P. Stephens, and **S.T. Sharfstein**, *Reduced Culture Temperature Differentially Affects Expression and Biophysical Properties of Monoclonal Antibody Variants*, Antibodies, 3: 253-271 (2014) doi:10.3390/antib3030253
32. ⁺H. Dahodwala and **S.T. Sharfstein**, *Role of epigenetics in expression of recombinant proteins from mammalian cells*, Pharmaceutical Bioprocessing, 2:403-419 (2014) DOI: 10.4155/PBP.14.47
33. ^{*}C.N. Dautriche, Y. Xie, and **S.T. Sharfstein**, *Walking through Trabecular Meshwork Biology: Towards Engineering Design of Outflow Physiology*, Biotechnology Advances, 32(5): 971-983 (2014) DOI: 10.1016/j.biotechadv.2014.04.012
34. ^{*}L. Gasimli, C.A. Glass, ^{*}P. Datta, B. Yang, G. Li, T.R. Gemmill, ⁺J-Y. Baik, **S.T. Sharfstein**, J.D. Esko, and R.J. Linhardt, *Bioengineering murine mastocytoma cells to produce anticoagulant heparin*, Glycobiology, 24 (3): 272-280 (2014) doi:10.1093/glycob/cwt108
35. ^{*}P. Datta, L. Meli, L. Li, [^]N. Migliore, [^]E. Schaefer, **S.T. Sharfstein**, J.S. Dordick, and R.J. Linhardt, *Microarray platform affords improved product analysis in mammalian cell growth studies*. Biotechnology Journal, 9: 386–395 (2014), DOI: 10.1002/biot.201300288
36. ^{*}P. Datta, G. Li, B. Yang, X. Zhao, ⁺J-Y. Baik, T.R. Gemmill, **S.T. Sharfstein**, and R.J. Linhardt, *Bioengineered Chinese hamster ovary cells with Golgi-targeted 3-O-sulfotransferase-1 biosynthesize*

heparan sulfate with an antithrombin binding site, Journal Biological Chemistry 288: 37308-37318 (2013)
doi: 10.1074/jbc.M113.519033

37. *K.Y. Torrejon, D. Pu, M. Bergkvist, J. Danias, **S.T. Sharfstein**, and Y. Xie, *Recreating a Human Trabecular Meshwork Outflow System on Microfabricated Porous Structures*. Biotechnology and Bioengineering, 110: 3205–3218 (2013) DOI: 10.1002/bit.24977
38. *P. Datta, R.J. Linhardt, and **S.T. Sharfstein**, *An 'Omics Approach Towards CHO Cell Engineering*. Biotechnology and Bioengineering, 110: 1255–1271 (2013) DOI: 10.1002/bit.24841
39. +J-Y. Baik, C. L. Wang, B. Yang, R. J. Linhardt and **S. T. Sharfstein**, *Toward a bioengineered heparin: Challenges and strategies for metabolic engineering of mammalian cells*. Bioengineered 3: 225 - 229 (2012). <http://dx.doi.org/10.4161/bioe.20902>
40. *M. Mason, ^B. Sweeney, ^K. Cain, ^P. Stephens, and **S.T. Sharfstein**, *Identifying regulatory bottlenecks in transient and stable production of recombinant monoclonal-antibody sequence variants in Chinese hamster ovary cells*, Biotechnology Progress, 28: 846–855. (2012) doi: 10.1002/btpr.1542.
41. +H. Zhang, ^M-Y. Lee, ^M.G. Hogg, J.S. Dordick, and **S.T. Sharfstein**, *High throughput delivery of interfering RNA in a three-dimensional cell-culture chip*, Small, 8: 2091-2098 (2012) doi: 10.1002/smll.201102205.
42. +J-Y. Baik, *L. Gasimli, B. Yang, *P. Datta, F. Zhang, C.A. Glass, J.D. Esko, R.J. Linhardt, and **S.T. Sharfstein**, *Metabolic engineering of Chinese hamster ovary cells: Towards a bioengineered heparin*, Metabolic Engineering, 14: 81-90 (2012).
43. *H. Dahodwala, ^M. Nowey, ^T. Mitina, and **S.T. Sharfstein**, *Effects of Clonal Variation on Growth, Metabolism, and Productivity in Response to Trophic Factor Stimulation: A Study of Chinese Hamster Ovary Cells Producing a Recombinant Monoclonal Antibody*, Cytotechnology, 64:27–41 (2012) doi: 10.1007/s10616-011-9388-z.
44. B. Yang, A. Weyers, +J-Y. Baik, E. Sterner, **S. Sharfstein**, S.A. Mousa, F. Zhang, J.S. Dordick, R. J. Linhardt, *Ultrapformance ion-pairing liquid chromatography with on-line electrospray ion trap mass spectrometry for heparin disaccharide analysis*, Analytical Biochemistry, 415: 59-66 (2011).
45. *T.R. Kiehl, *D. Shen, ^S.F. Khattak, ^Z. Lee, and **S.T. Sharfstein**, *Observations of cell-size dynamics under osmotic stress*, Cytometry Part A, 79A: 560-569 (2011). **Noted as a System of Interest on the Journal Cover.**
46. *A.C. Baughman, **S.T. Sharfstein**, and L.L. Martin, *A Flexible State-space Approach for the Modeling of Metabolic Networks I: Development of Mathematical Methods*, Metabolic Engineering, 13: 125-137 (2011).
47. *A.C. Baughman, **S.T. Sharfstein**, and L.L. Martin, *A Flexible State-space Approach for the Modeling of Metabolic Networks II: Advanced Interrogation of Hybridoma Metabolism*, Metabolic Engineering, 13: 138-149 (2011).
48. +H. Zhang, ^M-Y. Lee, ^M.G. Hogg, J.S. Dordick, and **S.T. Sharfstein**, *Gene delivery in three-dimensional cell cultures by superparamagnetic nanoparticles*, ACS Nano, 4: 4733–4743 (2010). **Featured in an ACS Nano podcast:** <http://pubs.acs.org/subscribe/journals/ancac3/audio/ancac3-0810.mp3>
49. *D. Shen, *T. R. Kiehl, ^S.F. Khattak, ^Z. Li, ^A. He, ^I.M. Neuhaus, ^P.S. Kayne, ^V. Patel, and **S. T. Sharfstein**, *Transcriptomic Responses to Osmotic Stress: A Study of Industrial Fed-Batch CHO Cell Cultures*, Biotechnology Progress, 26: 1104-1115 (2010) doi: 10.1002/btpr.398
50. *A.C. Baughman, *X. Huang, **S.T. Sharfstein**, and L.L. Martin, *On the Dynamic Modeling of Mammalian Cell Metabolism and mAb Production*, Computers in Chemical Engineering, 34: 210–222 (2010).
51. *J.H. Nam, M. Ermonval, and **S.T. Sharfstein**, *The effects of microcarrier culture on recombinant CHO cells under biphasic hypothermic culture conditions*, Cytotechnology, 59: 81-91 (2009).

52. S. Barua, S. A. Joshi, A. Banerjee, D. Matthews, **S. T. Sharfstein**, S. Cramer, R. Kane, K. Rege, *Parallel Synthesis and Screening of Polymers for Non-Viral Gene Delivery*, Molecular Pharmaceutics, 6: 86-97 (2009).
53. *Z. Jiang and **S.T. Sharfstein**, *Characterization of gene localization and accessibility in DHFR-amplified CHO cells*, Biotechnology Progress, 25: 296-300 (2009).
54. *J.H. Nam, F.Zhang, M. Ermonval, R.J. Linhardt, and **S.T. Sharfstein**, *Effects of culture conditions on the glycosylation of SEAP produced by rCHO cells in a controlled bioreactor*: Biotechnology and Bioengineering, 100: 1178–1192 (2008).
55. **S.T. Sharfstein** *Advances in Cell Culture Process Development: Tools and Techniques for Improving Cell Line Development and Process Optimization*: Biotechnology Progress, 24: 727-734 (2008).
56. *Z. Jiang and **S.T. Sharfstein**, *Sodium Butyrate Stimulates mAb Over-expression in CHO Cells by Improving Gene Accessibility*, Biotechnology and Bioengineering, 100: 189-194 (2008).
57. *A. Venkiteshwaran, P. Heider, S. Matosevic, A. Bogsnes, ^A. Staby, **S. Sharfstein**, and G. Belfort, *Optimized removal of soluble host cell proteins for the recovery of met-human growth hormone inclusion bodies from Escherichia Coli cell lysate using crossflow microfiltration*, Biotechnology Progress, 23: 667-672. (2007).
58. *J.H. Nam M. Ermonval, and **S.T. Sharfstein**, *Cell attachment to microcarriers affects growth, metabolic activity, and culture productivity in bioreactor culture*, Biotechnology Progress, 23: 652 -660 (2007)
59. *D. Shen and **S.T. Sharfstein**, *Genome-Wide Analysis of the Transcriptional Response of Murine Hybridomas to Osmotic Shock*, Biotechnology and Bioengineering, 93: 132-145 (2006) PubMed PMID: 16196057.
60. *Z. Jiang, *Y. Huang, and **S.T. Sharfstein**, *Regulation of Recombinant Monoclonal Antibody Production in Chinese Hamster Ovary Cells: A Comparative Study of Gene Copy Number, mRNA Level and Protein Expression*, Biotechnology Progress, 22: 313-318 (2006). DOI: [10.1021/bp0501524](https://doi.org/10.1021/bp0501524) **One of the 10 most accessed articles of 2006 and 20 most cited papers in 2006-2007 from Biotechnology Progress.**
61. *K.M. McNeeley, *Z. Sun, and **S.T. Sharfstein**, *Techniques for Dual Staining of DNA and Intracellular Immunoglobulins in Murine Hybridoma Cells: Applications to Cell-Cycle Analysis of Hyperosmotic Cultures*, Cytotechnology, 48: 15-26 (2005).
62. *Z. Sun, *R. Zhou, *S. Liang, *K.M. McNeeley, and **S.T. Sharfstein**, *Hyperosmotic Stress in Murine Hybridoma Cells: Effects on Antibody Transcription, Translation, Posttranslational Processing, and the Cell Cycle*, Biotechnology Progress, 20: 576-589 (2004).
63. J. Faghihi, *X. Jiang, R. Vierling, S. Goldman, **S. Sharfstein**, J. Sarver, and P. Erhardt, *Reproducibility of the High-Performance Liquid Chromatographic Fingerprints Obtained from Two Soybean Cultivars and a Selected Progeny*, Journal of Chromatography A, 915: 61-74 (2001).

These are publications resulting from my postdoctoral work at UCLA with Professors Michael Phelps and Harvey Herschman. This was a large collaborative project. My role on the project was development of the molecular constructs used for the imaging studies. I also assisted with the imaging work.

64. D.C. MacLaren, S.S. Gambhir, N. Satyamurthy, J.R. Barrio, **S. Sharfstein**, T. Toyokuni, L.Wu, A.J. Berk, S.R. Cherry, M.E. Phelps, H.R. Herschman, *Repetitive, Non-invasive Imaging of the Dopamine D2 Receptor as a Reporter Gene in Living Animals*. Gene Therapy 6:785-791 (1999).
65. S.S. Gambhir, J.R. Barrio, L. Wu, M. Iyer, M. Namavari, N. Satyamurthy, C. Parrish, D.C. MacLaren, A.R. Borghei, E. Bauer, L.A. Green, **S. Sharfstein**, A.J. Berk, S.R. Cherry, M.E. Phelps, and H.R. Herschman, *Imaging of adenoviral directed herpes simplex virus Type 1 thymidine kinase reporter gene expression in mice with ganciclovir*. J. Nucl. Med. 39:2003-2011 (1998). **(Awarded 3rd place by the Society of Nuclear Medicine for Outstanding Basic Science Investigations for 1998)**

66. L.A. Green, S.S. Gambhir, A. Srinivasan, P.K. Banerjee, C.K. Hoh, S.R. Cherry, **S. Sharfstein**, J. Bario, H. Herschman, and M.E. Phelps, *Non-Invasive Methods for Quantitating Blood Time-Activity Curves from Mouse PET Images Obtained with Fluorine-18-Fluorodeoxyglucose*, J. Nuclear Medicine, 39:729-734 (1998).

These are publications resulting from my postdoctoral work at UC Berkeley with Professor Jay Keasling. I designed and carried out the majority of the experimental work and wrote the manuscripts.

67. **S.T. Sharfstein**, S.J. Van Dien, and J.D. Keasling, *Modulation of the Phosphate-Starvation Response in Escherichia coli by Genetic Manipulation of the Polyphosphate Pathways*, Biotechnology and Bioengineering, 51: 434-437 (1996).
68. **S.T. Sharfstein** and J.D. Keasling, *Polyphosphate Metabolism in Escherichia coli*, Annals New York Academy of Science, 745:77-91 (1994).

These are publications resulting from my graduate studies at UC Berkeley with Professors Douglas Clark and Harvey Blanch. I actively participated in the design and execution of the experimental work and wrote the manuscripts for which I am the first author.

69. A. Mancuso, **S.T. Sharfstein**, E.J. Fernandez, D.S. Clark, and H.W. Blanch, *Effect of Extracellular Glutamine Concentration Primary and Secondary Metabolism of a Murine Hybridoma: An In Vivo ¹³C Nuclear Magnetic Resonance Study*, Biotechnology and Bioengineering, 57:172-186 (1998).
70. A. Mancuso, **S.T. Sharfstein**, S.N. Tucker, D.S. Clark, and H.W. Blanch, *Examination of Primary Metabolic Pathways in a Murine Hybridoma with Carbon-13 Nuclear Magnetic Resonance Spectroscopy*, Biotechnology and Bioengineering, 44:563-585 (1994).
71. **S.T. Sharfstein**, S.N. Tucker, A. Mancuso, H.W. Blanch, and D.S. Clark, *Quantitative In Vivo NMR Studies of Hybridoma Metabolism*, Biotechnology and Bioengineering, 43:1059-1074 (1994).
72. **S.T. Sharfstein**, B. Gaillard, H.W. Blanch, and D.S. Clark, *Functional Differentiation and Primary Metabolism of Mouse Mammary Epithelial Cells in Extended Batch and Hollow Fiber Culture*, Biotechnology and Bioengineering, 40:672-680 (1992).

This is a publication resulting from summer research I conducted as an undergraduate while working at IBM.

73. G. Agopian, P. James, S. Knee, and **S. Sharfstein**, *Novel Technique for Determining Magnet Cleanliness - NMR Spectroscopy*, IEEE Transactions on Magnetics, 23:3602 – 3604 (1987).

E.2 Invited book chapters

74. Hussain Dahodwala and **Susan T. Sharfstein**, “The ‘Omics revolution in CHO biology: Roadmap to improved CHO productivity” - revised, in *Heterologous Protein Production in CHO Cells, Methods and Protocols*, 2nd edition, P. Meleady, ed. Methods in Molecular Biology, Humana Press (2025). v2853, Ch. 9, p119-138.
75. Ranya Pranomphon, Vijay Tejawani, Hussain Dahodwala, Montarop Yamabhai, and **Susan T. Sharfstein**, “Metabolic and process engineering to control glycan structures for biopharmaceuticals produced in cultured mammalian cells” in *Bioprocessing, Bioengineering and Process Chemistry in the Biopharmaceutical Industry: Using Chemistry and Bioengineering to Improve the Performance of Biologics*. K. Gadamasetti and S. A. Kolodziej, eds., Springer Nature, (2024), Ch. 6, p 135-168
https://doi.org/10.1007/978-3-031-62007-2_6
76. Stephanie Curley, Sarah Nicoletti, and **Susan T. Sharfstein**, “Applications of Nanotechnology to Bioprocessing” in *Comprehensive Biotechnology*, 3rd Edition, Elsevier (2019), v3, p 712-730,
<https://doi.org/10.1016/B978-0-444-64046-8.00193-2>

77. Payel Datta, Robert J. Linhardt, and **Susan T. Sharfstein**, "Industrial Production of Glycosaminoglycans" in *Reference Module in Life Sciences*, Elsevier (2017) ISBN 9780128096338, <https://doi.org/10.1016/B978-0-12-809633-8.12224-1>.
78. Hussain Dahodwala and **Susan T. Sharfstein**, "The 'Omics revolution in CHO biology: Roadmap to improved CHO productivity", in *Heterologous Protein Production in CHO Cells*, P. Meleady, ed. Methods in Molecular Biology, Humana Press v1603, p153-168 (2017).
79. N. Cady, T.J. Begley, M. Bergkvist, **S.T. Sharfstein**, A.E. Kaloyeros. Nanobiological Sensor Technologies - revised. in Dekker Encyclopedia of Nanoscience & Nanotechnology. CRC Press (2013).
80. **Susan T. Sharfstein** and *Sarah Nicoletti, "Applications of Nanotechnology to Bioprocessing" in *Nanobiotechnology Handbook*, Y. Xie, ed. Taylor & Francis Group, p323-368 (2013).
81. Mikael R. Andersen, *Jong Hyun Nam, and **Susan T. Sharfstein**, "Protein Glycosylation: Analysis, Characterization, and Engineering" in *The Encyclopedia of Industrial Biotechnology, Bioprocess, Bioseparation, and Cell Technology*, Michael Flickinger, ed. John Wiley & Sons, Inc., p1-49. (2011) Published Online: 16 MAY 2011 DOI: 10.1002/9780470054581.eib649.
82. **Susan T. Sharfstein** and ^Christian Kaisermayer, "Microcarrier culture" in *The Encyclopedia of Industrial Biotechnology, Bioprocess, Bioseparation, and Cell Technology*, Michael Flickinger, ed. John Wiley & Sons, Inc., p 3450-3468 (2010).
83. **Susan T. Sharfstein**, *Duan Shen, *Thomas R. Kiehl and *Rui Zhou, "Molecular Response to Osmotic Shock" in *Cellular Engineering v.5: Systems Biology*, M. Al-Rubeai and M. Fussenegger, ed. Springer NL p213-236 (2007).
84. **Susan T. Sharfstein** and *Jong Hyun Nam, "Protein Glycosylation: Analysis and Characterization" in *Bioseparation and Bioprocessing*, 2nd ed., G. Subramanian, ed. Wiley-VCH p631-662 (2007).

E.3 Peer-reviewed Conference Proceedings

These are peer-reviewed conference proceedings based upon presentations I made at the ASEE meeting, the preeminent conference for dissemination of advances in teaching tools and pedagogy. I wrote these papers with assistance from the co-authors (all other faculty members).

85. **S. Sharfstein**, B. Barquera, M. Hanna, *Biotechnology and Bioprocessing and Microbiology Laboratory Courses: A Model for Shared Used of Instructional Laboratories between Engineering and Science*, Proceedings of 2008 American Society for Engineering Education Annual Conference and Exposition (2008).
86. **S. Sharfstein** and P. Relue, *Biotechnology and Bioprocessing Laboratory for Chemical Engineering and Bioengineering*, Proceedings of the 2001 American Society for Engineering Education Annual Conference & Exposition (2001).

This is a peer-reviewed proceeding at a significant optimization conference. I co-supervised the student with Professor Martin and edited the submission.

87. *A.B. Samuels, **S. Sharfstein**, and L.L. Martin, *Optimization of mAb Synthesis via the Application of an IDEAS Formulation*, Proceedings of the 2004 AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference (2004).

E.4 Articles recently submitted to peer-reviewed journals

1. *P. Ramesh, R. Pena, J.M. Morrissey, N. Moskwa, K. Tubbesing, X. Zhang, D.A. Nelson, J. Castracane, A. Khmaladze, **S.T. Sharfstein**, M. Larsen, Y. Xie, *Cryoelectrospun elastin-alginate scaffolds as promising stromal cell delivery vehicles for remediation of fibrosis*, Biomaterials, submitted

E.5 Manuscripts in preparation for submission

1. *S. C. Rose, M. Larsen, M. Fasullo, J.A. Melendez, Y. Xie, **S.T. Sharfstein**, *Senescence-Conditioned Medium Exacerbates Fibrotic Response to Radiation Treatment in a 3D Salivary Gland Microtissue Model* in preparation for submission to Bioengineering
2. S.C.R. Kollampally, S.M Parvej, *D. Sarkar, X. Zhang, N. Moskwa, D. Nelson, S.T. Sharfstein, M. Larsen, K.L. Mills, and Y. Xie, *Vacuum-driven fabrication and mechanical characterization of meter-long cell-laden alginate hydrogel microstrands*, in preparation for submission to Biofabrication.

E.6 Commentaries and Book and Meeting Reviews (Not peer-reviewed)

1. **S. Sharfstein** *Novel approaches for obtaining high productivity clones*, Bioprocess Online, January 30, 2024, <https://www.bioprocessonline.com/doc/novel-approaches-for-obtaining-high-productivity-clones-0001>
2. **S. Sharfstein** and S. Tenenbaum, *Exploring the cutting edge in RNA-based cell line selection*, Immuno-Oncology Insights, 2(6): 349–359 (2021). DOI: 10.18609/oi.2021.044
3. ^B. Thacker, ^C. Glass, and **S.T. Sharfstein**, *Advancing to recombinant heparin*, American Pharmaceutical Review, 24 (5):10-14 (2021). <https://www.americanpharmaceuticalreview.com/Featured-Articles/578616-Advancing-to-Recombinant-Heparin/>
4. **S. Sharfstein**, *Convincing bacteria to make our medicines, A conversation with Professor Susan Sharfstein*, The Jewish World, #24(7):15 (August 31-Sept 16, 2021)
5. **S.T. Sharfstein**, *Novel Therapies From The World of Biotechnology*, Science Trends (2018) <https://sciencetrends.com/novel-therapies-from-the-world-of-biotechnology/>
6. H. Dahodwala and **S.T. Sharfstein**, *Biosimilars: Imitation games*, ACS Medicinal Chemistry Letters, 8:690–693 (2017) DOI: 10.1021/acsmedchemlett.7b00199
7. **S.T. Sharfstein**, *Biotechnology*, Reference Module in Life Science (2016), doi:10.1016/B978-0-12-809633-8.12382-9
8. **S. T. Sharfstein**, *Omics insights into production-scale bioreactors--Commentary on Combined metabolomics and proteomics reveals hypoxia as a cause of lower productivity on scale-up to a 5000-liter CHO bioprocess*, Biotechnology Journal, **11**: (2016) doi: 10.1002/biot.201600338
9. **S.T. Sharfstein**, *Stem Cells Europe - Select Biosciences' Fourth Annual Conference (Part II)*, Edinburgh, UK. IDdb Meeting Report 2011, July 20-21.
10. **S.T. Sharfstein**, *Cell Line Development and Engineering 2011 - Informa Life Sciences' Annual Conference (Part II)*, Munich, Germany. IDdb Meeting Report 2011, February 14-18.
11. **S. Sharfstein**, *Culturing Nerve Cells* (book review), Neurocomputing, **31**: 209-210 (2000).

E.7 Internal Technical Reports (Not peer-reviewed)

1. S. Zhang and **S. Sharfstein**, *Hazards Evaluation of Highly Reactive Chemistries*, prepared for the Nanohealth and Safety Center/Sematech Working Group on Energetic Materials, 41 pp. (2016).

E.8 Patents and Disclosures

1. S. Sharfstein, Y. Xie, P. Ramesh, N. Moskwa, M. Larsen, J. Castracane, Cryoelectrospun elastin-alginate scaffolds as stromal cell delivery vehicles for remediation of fibrosis, disclosure filed 2/6/21, under evaluation
2. S. Sharfstein, Y. Xie, P. Ramesh, J. Castracane, M. Larsen, COMPOSITIONS, APPARATUSES AND METHODS FOR MAKING AND USING BIOSCAFFOLDS, U.S. Patent Application 17/558,543, Non-Provisional Patent Filed 12/21/21, pending
3. S. Sharfstein, Y. Xie, P. Ramesh, J. Castracane, M. Larsen, COMPOSITIONS, APPARATUSES AND METHODS FOR MAKING AND USING BIOSCAFFOLDS, U.S. Patent Application 63128561, Provisional Patent Filed 12/21/20, pending

4. Y. Xie, K. Torrejon, S. Sharfstein, M. Bergkvist, J. Danias, *Use of vascular cells to create the conventional outflow track*, US Patent application 20190017017, January 2019.
5. C. Dautriche, Y. Xie, K. Torrejon, S. Sharfstein, M. Bergkvist, J. Danias, *A biomimetic Schlemm's canal inner wall*, provisional patent filed 1/25/2016
6. M. Bergkvist, Y. Xie, S. Sharfstein, J. Danias, S. Brenner, *Bioengineering human trabecular meshwork for glaucoma therapeutic screening*, US Patent 9506907 B2 Nov 29, 2016
7. S. Sharfstein, M.-Y. Lee, H. Zhang and S. J. Kwon, *Method of nucleic acid delivery into three-dimensional cell culture arrays*, provisional patent filed 11/12/2009
8. S. Sharfstein, H. Zhang, MY. Lee, *Gene delivery in three-dimensional cell cultures by superparamagnetic nanoparticles*, provisional patent filed 10/1/09
9. S. Sharfstein, D. Shen, *Novel genes for increased antibody production in mammalian cell cultures*, invention disclosure filed 6/17/2005

E.9 Editorial Activities

1. All Life Section Editor Bioengineering and Biotechnology 2024-
2. Bioengineering (MDPI) Editorial Board 2020-2024
3. BioDrugs Editorial Board 2018-present
4. Biotechnology Subject Editor, Elsevier Life Science Reference Module 2015-2019

E.10 Oral Presentations

E.10a Invited Presentations (all given by Susan Sharfstein)

Internal Presentations

1. *Using Nanotechnology for Regenerative Medicine: Our Ticket to Immortality?* UAlbany **Nanovember Public Lecture**, November 2023.
2. *Mastocytoma cells for production of a bioengineered heparin: cell line engineering and bioprocess development*, Nanobioscience Constellation, College of Nanoscale Science and Engineering, SUNY Polytechnic Institute, September 2022
3. *Novel Three-Dimensional Culture Approaches to Address Regenerative Medicine Challenges*, College of Nanoscale Science and Engineering, SUNY Polytechnic Institute, October 2020
4. *Using osmotic stress to increase productivity from mammalian cells; spinning straw into gold?* Center for Biotechnology and Interdisciplinary Studies, Rensselaer Polytechnic Institute, September 2005
5. *Fundamental Studies of Industrially Relevant Mammalian Cell Lines: What can cell and molecular biology teach us about bioprocessing?* Department of Biology, Rensselaer Polytechnic Institute, October 2003.
6. *Fundamental Studies of Industrially Relevant Mammalian Cell Lines: What can cell and molecular biology teach us about bioprocessing?* Department of Biomedical Engineering, Rensselaer Polytechnic Institute, October 2003.
7. *Regulation of Monoclonal Antibody Production in Murine Hybridoma Cells*, Department of Biology, University of Toledo, December 1998.
8. *Regulation of Monoclonal Antibody Production in Murine Hybridoma Cells*, Department of Bioengineering, University of Toledo, November 1998.
9. *NMR Studies of Hybridoma Metabolism*, College of Pharmacy, University of Toledo, October 1997.
10. *NMR Studies of Hybridoma Metabolism*, Department of Chemical Engineering, University of Toledo, September 1997.

11. *Understanding Cloning*, Biomedical Engineering Society, Student Chapter, University of Toledo, May 1997.
12. *NMR Studies of Hybridoma Metabolism*, Department of Bioengineering, University of Toledo, February 1997.

External Presentations

13. *A Multiomics Perspective on Cell Line Development*, Bioprocessing Summit, Boston, MA, August 2024
14. *FMSG: Bio: Manufacturing of Hybrid Tissue-Electronic and Photonic Devices*, NSF Future Manufacturing Grantees Workshop, Washington, DC, August 2024
15. *Cell line development and bioprocess optimization for production of a biosimilar*, Festival of Biologics, San Diego, CA, April 2024
16. *Proteomic and Transcriptomic Analysis of Cell Lines*, Johnson and Johnson, virtual presentation, April 2024
17. *The Use of Mammalian Cell Systems for Production of Therapeutic Proteins and Carbohydrates*, **Keynote Presentation**, Labroots virtual conference, April 2024
18. *Proteomic and Transcriptomic Analysis of Cell Lines*, PepTalk, San Diego, CA, January 2024
19. *The Use of Mammalian Cell Systems for Production of Therapeutic Proteins and Carbohydrates*, **Plenary Presentation**, The 35th Annual Meeting of the Thai Society for Biotechnology and International Conference (TSB 2023), Greenery Khoa Yai, NaKorn Ratchasima, Thailand, November 2023.
20. *20+ years of monoclonal antibodies, CHO cell research, and industrial collaborations in 20 minutes or less*, NIIMBL annual meeting, Washington, DC, June 2023
21. *Evaluation of Site-Specific Methylation of the CMV Promoter and Its Role in CHO Cell Productivity of a Recombinant Monoclonal Antibody*, **Keynote Presentation**, PEGS Boston, Boston, MA, May 2023
22. *In the Development of a Biosimilar; How Much Clonal Variation Do You Get in Glycosylation Patterns?* Bioprocess International Europe, Amsterdam, Netherlands, May 2023
23. *Optimizing antibody production in CHO cells, an 'omics study*, Festival of Biologics, San Diego, CA, March 2023
24. *In the Development of a Biosimilar; How Much Clonal Variation Do You Get in Glycosylation Patterns?* Bioprocess International West, San Diego, CA, March 2023
25. *Mastocytoma cells for production of a bioengineered heparin: cell line engineering and bioprocess development*, Department of Chemistry, SUNY Potsdam, Potsdam, NY, November 2022
26. *Novel Bioreactors for Therapeutic Cell Expansion: Regenerative Medicine and Immuno-oncology Applications*, Biotechnology Program, SUNY Cobleskill, Cobleskill, NY, November 2022
27. *Novel Bioreactors for Therapeutic Cell Expansion: Regenerative Medicine and Immuno-oncology Applications*, Keynotion Global Bioprocessing Summit, San Francisco, CA, November 2022
28. *Mastocytoma cells for production of a bioengineered heparin: cell line engineering and bioprocess development*, Bioprocess International, Boston, MA, September 2022
29. *The Challenge of Biosimilars-an American Perspective*, **Keynote Address**, BioFarma IBt 2022 Symposium, Instituto de Biotecnología, Universidad Nacional Autónoma de México, Cuernavaca, Mexico, September 2022
30. *Clone Selection and Bioprocess Manipulation for Optimization of Glycosylation of a Monoclonal Antibody Biosimilar*, Cambridge Healthtech Bioprocessing Summit, Boston, MA, August 2022
31. *Proteomics supporting selection of good clones*, Merck Concordia (US and Europe, Virtual), April 2022.
32. *Biomufacturing challenges and opportunities in cell therapies for immuno-oncology*, **Keynote Address**, Bioprocess International (Virtual), September 2021
33. *A Novel Post-Transcriptional Cell Selection Strategy for Rapid Clone Development and Stability Screening*, Cambridge Healthtech Institute Bioprocessing Summit, Boston, MA, August 2021

34. *Control of recombinant protein production in cultured mammalian cells*, SUNY Cobleskill, Cobleskill NY, April 2021
35. *Clonal variation in glycan profiles: Production of a biosimilar version of adalimumab*, Festival of Biologics (Virtual), March 2020
36. *Comparison of CHO and mastocytoma cells for production of a bioengineered heparin*, Bioprocess International West (Virtual), March 2020
37. *New strategies to select high-producing clones*, Center for Biopharmaceutical Education and Training, Albany College of Pharmacy and Health Sciences, Albany, NY, November 2020
38. *Production of a bioengineered heparin*, SUNY Cobleskill, Cobleskill NY, November 2020
39. *It's a sugar world: Understanding the effects of bioprocessing on protein glycosylation and production of glycosaminoglycans in CHO cells*, Department of Pharmaceutical Sciences, Albany College of Pharmacy and Health Sciences, Albany, NY, November 2020
40. *Physiological Responses to Increased Productivity: A Transcriptomic and Proteomic Study*, PEGS Virtual, September 2020.
41. *Transcriptomic, Proteomic and Epigenetic Analysis of Cell Lines with Differing Productivities*, Cambridge Healthtech Bioprocessing Summit (Virtual), August 2020
42. *A Novel Post-Transcriptional Cell Selection Strategy for Rapid Clone Development and Stability Screening*, PEGS Virtual, May 2020
43. *Understanding the factors that affect cell line selection*, Festival of Biologics, San Diego, CA, March 2020
44. *Proteomic And Phosphoproteomic Analysis of Cell Lines with Varying Productivities*, Oxford Global Cell Culture & Bioprocessing USA Congress, Boston, MA, May 2019
45. *Methylation Analysis of Cell Lines with Varying Productivities*, PEGS Boston, Boston, MA, April 2019
46. *Proteomic and Phosphoproteomic Analysis of CHO Cell Productivity*, Cell Line Development and Engineering, San Francisco, CA, June 2018.
47. *Understanding the factors that control productivity in CHO cells*, Commonwealth Serum Laboratories (CSL), Melbourne, Australia, June 2018.
48. *It's a sugar world: Understanding the effects of bioprocessing on protein glycosylation and production of glycosaminoglycans in CHO cells*, Institute for Glycomics, Griffith University, Gold Coast, Queensland, Australia, June 2018.
49. *Expression of Monoclonal Antibody Variants in Transient and Stable Cultures, the Effects of Sequence on Stability and Expression Level*, Australian Institute for Bioengineering and Nanotechnology, University of Queensland, May 2018.
50. *Novel culture systems for trabecular meshwork and Schlemm's canal cells: An in vitro model for screening glaucoma therapeutics*, Australian Institute for Bioengineering and Nanotechnology, University of Queensland, May 2018.
51. *It's a sugar world: Understanding the effects of bioprocessing on protein glycosylation and production of glycosaminoglycans in CHO cells*, **Keynote Address**, Department of Biotechnology Annual Retreat, Suranaree University of Technology, Nakhon Ratchasima, Thailand, May 2018
52. *Optimization of Bioprocess Conditions: A Role for Advanced Sensing Technologies*, ThaiUnion, Bangkok, Thailand, May 2018.
53. *Proteomic analysis of CHO cells with varying productivity*, Bioengineering Platforms Workshop between the University of Queensland and Technical University of Denmark, Heron Island, Queensland, Australia, April 2018.
54. *Towards a bioengineered heparin from CHO cells, cell line development and bioprocessing considerations*, University of New South Wales, Sydney, Australia, April 2018.

55. *Optimization of Bioprocess Conditions: A Role for Advanced Sensing Technologies*, Queens University, Belfast, Northern Ireland, December 2017.
56. *Understanding the effects of osmolarity on growth, productivity and physiology of cultured mammalian cells*, University of Ulster, Derry, Northern Ireland, December 2017.
57. *Expression of Monoclonal Antibody Variants in Transient and Stable Cultures, the Effects of Sequence on Stability and Expression Level*, Trinity College, Dublin, Ireland, November 2017
58. *Novel culture systems for trabecular meshwork and Schlemm's canal cells: An in vitro model for screening glaucoma therapeutics*, National University of Ireland, Galway, Ireland, November 2017
59. *It's a sugar world: Understanding the effects of bioprocessing on protein glycosylation and production of glycosaminoglycans in CHO cells*, National Institute for Bioprocessing Research and Training, Dublin, Ireland, November 2017
60. *Differential Growth, Productivity, Metabolism and Responses to Trophic Factors in CHO Cell Clones*, Biomarin, Shanbally, Ireland, November 2017
61. *Understanding the effects of osmolarity on growth, productivity and physiology of cultured mammalian cells*, Bristol-Myers Squibb, Dublin, Ireland, November 2017
62. *Understanding the factors that control productivity in CHO cells*, National Institute for Cellular Biotechnology, Dublin City University, Dublin, Ireland, October 2017
63. *Breaking the Mold with Cellular Engineering: Production of a Bioengineered Heparin*, Cell Culture World Congress USA, San Diego, CA, May 2017.
64. *Epigenetic effects on recombinant monoclonal antibody production in CHO cells*, Cambridge Healthtech Bioprocessing Summit, Boston, MA, August 2016
65. *Understanding the effects of osmolarity on growth, productivity and physiology of cultured mammalian cells*, Immunogen, Waltham, MA, August 2016
66. *Life at the Edge of Biology and Engineering: Using Mammalian Cell Culture for Therapeutic Drug Development and Production*, Keck Graduate Institute, Claremont, CA, November 2015.
67. *Cellular and Molecular Engineering for Novel Bioproducts*, Amgen, Thousand Oaks, CA, May 2015
68. *Production of a Bioengineered Heparin: Cell Engineering and Bioprocess Considerations*, IBC Cell Line Development and Engineering, San Francisco, CA, May 2015
69. *Cellular and Molecular Engineering for Novel Bioproducts*, Immunogen, Waltham, MA, May 2015
70. *Strategies for Transient and Stable Expression of Hard to Express Antibody Variants*. PEGS Boston (Cambridge Healthtech Institutes 11th annual Protein Engineering Summit), Boston, MA, May 2015
71. *Strategies for Transient and Stable Expression of Hard to Express Antibody Variants*, Informa Cell Line Development and Engineering, Dublin, Ireland, February 2015
72. *Metabolic engineering of CHO cells for production of a bioengineered heparin*, TEGA Pharmaceuticals, San Diego, CA, January 2015
73. *Epigenetic effects on recombinant monoclonal antibody production in CHO cells*, SUNY Oneonta, Department of Chemistry, Oneonta, NY, November 2014
74. *Epigenetic effects on recombinant monoclonal antibody production in CHO cells*, GTC Protein Discovery Summit 2014, Boston, MA, October 2014
75. *Epigenetic effects on recombinant monoclonal antibody production in CHO cells*, Bristol Myers Squibb, Hopkinton, MA, August 2014
76. *Metabolic engineering of CHO cells for production of a bioengineered heparin*, Proteoglycan Gordon Research Conference, Andover, NH, July 2014
77. *From Antibodies to Heparin and Back Again: Using Chinese Hamster Ovary Cells to Address the Biopharmaceutical Challenges of the 21st Century*, University of Debrecen School of Medicine, Debrecen, Hungary, June 2014

78. *Understanding the effects of process conditions on protein glycosylation and proteoglycan synthesis*, Biopharmaceutical Summit 2014, University of Massachusetts, Lowell, MA, May 2014
79. *Optimization of a bioprocess for production of a non-protein biopharmaceutical: Production of a bioengineered heparin*, Cell Culture Engineering XIII, Quebec City, Canada, May 2014
80. *Expression of Monoclonal Antibody Variants in Transient and Stable Cultures, the Effects of Sequence on Stability and Expression Level*, PepTalk, Palm Springs, CA, January 2014
81. *Transcriptional responses of rapidly growing E. coli in a pH auxostat*, National Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2013.
82. *High-Throughput Transfection of Silencing RNA into 3D Cell Cultures*, The Bioprocessing Summit, Cambridge, MA, August 2013
83. *Using the 'omics databases before and after the CHO genome--* Invited workshop, Informa Cell Line Development and Engineering, Vienna, Austria, February 2013
84. *Epigenetic effects on recombinant monoclonal antibody production in CHO cells*, University of Natural Resources and Life Sciences, Vienna, Austria, February 2013
85. *Epigenetic effects on recombinant monoclonal antibody production in CHO cells*, Informa Cell Line Development and Engineering, Vienna, Austria, February 2013
86. *Metabolic Engineering of CHO cells for Production of Heparin: New Paradigms for Glycoengineering*, PepTalk, Palm Springs, CA, January 2013
87. *Introduction to 'Omics*—Invited workshop, Cell Culture Engineering XII, Scottsdale, AZ April 2012.
88. *Introduction to 'Omics*—Invited workshop, Informa Cell Line Development and Engineering, Cologne, Germany, February 2012.
89. *Epigenetic effects on recombinant monoclonal antibody production in CHO cells*, Informa Cell Line Development and Engineering, Cologne, Germany, February 2012.
90. *The Effects of Process Conditions on Productivity, Cell Physiology, and Protein Glycosylation for Cultured Mammalian Cells*, IFPAC®-2012, 26th International Forum Process Analytical Technology, Baltimore, MD, January 2012
91. *Protein Glycosylation, Biotherapeutics, and Bioprocessing*, Center for Neuropharmacology and Neuroscience, Albany Medical College, Albany, NY, January 2012
92. *Differential Growth, Productivity, Metabolism and Responses to Trophic Factors in CHO Cell Clones*, The Bioprocessing Summit, Boston, MA, August 2011.
93. *Metabolic Engineering of CHO cells for Production of Heparin: New Paradigms for Glycoengineering*, BioProcessing, Biologics & Biotherapeutics Congress, Edinburgh Scotland, July 2011.
94. *Using genomics to optimize cell performance*, Cell Line Development and Engineering. Munich, Germany, February 2011.
95. *Towards a mechanistic understanding of the effects of process conditions on productivity, cell physiology, and protein glycosylation for cultured mammalian cells*, SAFC, St. Louis, MO, October 2010.
96. *Osmotic stress responses in cultured mammalian cells--effects on growth and productivity*, Pfizer, St. Louis, MO October 2010.
97. *High-Throughput Analysis and Modulation of Cellular Responses*, College of Nanoscale Science and Engineering, SUNY Albany, Albany, NY, November 2009.
98. *Cellular responses to increased osmolarity - A systems biology approach*, Bioproduction 2009, Barcelona, Spain, October 2009.
99. *Towards A Mechanistic Understanding of The Effects of Process Conditions on Productivity, Cell Physiology, and Protein Glycosylation for Cultured Mammalian Cells*, Center for Microbial Biotechnology, Department of Systems Biology, Technical University of Denmark, Lyngby, Denmark, October 2009.

100. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, GlaxoSmithKline, King of Prussia, PA, October 2009.
101. *Towards a Mechanistic Understanding of The Effects of Process Conditions on Productivity, Cell Physiology, And Protein Glycosylation for Cultured Mammalian Cells*, KBI Biopharma, Durham, NC, September 2009.
102. *Understanding Osmotic Stress Responses in Cultured Mammalian Cells-Implications for Bioprocessing*, Mammalian Cell Culture and Gene Expression Systems, Bioprocess and Process Development Symposium, North Carolina State Biomanufacturing Teaching and Education Center, Raleigh, NC, September 2009.
103. *Understanding the Factors That Affect Cell Line Productivity*, Cambridge Healthtech Institute's "Optimizing Mammalian Cell Lines" Cambridge, MA, August 2009.
104. *Hyperosmotic Stress Responses in Mammalian Cells: A Comparative Microarray Study of Hybridoma and CHO Cell Responses*, Biochemical Engineering XVI, Burlington, VT, July 2009.
105. *Understanding The Effects of Culture Conditions on Productivity and Product Quality*, BioInnovation Leaders Summit, London, England, June 2009.
106. *Towards A Mechanistic Understanding of The Effects of Process Conditions on Productivity, Cell Physiology, And Protein Glycosylation for Cultured Mammalian Cells*, North Carolina State Biomanufacturing Teaching and Education Center, Raleigh, NC, May 2009.
107. *Towards a Mechanistic Understanding of the Effects of Process Conditions on Productivity, Cell Physiology, and Protein Glycosylation for Cultured Mammalian Cells*, Invitrogen (Life Technologies), Grand Island, NY, March 2009.
108. *Understanding the Factors That Affect Cell Line Productivity*, Cell Line Development and Engineering. Berlin, Germany, March 2009.
109. *Towards a mechanistic understanding of the effects of process conditions on productivity, cell physiology, and protein glycosylation for cultured mammalian cells*, Trubion Pharmaceuticals, Seattle, WA, January 2009.
110. *Exploring the relationship between genes, RNA and protein production in the production of recombinant monoclonal antibodies*, Department of Chemical Engineering, Prairie View A&M University, Prairie View, TX, November 2008.
111. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, University of Manchester, Manchester UK, May 2008.
112. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, University of Sheffield, Sheffield UK, May 2008.
113. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, UCB Celltech, Slough UK, May 2008.
114. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, Lonza Biologics, Slough UK, May 2008.
115. *Characterization of Cell Physiology and Specific Productivity for CHO Cell Lines Producing Recombinant Monoclonal Antibodies*, Cell Culture Engineering XI, Queensland Australia, April 2008
116. *Using DNA microarrays to understand transcriptional responses to increased osmolality*, Cell Line Development and Engineering Conference, Prague, Czech Republic, March 2008
117. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, Millipore, Bedford MA, October 2007
118. *Exploring the relationship between genes, RNA and protein production in the production of recombinant monoclonal antibodies*, Department of Chemical and Biological Engineering, University of Colorado, Boulder, October 2007

119. *A Mechanistic Understanding of the Effects of Sodium Butyrate on Antibody Productivity*, Biochemical Engineering XV, Quebec City, Quebec, July 2007
120. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, Bristol-Myers Squibb, Hopwell, NJ, March 2007
121. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, BioMarin, Novato, CA, March 2007
122. *Understanding the Role of Culture Conditions on Specific Productivity in Cultured Mammalian Cells*, National Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2006.
123. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, Bristol-Myers Squibb, Syracuse, NY, October 2006
124. *Use of Osmotic Stress to Improve Antibody Productivity*, IBC Cell Line Development and Engineering Conference, San Diego, CA, June 2006
125. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, Wyeth, Andover, MA, June 2006
126. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, Centecoor, King of Prussia, PA, February 2006
127. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, Sigma Aldrich, SAFC Biosciences, St. Louis, MO, January 2006
128. *Hyper-Osmotic Shock - Manipulation of Cell Culture Media to Improve Productivity*, Bioprocess International Conference, Boston, MA September 2005
129. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, Amgen, Thousand Oaks, CA, August 2005
130. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, Applied Molecular Engineering, San Diego, CA, August 2005
131. *Maximizing Antibody Productivity from Cultured Mammalian Cells: Effects of Process Conditions and Cell Line Selection*, Amgen, Seattle, WA, July 2005
132. *Mammalian Cell Biotechnology*, BiogenIdex, San Diego, CA, March 2005
133. *Effects of Culture Conditions on Protein Glycosylation in CHO Cells*, Amersham Biosciences, Piscataway, NY, February 2004
134. *Regulation of Recombinant Monoclonal Antibody Production in Chinese Hamster Ovary Cells*, Biogen, Cambridge, MA December 2003
135. *A Mechanistic Approach to Understanding Regulation of Protein Production in Mammalian Cells*, General Electric Global Research and Development, Niskayuna, NY, November 2003
136. *Fundamental Studies of Industrially Relevant Mammalian Cell Lines: What can cell and molecular biology teach us about bioprocessing?* Cambrex, Baltimore, MD, February 2003.
137. *Regulation of Antibody Production in Hybridoma Cells in Response to Hyperosmotic Stress*, Biophex Conference, Santa Clara, CA October 2002.
138. *Fundamental Studies of Industrially Relevant Mammalian Cell Lines: What can cell and molecular biology teach us about bioprocessing?* Fraunhofer USA, Newark, DE June 2002
139. *Fundamental Studies of Industrially Relevant Mammalian Cell Lines*, Biogen, Cambridge, MA June 2002
140. *Medical Imaging Techniques for Basic Biological Studies*, General Electric, CRD, Niskayuna, NY, September 2001.
141. *Fundamental Studies of Industrially Relevant Mammalian Cell Cultures*, Department of Chemical Engineering, Rensselaer Polytechnic Institute, May 2001.
142. *Fundamental Studies of Industrially Relevant Mammalian Cell Cultures*, Department of Chemical Engineering, University of Nebraska, May 2001

143. *Fundamental Studies of Industrially Relevant Mammalian Cell Cultures*, Department of Chemical Engineering, University of Southern California, April 2001
144. *Fundamental Studies of Industrially Relevant Mammalian Cell Cultures*, Department of Chemical Engineering, University of Rochester, February 2001.
145. *Regulation of Monoclonal Antibody Production in Murine Hybridoma Cells*, Department of Chemical Engineering, Rensselaer Polytechnic Institute, June 1999.

E.10b Conference Presentations and Posters (presenter indicated in bold)

1. **Katy Cable** and Susan Sharfstein, *Electromyographically (EMG) Controlled Robotic Car for K-12 Outreach and Engagement*, American Society for Engineering Education, Fall Middle Atlantic Section Conference, Ewing, NJ, October 2023.
2. **Fernando Pesantez Torres**, Daniel Crowley, Lewis Carpenter, Nicholas Fahrenkopf, Natalya Tokranova, Taylor Bertucci, Thomas Kiehl, Nathaniel Cady, Yubing Xie, and Susan Sharfstein, *Unraveling the potential of photonic devices to interrogate biological behavior and processes*. American Chemical Society Fall National Meeting, San Francisco, CA, August 2023.
3. **Stephen Christopher Rose**, Yubing Xie, Melinda Larsen, Susan Sharfstein. *Towards an in vitro 3D model of radiation-induced salivary gland fibrosis*. Keystone Symposia: Fibrosis Pathogenesis and Resolution: From Mechanisms to Therapies. Banff, Alberta, Canada, March 2023.
4. **Sujith Chander Reddy Kollampally**, Miriam Toro, Pujhitha Ramesh, Xulang Zhang, Deirdre A. Nelson, Susan Sharfstein, Melinda Larsen, and Yubing Xie. *Alginate-based Hydrogels for Salivary Gland Tissue Regeneration*. Tissue Engineering and Regenerative Medicine International Society (TERMIS) 2023 Annual Conference, Boston, MA, April 2023.
5. **Runia Roy**, Ehsan Mahdinia, Mihyun Choi, Bryan Thacker, Charles Glass, Susan Sharfstein, *Scale Up of Mastocytoma Cells for Heparin Production in Bioreactors*, BMES Annual Meeting, San Antonio, TX, October 2022.
6. **Susan T. Sharfstein**, Xulang Zhang, Yubing Xie, Andrew Jasniewski, Mrugesh Dhorje, Vinit Saxena, David Shaw, *Novel wicking bioreactor for hematopoietic cell expansion*, NIIMBL Annual Meeting, Washington, DC, July 2022.
7. Hussain Dahodwala, Prashant Kaushik, Vijay Tejwani, Chih-Chung Kuo, Patrice Menard, Michael Henry, Bjorn G. Voldborg, Nathan E. Lewis, Paula Meleady, and **Susan T. Sharfstein**, *Epigenetic Control of Recombinant Protein Expression in CHO Cells*, The 14th Protein Expression in Animal Cells Conference, Newport, RI, September 2019.
8. **V. Tejwani**, P. Ramesh, M.D. Infantado, T. R. Gemmill, S.T. Sharfstein, B.E. Thacker, C.A. Glass, *Optimization of heparan sulfate expression and purification in batch shake-flask studies*, PEGS Boston, Boston, MA, April 2019.
9. **V. Muralidharan-Chari**, S. Sharfstein, Z. Wurz, N. St. John, E. Eveleth, *Comparative analysis: An innovative siRNA-based technology versus traditional antibiotic-selection in the creation of stable expression of proteins/antibodies in CHO-K1 cells*, American Chemical Society Spring National Meeting, Orlando, FL, April 2019.
10. **P. Ramesh**, N. Tokranova, L.P. M. Hemachandra, D. Nelson, A. Khlamadze, Y. Xie, S. Sharfstein, M. Larsen, J. Castracane, *Biomimetic scaffolds targeting regeneration of the salivary gland*, Salivary Glands and Exocrine Biology Gordon Research Conference, Galveston, TX, February 2019. **Recipient best poster award.**
11. **P. Kaushik**, V. Tejwani, C-C. Kuo, P. Menard, M. Henry, B.G. Voldborg, N.E. Lewis, P. Meleady, S.T. Sharfstein, *Integrative transcriptome, proteome, and phosphoproteome reveal new aspects of high productivity in CHO cells*, ESACT-UK 29th Annual Meeting, Tamworth, UK, January 2019.
12. **P. Ramesh**, N. Tokranova, M. Hemachandra, D. Nelson, Y. Xie, S. Sharfstein, J. Castracane, M. Larsen, *Cryogenically Electrospun Fibrous Sponge Scaffolds as Stromal Extracellular Matrix for Salivary Gland Regeneration*, MRS Fall Meeting, Boston, MA, November 2018.

13. **B. Thacker**, G. Lee, M. Scott, T. Groth, K. Thorne, S. Sharfstein, C. Glass, *Library of Recombinant Heparan Sulfates from Mammalian Cell Culture: Paving the Way to Bioengineered Heparin*, Experimental Biology Meeting, San Diego, CA, April 2018
14. **K. Torrejon**, E. Papke, D. Bharali, M. Bergkvist, W.D. Stamer, S. Sharfstein, Y. Xie, F. Ahmed, J. Danias, *Human microvascular endothelial cells (HMVECs) assume Schlemm's canal (HSC) cell characteristics after co-culture with human trabecular meshwork (HTM) cells and can be used to model conventional outflow*, ARVO 2017, Baltimore, MD, May 2017
15. **S.T. Sharfstein**, K. Torrejon, C. Dautriche, Y. Xie, M. Bergkvist, J. Danias, *Novel culture systems for trabecular meshwork and Schlemm's canal cells: An in vitro model for screening glaucoma therapeutics*, 253rd ACS National Meeting, San Francisco, CA, April 2017
16. **J.J. Terracina**, M. Bergkvist, S. Sharfstein, *Computational investigation of stoichiometric effects, binding site heterogeneities, selectivities, and protonation states of MIPs*, The 9th International Conference on Molecular Imprinting (MIP2016), Lund, Sweden, June 2016.
17. **K. Torrejon**, C. Dautriche, E. Papke, W. Stamer, J. Danias, M. Bergkvist, S. Sharfstein, Y. Xie, *Recreation of a 3-D Physiological Model of Conventional Outflow Tract in vitro*, The Association for Research in Vision and Ophthalmology (ARVO), Denver, CO, May 2015.
18. **S. Nicoletti**, H. Dahodwala, Z. Keresztessy, and S. Sharfstein, *Epigenetic studies of antibody-producing CHO cells for therapeutic applications*, Spring National Meeting of the American Chemical Society, Denver, CO, March 2015.
19. **K. Torrejon**, A. Goodcoff, C. Dautriche, M. Bergkvist, S. Sharfstein, Y. Xie, J. Danias, *Bioengineered human trabecular meshwork is physiologically responsive to glucocorticoid*, The Association for Research in Vision and Ophthalmology (ARVO), Orlando, FL, May 2014.
20. **C. Dautriche**, D. Szymanski, K. Torrejon, M. Bergkvist, W.D. Stamer, Xie, S. Sharfstein, J. Danias, *3D-Bio-engineering of the Conventional Outflow Tract for High Throughput Glaucoma Drug Screening*, The Association for Research in Vision and Ophthalmology (ARVO), Orlando, FL, May 2014.
21. **M. DeSieno**, S. Casnocha, S. Sharfstein, *Effects of Increased Osmolarity on Growth, Productivity, Intracellular Osmolytes, and Gene Expression in Industrial Fed Batch CHO Cell Cultures*, Cell Culture Engineering XIII, Quebec City, Canada, May 2014.
22. **S. Sharfstein**, J-Y. Baik, L. Talman, L. Gasimli, P. Datta, B. Yang, G. Lee, F. Zhang, R. Linhardt, *Optimization of a bioprocess for production of a non-protein biopharmaceutical: Production of a bioengineered heparin*, Spring National Meeting of the American Chemical Society, Dallas, TX, March 2014.
23. **S. Sharfstein**, J. Mitchell, X. Shen, A. Baughman, *Applying Topological Metabolic Analysis to Industrially Relevant CHO Cell Cultures*, National Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2013.
24. **C.N. Dautriche**, K.Y. Torrejon, M. Bergkvist, Y. Xie, S. Sharfstein, J. Danias *Engineering and Evaluation of Scaffold-Hydrogel Systems to Engineer the Trabecular Meshwork*, Biomedical Engineering Society Annual Meeting, Seattle, WA, September 2013.
25. **K. Torrejon**, M. Bergkvist, J. Danias, S. Sharfstein, Y. Xie *Bioengineered Human Trabecular Meshwork Mimicking in vivo-like Outflow Response*, Biomedical Engineering Society Annual Meeting, Seattle, WA, September 2013.
26. **S.E. Nicoletti**, H. Dahodwala, S.T. Sharfstein, *Epigenetic study of CHO cells: The effects of a methylation inhibitor on the production of monoclonal antibodies*, Spring National Meeting of the American Chemical Society, New Orleans, LA, April 2013.
27. **P. Datta**, B. Yang, L. Gasimli, J-Y. Baik, J.D. Esko, R.J. Linhardt, S.T. Sharfstein. *Cell engineering heparin and heparan sulfate pathway in mammalian cell line*. Spring National Meeting of the American Chemical Society, New Orleans, LA, April 2013.
28. **K.Y. Torrejon**, M. Bergkvist, Y. Xie, S. Sharfstein, J. Danias., *Bioengineering Human Trabecular Meshwork for Glaucoma Therapeutic Screening*, The Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, FL, May 2012.
29. **H. Dahodwala**, S. Sharfstein, *Epigenetic effects on recombinant monoclonal antibody production in CHO*

- cells*, Cell Culture Engineering XIII, Scottsdale, AZ, April 2012.
30. **J-Y Baik**, L. Gasimli, B. Yang, P. Datta, T. Gemmill, R. J. Linhardt, S.T. Sharfstein, *Metabolic Engineering of Chinese Hamster Ovary Cells: Production and Characterization of a Bioengineered Heparin*, Cell Culture Engineering XIII, Scottsdale, AZ, April 2012.
31. **S.T. Sharfstein**, M. Mason, K. Cain, B. Sweeney, P. Stephens, *Effects of Monoclonal Antibody Sequence on Production of a Recombinant Antibody in CHO Cells*, Cell Culture Engineering XIII, Scottsdale, AZ, April 2012.
32. **L. Morris**, C. Schenkelberg, S.G. Hays, T.R. Kiehl, H. Dahodwala, and S.T. Sharfstein, *Investigation of metabolic changes upon hyperosmotic stress in monoclonal antibody producing Chinese hamster ovary clones*, Spring National Meeting of the American Chemical Society, San Diego, CA, March 2012.
33. **L. Gasimli**, J-Y Baik, P. Datta, B. Yang, X. Zhao, S.T. Sharfstein, R.J. Linhardt, *Metabolic engineering of CHO cells for production of anticoagulant heparin*, Spring National Meeting of the American Chemical Society, San Diego, CA, March 2012.
34. M. Mason, K. Cain, B. Sweeney, P. Stephens, **S.T. Sharfstein**, *Differential effect of reduced culture temperature on the expression and biophysical properties of monoclonal antibody variants*, Spring National Meeting of the American Chemical Society, Anaheim, CA, March 2011.
35. **L. Gasimli**, J-Y Baik, P. Datta, S.T. Sharfstein, R.J. Linhardt, *Characterization of heparan sulfate biosynthetic pathways in Chinese hamster ovary cells*, Spring National Meeting of the American Chemical Society, Anaheim, CA, March 2011.
36. **J-Y Baik**, L. Gasimli, P. Datta, B. Yang, R.J. Linhardt, and S.T. Sharfstein, *Production of heparin in Chinese hamster ovary cells by metabolic engineering*, Spring National Meeting of the American Chemical Society, Anaheim, CA, March 2011.
37. **H. Dahodwala** and S.T. Sharfstein, *Epigenetic influences on recombinant antibody production in CHO cells*, Spring National Meeting of the American Chemical Society, Anaheim, CA, March 2011. **Invited for best of BIOT webinar.**
38. **S.T. Sharfstein**, H. Zhang, D. Shen, T.R. Kiehl, J.S. Dordick, S.F. Khattak, ZJ Li, A. He, I.M. Neuhaus, P.S. Kayne, V. Patel, M-Y. Lee, and M. G. Hogg, *High-Throughput Analysis and Modulation of Cellular Responses to Process Conditions*, Cell Culture Engineering XII, Banff, Alberta, Canada, April 2010.
39. **M-Y. Lee**, H. Zhang, S-J. Kwon, M.G. Hogg, S.T. Sharfstein, J.S. Dordick, and D. Rozzell, *High-throughput gene transfection and RNA interference on a three-dimensional (3D) cell microarray platform for toxicology screening*, Society of Toxicology Annual Meeting, Salt Lake City, UT, March 2010.
40. **M. Mason**, S.T. Sharfstein, K. Cain, B. Sweeney, P. Stephens, *Engineering humanized monoclonal antibodies for improved expression in Chinese hamster ovary cells*, Spring National Meeting of the American Chemical Society, San Francisco, CA, March 2010. **Student presenter received Peterson Award from ACS BIOT division for best student oral presentation.**
41. **H. Dohadwala**, S. Sharfstein, *Understanding the factors that affect cell line productivity*, Spring National Meeting of the American Chemical Society, San Francisco, CA, March 2010.
42. M. Mason, **S.T. Sharfstein**, B. Sweeney, K. Cain, P. Stephens, *Engineering Humanized Monoclonal Antibodies for Improved Expression in Chinese Hamster Ovary Cells*, National Meeting of the American Institute of Chemical Engineers, Nashville, TN, November 2009.
43. **S. Barua**, A. Joshi, A. Banerjee, D. Matthews, S.T. Sharfstein, S.M. Cramer, R.S. Kane, K. Rege, *Parallel Synthesis and Screening of Polymers for Non-Viral Gene Delivery*, National Meeting of the American Institute of Chemical Engineers, Nashville, TN, November 2009.
44. **S.T. Sharfstein**, H. Zhang, M. Hogg, M-Y. Lee, J.S. Dordick, *Novel Approaches to High-Throughput Delivery of Silencing RNA*, National Meeting of the American Institute of Chemical Engineers, Nashville, TN, November 2009.
45. **A.C. Baughman**, L.L. Martin, S.T. Sharfstein, *Topological Metabolic Analysis for the Engineering of Metabolic Networks*, National Meeting of the American Institute of Chemical Engineers, Nashville, TN, November 2009.

46. Z. Jiang, H. Dohadwala, and **S.T. Sharfstein**, *Epigenetic analysis of transcriptional control in CHO cells*, Fall National Meeting of the American Chemical Society, Washington, DC, August 2009.
47. A.C. Baughman, **S.T. Sharfstein**, L.L. Martin *Interrogation of Metabolic Networks Using Topological Metabolic Analysis (TMA): A State-Space-Based Modeling Framework*, Biochemical Engineering XVI, Burlington, VT, July 2009.
48. **H. Dohadwala**, Z. Jiang, S. Sharfstein, *Understanding factors that affect cell line productivity*, Society for Biological Engineering 2nd International Conference on Accelerating Biopharmaceutical Development, Coronado, CA, March 2009
49. M. Mason, K. Cain, B. Sweeney, P. Stephens, and **S.T. Sharfstein**, *Engineering Humanized Monoclonal Antibodies for Improved Expression in Chinese Hamster Ovary Cells*, 2nd International Conference on Biomolecular Engineering, Santa Barbara, CA, January 2009.
50. **A.C. Baughman**, L.L. Martin, and S.T. Sharfstein, *Towards a Dynamic Systems Approach to the Synthesis and Analysis of Mammalian Metabolic Networks*, National Meeting of the American Institute of Chemical Engineers, Philadelphia, PA, November 2008.
51. **A.C. Baughman**, S.T. Sharfstein, and L.L. Martin, *Non-Linear Parameter Estimation for a Dynamic Model of Mammalian Cell Culture*, National Meeting of the American Institute of Chemical Engineers, Philadelphia, PA, November 2008.
52. **S.T. Sharfstein**, D. Shen, T.R. Kiehl, S.F. Khattak, Z. Li, A. He, I.M. Neuhaus, P.S. Kayne, and V. Patel, *Hyperosmotic stress responses in mammalian cells: A comparative microarray study of hybridoma and CHO cell responses*, Fall National Meeting of the American Chemical Society, Philadelphia, PA August 2008.
53. **S. Sharfstein**, B. Barquera, M. Hanna, *Biotechnology and Bioprocessing and Microbiology Laboratory Courses: A Model for Shared Use of Instructional Laboratories between Engineering and Science*, American Society for Engineering Education Annual Conference and Exposition, Pittsburgh, PA, June 2008.
54. **S.T. Sharfstein**, D. Shen, T.R. Kiehl, S.F. Khattak, Z. Li, S.S. Lee, A. He, I.M. Neuhaus, P.S. Kayne, V. Patel, *Hyperosmotic stress responses in mammalian cells: A comparative microarray study of hybridoma and CHO cell responses*, Cell Culture Engineering XI, Queensland, Australia, April 2008. **Finalist, best poster competition.**
55. J.H. Nam, F. Zhang, M. Ermonval, R.J. Linhardt, and **S.T. Sharfstein**, *Effects of Microcarrier Culture and Temperature Shift on Productivity and Glycosylation of Recombinant Proteins Produced In Chinese Hamster Ovary Cells*, National Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2007.
56. Z. Jiang and **S. Sharfstein**, *A Mechanistic Understanding of the Effects of Sodium Butyrate on Antibody Productivity*, Fall National Meeting of the American Chemical Society, Boston, MA, August 2007. **Invited for best of BIOT Webinar.**
57. **D. Shen**, T. Kiehl, and S. Sharfstein, *Stress responses in mammalian cells to hyperosmotic stress*, Fall National Meeting of the American Chemical Society, Boston, MA, August 2007.
58. **S. Sharfstein**, T. Kiehl and D. Shen, *Osmotic Stress to Antibody Production: Analyzing Cellular Responses*, Biochemical Engineering XV, Quebec City, Quebec, July 2007.
59. **S. Sharfstein**, *Bioprocessing Laboratory at Rensselaer Polytechnic Institute*, National Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2006.
60. **Z. Jiang** and S. Sharfstein, *Effects of Sodium Butyrate Treatment on CHO Cell growth, gene expression, and MAb Productivity*, National Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2006.
61. **A. Baughman**, S. Sharfstein, and L. Martin, *State space modeling of metabolic networks for monoclonal antibody production*, Fall National Meeting of the American Chemical Society, San Francisco, CA, September 2006.
62. Z. Jiang and **S. Sharfstein**, *Chromatin association of transgenes regulates the transcription of monoclonal antibodies in DHFR-amplified CHO cells*, Fall National Meeting of the American Chemical Society, San Francisco, CA, September 2006.

63. D. Shen and **S. Sharfstein**, *Understanding the response of murine hybridomas to hyperosmotic stress: A transcriptional approach*, Fall National Meeting of the American Chemical Society, San Francisco, CA, September 2006.
64. **A. Venkiteshwaran**, P. Heider, S. Matosevic, A. Boggsnes, A. Staby, S. Sharfstein, and G. Belfort, *Cross-flow microfiltration of E. coli cell lysate to recover met-hGH inclusion bodies*, 17th Annual NAMS Meeting, Chicago, IL, May 2006.
65. **Z. Jiang** and S. Sharfstein, *Investigations of the Mechanisms of Higher rMab Transcriptional Rates in MTX-Selected High Producing CHO Cell Lines*, Cell Culture Engineering X, Whistler, Canada, April 2006.
66. J.H. Nam and **S. Sharfstein**, *Characterization of Yield and Glycosylation of a Recombinant Glycoprotein Produced in Suspension and Microcarrier Culture*, Cell Culture Engineering X, Whistler, Canada, April 2006.
67. **S. Sharfstein**, D. Shen and T. Kiehl, *Genome-Wide Analysis of the Transcriptional Response of Murine Hybridomas to Osmotic Shock*, Cell Culture Engineering X, Whistler, Canada, April 2006.
68. **A. Venkiteshwaran**, S. Matosevic, A. Boggsnes, A. Staby, S. Sharfstein, and G. Belfort, *Crossflow Microfiltration of E.Coli Cell Lysate Containing Inclusion Bodies of Recombinant Human Growth Hormone (Met-Hgh)*, National Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005
69. **A.B.D Samuels**, S. Sharfstein, and L. Martin *Application of State Space Modeling Techniques to Biological Systems*, National Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005
70. **S. Sharfstein** and D. Shen, *Genome-Wide Analysis of the Transcriptional Response of Murine Hybridomas to Osmotic Shock*, National Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005
71. **J.H. Nam** and S. Sharfstein, *Effects of Culture Conditions on Growth, Recombinant Protein Production and Glycosylation*, National Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005
72. **D. Shen** and S.T. Sharfstein, *Genomic analysis of murine hybridoma-cell responses to hyperosmotic stress*, Biochemical Engineering 05, Harrison Hot Springs, British Columbia, July 2005
73. Z. Jiang, Y. Huang, and **S. Sharfstein**, *Regulation of Recombinant Monoclonal Antibody Production in CHO Cells: A Comparative Study of Gene Copy Number, mRNA Level, and Protein Expression*, Biochemical Engineering 05, Harrison Hot Springs, British Columbia, July 2005
74. **A. Samuels**, S.T. Sharfstein, and L. Martin, *Modeling of mammalian cell culture metabolism for optimization of protein production*, Spring National Meeting of the American Chemical Society, San Diego, CA, March 2005
75. D. Shen and **S.T. Sharfstein**, *Genomic analysis of murine hybridoma-cell responses to hyperosmotic stress*, Spring National Meeting of the American Chemical Society, San Diego, CA, March 2005
76. Z. Jiang, Y. Huang, and **S.T. Sharfstein**, *Regulation of Recombinant Monoclonal Antibody Production In Chinese Hamster Ovary Cells: Exploring What Leads To The Enhanced Antibody Expression*, Spring National Meeting of the American Chemical Society, San Diego, CA, March 2005
77. **S. Sharfstein** and J.H. Nam *Effects of Culture Conditions on Recombinant Protein Production*, Spring National Meeting of the American Chemical Society, Anaheim, CA, March 2004.
78. **S. Sharfstein** and D. Shen, *Genomic Approaches to Increased Productivity in Hybridoma Cells*, National Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2003.
79. **S. Sharfstein**, Y. Huang, H. Prentice, W. Sisk, *Regulation of Recombinant Monoclonal Antibody Production in Chinese Hamster Ovary Cells*, National Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2003.
80. **S. Sharfstein**, D. Shen, R. Zhou, Z. Sun, *Genomic Analysis of Hyperosmotic Stress in Murine Hybridoma Cells*, 2003 Albany Conference on Biotechnology in the Capital Region, Rensselaerville, NY, September, 2003.
81. **S. Sharfstein**, D. Shen, R. Zhou, Z. Sun, *Genomic Analysis of Hyperosmotic Stress in Murine Hybridoma*

- Cells*, Biochemical Engineering 03, Boulder, CO, July 2003.
82. JH Nam, R. Trimble, and **S. Sharfstein**, *Effect of Culture Conditions on Protein Glycosylation in CHO Cells*, National Meeting of the American Institute of Chemical Engineers, Indianapolis, IN, November 2002.
 83. **S.T. Sharfstein**, R. Zhou, Z. Sun, *Regulation of antibody production in hybridoma cells: Role of transcription, translation and post-translational processing*, National Meeting of the American Chemical Society, Boston MA, August 2002.
 84. **S. Sharfstein**, *Effect of Culture Conditions on Protein Glycosylation for t-PA produced in CHO cells*, National Meeting of the American Institute of Chemical Engineers, Reno, NV, November 2001.
 85. S. Sharfstein, **R. Zhou**, and Z. Sun, *Mechanisms of Osmotic Stress Response in Murine Hybridoma Cells*, National Meeting of the American Institute of Chemical Engineers, Reno, NV31, November 2001.
 86. **S. Sharfstein** and P. Relue, *Biotechnology and Bioprocessing Laboratory for Chemical Engineering and Bioengineering*, American Society for Engineering Education Annual Conference & Exposition, Albuquerque, NM, June 2001.
 87. R. Zhou, Z. Sun, S. Liang, and **S. Sharfstein**, *Mechanisms of Osmotic Stress Response in Hybridoma Cells*, National Meeting of the American Institute of Chemical Engineers, Miami, FL, November 1998.
 88. R. Zhou, Z. Sun, S. Liang, and **S. Sharfstein**, *Osmotic Stress Response in Hybridoma Cells*, Biomedical Engineering Society National Meeting, Cleveland, OH, October 1998.
 89. **S. Sharfstein**, D. Maclaren, A. Srinivasan, N. Satyamurthy, S. Gambhir, S. Cherry, J. Barrio, M. Phelps, and H. Herschman. *Imaging Gene Expression Using Positron Emission Tomography*, National Meeting of the American Institute of Chemical Engineers, Los Angeles, CA, November 1997.
 90. **S. Sharfstein**, A. Srinivasan, S. Cherry, S. Gambhir, J. Barrio, M. Phelps, and H. Herschman, *Imaging Gene Expression Using Positron Emission Tomography*, National Meeting of the American Institute of Chemical Engineers, Miami, FL, November 1995.
 91. **S. Sharfstein**, B. Deaton, and J. Keasling, *Engineering Phosphate Metabolism for Bioremediation*, National Meeting of the American Chemical Society, San Diego, CA, March 1994.
 92. **S.T. Sharfstein**, A. Mancuso, H.W. Blanch, and D.S. Clark, *In Vivo Nuclear Magnetic Resonance Studies of Mammalian Cells Grown in Hollow Fiber Bioreactors*, National Meeting of the American Chemical Society, San Francisco, CA, April 1992.

E.11 Funding

E.11a Research Funding (only funded and pending proposals are included)

Total: \$4,850,000 awarded

“FMRG: BIO: Manufacturing multi-dimensional culture systems with integrated measurement and manipulation technologies” S. Sharfstein, N. Cady, Y. Xie, A. Oliveira, T. Kiehl, National Science Foundation, \$299,999, submitted 4/11/2024, pending

“Optimizing Antibody Production in CHO Cells Using Epi-MAX Technology to Increase Heavy and Light Chain Expression”, S. Byrne and T. Begley, National Institutes of Health, 1R41TR005122-01, \$350,000 (\$105,000 to UAlbany) April 2024-April 2025.

“Improvement of high content analysis system for biopharmaceutical and tissue engineering product development”, S. Sharfstein, Center for Advanced Technology in Nanomaterials and Nanoelectronics Investment Program, \$54,536, August 2021-July 2022.

“Novel Wicking Bioreactor for T Cell Expansion”, V. Saxena, S. Sharfstein, D. Shaw, M. Hohn, NIIMBL PC4.1-146, \$350,000 (\$120,000 to SUNY Polytechnic Inst.), September 2020-February 2023

“FMSG: Bio-Manufacturing of Hybrid Tissue-Electronic and Photonic Devices” S. Sharfstein, R. Geer, N. Cady, Y. Xie, and N. Fahrenkopf, NSF ECCS- 2134518, \$500,000, September 2020-August 2024

REU Supplement Summer 2022 \$13,200

REU Supplement Summer 2023 \$13,200

REU Supplement Summer 2024 \$11,094

INTERN Supplement December 2024 \$37,346

“SBIR Phase II: Bioengineered Recombinant Anticoagulant Heparin” C. Glass, subcontract to S. Sharfstein, NSF IIP-2026188, \$999,948 (\$250,000 to SUNY Polytechnic Inst.), December 2020-November 2022.

“Development of rapid cell selection technology for production of Covid-19 therapeutics” S. Sharfstein, Center for Advanced Technology in Nanomaterials and Nanoelectronics Investment Program, \$25,000, September 2020-January 2021

“Development of expertise and infrastructure for bioinformatics” S. Sharfstein, SUNY Polytechnic Institute Seed Grant, \$3395, July 2019-July 2020.

“Nanofiber Scaffolds for Salivary Gland Regeneration” M. Larsen and Y. Xie (S. Sharfstein, collaborator), National Institutes of Health, 1R01DE027953, \$700,179 (Year 1, \$247,481 to SUNY Poly), Total grant period: April 2019-March 2024

“Rapid Cell Analyzer for Drug and Gene Screening” Y. Xie and S. Sharfstein, Center for Advanced Technology in Nanomaterials and Nanoelectronics Investment Program, \$312,611 2019-2020.

“SBIR Phase I: Bioengineered Recombinant Anticoagulant Heparin” C. Glass, subcontract to S. Sharfstein, NSF IIP-1842736, \$225,000 (\$75,000 to SUNY Polytechnic Inst.), January 2019-June 2020.

“Improvements to Biopharmaceutical Manufacturing”, S. Sharfstein and E. Eveleth, NIH 5R42GM114935-03, \$693,541, September 2018-December 2019.

“STTR Phase I: Novel Wicking Matrix Bioreactor for Pluripotent and Progenitor Cell Expansion”, V. Saxena and S. Sharfstein, NSF IIP-1722384, \$225,000, June 2017-November 2018.

“Improvements to Biopharmaceutical Manufacturing”, S. Sharfstein and E. Eveleth, NIH 2R42GM114935-02, \$733,711, September 2017-August 2018.

“STTR Phase I: Biomanufacturing of Novel Heparan Sulfate Glycosaminoglycans”, C. Glass and S. Sharfstein, NSF IIP-1622959, \$225,000, July 2016-June 2017.

“Energetic Materials Analysis” New York State NanoHealth and Safety Center, S. Sharfstein and S. Zhang, \$150,000, January 2015-December 2015.

“STTR Phase I: Development of Bioengineering Human Eye Outflow Tract for High-throughput Screening of Glaucoma Therapeutics” D. Bharali, M. Bergkvist, J. Danias, S. Sharfstein, and Y. Xie, NSF IIP-1448900, \$225,000, January 2015-December 2015

“International Collaboration Supplement: Understanding of Transcriptional Regulation in Chinese Hamster Ovary Cells”, S. Sharfstein, NSF-CBET-1401409, \$17,000, June 2014-July 2014.

“Development of Artificial Human Trabecular Meshwork for High-throughput Glaucoma Therapeutic Screening”, S. Sharfstein, M. Bergkvist, J. Danias, and Y. Xie, SUNY Technology Acceleration Fund, \$50,000, April 2014-October 2014.

“STTR Phase I: Novel bioreactors for production of metabolically engineered heparin in Chinese hamster ovary cells” V. Saxena and S. Sharfstein, NSF IIP-1321432, \$225,000, July 2013-June 2014

“Energetic Materials Analysis” ISMI-ESH Technology Center, S. Sharfstein, S. Trammell and D. Speed, \$300,000 January 2013-December 2014

“GOALI Supplement: Understanding of Transcriptional Regulation in Chinese Hamster Ovary Cells” S. Sharfstein and S. Casnocha, NSF CBET-0967821, \$70,000, September 2012-July 2014. Collaborative with Pfizer, Inc.

“An Epigenetic Understanding of Transcriptional Regulation in Chinese Hamster Ovary Cells” S. Sharfstein, NSF CBET-0967821, \$347,989, Sept 2010-July 2014

“Metabolic Engineering of Chinese Hamster Ovary Cells for Production of Heparin”, S. Sharfstein, R. Linhardt, F. Zhang, NIH-1R01GM090127-01, \$1,087,915, August 2009-July 2012.

“GOALI: Understanding the effect of sequence on expression of recombinant monoclonal antibodies”, S. Sharfstein, B. Sweeney, K. Cain, NSF CBET-0854099, \$44,000, May 2009-April 2010. Collaborative with UCB Celltech, Slough UK.

“Analysis of Cellular Responses to Insulin and LongR3-IGF-1”, S. Sharfstein, Novozymes, \$6000, August 2008-November 2008.

“SGER: Responses of Mammalian Cells to Increased Osmolarity: Effects on Antibody Productivity” S. Sharfstein, NSF CBET-0811639, \$98,378, March 2008-August 2009.

“STTR Phase I: High-Throughput RNAi Screening of Mammalian Cells” M. Hogg and S. Sharfstein, NSF IIP-0740592, \$150,000, January 2008-December 2008 (\$85K to S. Sharfstein). Collaborative with Solidus Biosciences, San Francisco, CA.

“Understanding the effects of medium osmolarity and pCO₂ on CHO cell physiology and recombinant protein glycosylation”, S. Sharfstein, Bristol-Myers Squibb, \$63,000, September 2007-April 2008.

“Analysis of Cellular Responses to Insulin and LongR3-IGF-1”, S. Sharfstein, Gropep, Ltd. \$2500, December 2006-February 2007.

“Applications of DNA Microarrays to Bioprocessing” S. Sharfstein RPI Office of Research Seed Grant, \$14,500, January 2003-June 2004.

“Techniques for Investigating Cytoskeletal Effects on Recombinant Protein Production”, S. Sharfstein, National Science Foundation Professional Opportunities for Women in Research and Education Program CBET-0083203, \$104,873, September 2000-August 2002.

“Regulation of Monoclonal Antibody Production in Murine Hybridomas”, S. Sharfstein, National Science Foundation Faculty Early Career Development Program CBET-9984918, \$225,159, May 2000-December 2005.

“Improvement of Fouling Resistance through Surface Modification of Filtration Membranes”, G. Lipscomb, M. Coleman, and S. Sharfstein. College of Engineering Collaborative Research Grant, \$39,984, September 1998-August 1999.

“High Performance Liquid Chromatography for Biochemical Engineering and Environmental Engineering”, C. Schall, S. Sharfstein, M. Abraham, and A. Nadarajah. National Science Foundation Equipment Grant. \$35,700. August 1998-July 1999.

“Developing Crystallization Techniques for Proteins in the Human Genome”, A. Nadarajah, S. Sharfstein, and C. Schall. College of Engineering Collaborative Research Grant, \$39,000, July 1998-June 1999.

“Flow Cytometry System for Cellular Engineering Research”, P. Relue, R. Fournier and S. Sharfstein. National Science Foundation Equipment Grant. \$67,200, June 1998-May 1999.

“Effects of Culture Conditions on Recombinant Protein Production”, S. Sharfstein. University Research and Fellowship Program-University of Toledo, \$5,332, May 1998-August 1999.

“Investigation of the Flow Sensitivity of Protein Crystals to Molecular Interactions by Site-Directed Mutagenesis”, S. Sharfstein and A. Nadarajah, Ohio Space Grant Consortium, Research Infrastructure Award, \$7500, July 1997 – June 1998.

“Mechanisms of Osmotic Stress Response in Cultured Hybridomas”, S. Sharfstein. deArce Memorial Endowment Fund-University of Toledo, \$11,687, June 1997 – May 1998.

E.11b Teaching/Educational Funding

Total: \$106,000 awarded

“**Discovery to Delivery** NIIMBL eXperience”, M. Lewis, Albany College of Pharmacy, lead, \$6,612 to UAlbany. January 2024-July 2024.

“**Discovery to Delivery** NIIMBL eXperience”, M. Lewis, Albany College of Pharmacy, lead, \$16,406 to SUNY Poly. January 2023-July 2023.

“Proposal for Restructuring Workforce Training from Semiconductor Fab Manufacturing and Pharmaceutical Industry to the Next Revolution in Biofabrication” Y. Xie, S. Sharfstein, J. Paluh, N. Cady, and R. Geer, ARMI Education and Workforce Development, \$10,000 award announced 8/2022, contract pending.

“Changing Departmental Culture: A ChBE proposal to the RAMP-up program at Rensselaer”, S. Sharfstein, L. Martin, J. Plawsky, B.W. Bequette, and S. Garde, Rensselaer Polytechnic Institute Advance Grant, \$10,000, November 2007-July 2008.

“Biotechnology and Bioprocessing Laboratory in Chemical Engineering at Rensselaer Polytechnic Institute”, S. Sharfstein, J. Dordick, and B.W. Bequette, Merck Foundation, \$65,000 November 2002-June 2004.

“Biotechnology and Bioprocessing Laboratory”, S. Sharfstein and P. Mahama. National Science Foundation, Directorate of Undergraduate Education, Instrumentation and Laboratory Improvements, DUE-9750627, \$28,849, July 1997 – June 1999.

“Molecular Biology in Bioengineering”, S. Sharfstein, Center for Teaching Excellence, Teaching Enhancement Award, \$1900, June 1997 – May 1998.

E.11c Other Funding

Total: \$48,500 awarded

Unrestricted Gifts

Millipore Corporation, \$10,000, July 2008

Other Grants

UUP Professional Development Award to attend NIH Bioinformatics Workshop, \$1000, June 2019

Fulbright Global Scholar Award, \$29,500 plus travel expenses, 2017-2018

UUP Professional Development Award to attend ACS National Meeting, \$1000, March 2015

UUP Professional Development Award to attend AIChE National Meeting, \$1000, November 2013

RAMP-UP Career Campaign Grant (provided to assist women faculty in career advancement), \$5000, February 2008

American Institute of Chemical Engineering, Women’s Initiative Committee Travel Grant, \$1000, November 2007

E.11d Significant Collaborative Research Proposal Submission (unfunded)

“IGERT: Molecular Bioprocessing” PI: Steven Cramer; Role on Project: co-PI, submitted October 2008

“Bioengineered Functionally Organized and Responsive Materials (BioFORM) Engineering Research Center” PI: J. Dordick; Role on Project: Education Program Director (co-PI), submitted December 2007

F. TEACHING ACTIVITIES

F.1 Curriculum Development

Albany College of Pharmacy

Developed training materials in bioprocessing and biomanufacturing for distance learning curriculum

Pharmaceutical Training Institute, KNect 365 Life Sciences, an Informa Company

Developed an online course entitled “Introduction to Biopharmaceutical Manufacturing” consisting of four modules with 3-6 ~10-minute videos and associated quizzes.

Developed a distance-taught course entitled “Bioreactors in Biotech: Strategies for selection and optimization” with ~15 hours of lecture and discussion materials

University at Albany/SUNY Polytechnic Institute

Chemical Principles of Nanotechnology Laboratory-Developed new laboratory experiments on acid-base chemistry and heats of reactions. Designed undergraduate honors projects. Updated experiments on chemical kinetics. Developed course syllabi for fall semester laboratory course and rubrics for laboratory report evaluations.

Chemical Principles of Nanotechnology Lecture-Incorporated online homework and web-based activities

Transport Phenomenon-Developed new course, selected textbook, and designed curriculum

Drug Discover and Biomanufacturing-Developed course materials on biomanufacturing, updated and revised course previously taught by another instructor

Rensselaer Polytechnic Institute

Biotechnology and Bioprocessing Laboratory-- Wrote proposal to develop course and purchase laboratory equipment. Purchased all laboratory equipment. Designed laboratory experiments. Wrote laboratory manual and teaching assistant manual. Supervised renovation of preparatory laboratory space shared between Departments of Chemical and Biological Engineering and Biology.

Introduction to Chemical Engineering – Designed laboratory component for course using ChE car. Supervised peer instruction by UG chemical engineering students.

University of Toledo

Biochemical Engineering Principles – redesigned existing course to incorporate modern cell and molecular biology. Converted course to semesters.

Bioengineering Thermodynamics – designed new course, selected textbook, designed course content, syllabus, and lectures.

Bioreactors – designed new course, literature survey in biochemical engineering

Bioengineering Graduate Laboratory – designed new course to teach graduate students laboratory fundamentals of cell and molecular biology in preparation for research experience

Bioengineering and Bioprocessing Laboratory – Wrote proposal to develop course and purchase laboratory equipment. Purchased all laboratory equipment. Designed laboratory experiments. Wrote laboratory manual and teaching assistant manual. Designed physical laboratory space during renovations.

F.2 Courses taught (including guest lectures)

F.2a University Instruction

University of Queensland

Biomolecular Engineering (CHEE4020)-guest lecturer (*1 lecture*), April 2018

University at Albany/SUNY Polytechnic Institute

Teaching Science in the Secondary School (ETAP652S)-Guest lecturer

Fall 2024 – One lecture

Teaching Science for Understanding PreK-6 (ETAP 314)-Guest lecturer

Fall 2024 – One lecture

COVID-19 Solutions in the Age of Nanotechnology (NSCI/NENG 190) Co-instructor, 2 3-hour lectures (~1/3 of course)

Summer 2020 – 6 students

Introduction to Biomanufacturing and Pharmaceuticals (UAlbany ABIO454)-Guest lecturer

Spring 2020 – Two lectures

Spring 2019 – Two lectures

Nanotechnology Survey (NSCI/NENG 101)-Guest lecturer

Fall 2023 – One lecture

Fall 2022—One lecture

Fall 2021—One lecture

Fall 2020 – One lecture

Fall 2019 – One lecture

Fall 2018 – One lecture

Drug Discovery and Biomanufacturing (NSCI/NENG 445, NNSE 521 revised to INSC/INEN 445, INSE 521)-Instructor

Fall 2024 – 8 students

Fall 2023 – 3 students

Fall 2022 – 7 students

Fall 2021 – 10 students

Fall 2020 – 7 students

Fall 2019 – 19 students

Fall 2018 – 15 students (first time course taught by instructor)

Chemical Principles of Nanotechnology (NSCI/NENG 114)-Co-instructor (*delivered 50% of course lectures, shared grading responsibilities*)

Fall 2016—26 students

Fall 2015—40 students

Fall 2014 – 66 students (first time course taught by instructor)

Nanotechnology Applications in Drug Discovery and Biomanufacturing (NSCI 400/ NNSE 521)-Guest lecturer- *4 lectures/semester*

Spring 2017—15 students

Spring 2016—10 students

Spring 2015 – 15 students

Spring 2014-10 students

Spring 2013-20 students

Transport Phenomenon (NENG 304/INEN 304)-Instructor

Spring 2024 – 4 students

Spring 2023 – 10 students

Spring 2022 – 14 students

Spring 2021 – 12 students

Spring 2020 – 17 students

Spring 2019 -- 20 students

Spring 2017 – 43 students

Spring 2016 – 40 students

Spring 2015 – 28 students

Spring 2014 – 18 students
Spring 2013-10 students
Spring 2012- 10 students (first time course was taught)

Chemical Principles of Nanotechnology Laboratory I (NSCI/NENG/TSCI/TENG 115) – Laboratory instructor of record/laboratory instructor for several experiments (shared course). *As the instructor of record, I coordinated the course experiments, instructors, and graduate assistants and developed the course syllabi. I coordinated and graded the honors projects and provided instruction in report writing and basic laboratory techniques.*

Fall 2013 – 49 students
Fall 2012 – 39 students
Fall 2011 - 24 students
Fall 2010 - 21 students (first time course was taught)

Chemical Principles of Nanotechnology II (NSCI/NENG 117)—Laboratory instructor (shared course-*in this course I instructed 1 laboratory for a total of 6 contact hours, plus grading the laboratory reports*)

Spring 2016 – 38 students
Spring 2014 - 45 students
Spring 2013 – 35 students
Spring 2012 – 20 students
Spring 2011-15 students

Seminar in Nanobiology (NNSE-681)—Guest Lecturer-2 *lectures per semester*

Fall 2011-5 students
Spring 2011- 6 students

Rensselaer Polytechnic Institute

Introduction to Chemical Engineering (CHME -1960) – Lab instructor; 3 *laboratory hours/week*
Fall '08 – 62 students (first year lab component included)

Biotechnology and Bioprocessing Laboratory (CHME 4961/CHME 4170 as of Spring '07) 1 *lecture hour, 3 laboratory hours/week*

Spring '09 – 11 students
Spring '08 – 10 students
Spring '07-- 12 students
Spring '06 – 9 students
Spring '05 – 10 students
Spring '04 – 7 students (first year course was taught)

Biochemical Engineering (CHME 4430/6430); 4 *lecture hours/week*

Fall '07 -- 23 students
Fall '06 – 19 students
Fall '05 – 26 students (first time course was taught by Professor Sharfstein at RPI)

Advanced Cell Biology (BIOL-6961)—Guest lecturer; 2 *2-hour lectures/semester*

Spring '07
Spring '06

Genetic Engineering (BCBP-4310)—Guest lecturer; 1 *2-hour lecture/semester*

Fall '05
Fall '03

Chemical Engineering Laboratory (CHME 4150/4160); *shared course, responsible for 1 laboratory experiment in spring '03; 3-6 laboratory hours/week for other labs*

Spring '03 – 51 students
Spring '03-Fermentation Laboratory—30 students

Fall '02 –53 students

Thermal Fluids Engineering I (ENGR 2250); *4 lecture hours/week*

Fall '02 – 61 students

Spring '02 --47 students (first time course taught by Professor Sharfstein)

Chemical Engineering Laboratory (CHME 4150) Fermentation laboratory; *3 laboratory hours/week for half of semester*

Spring '01--26 students

University of Toledo

Bioengineering and Bioprocessing Laboratory (BIOE 4500); *1 lecture hour and 3 laboratory hours/week*

Spring '99 -- 4 students (first time course was taught)

Bioengineering Graduate Laboratory (BIOE 5980/7980); *1 week mini-course 8 hours/day*

Winter '98-10 students (first time course was taught)

Bioengineering Thermodynamics (BIOE 2100); *3 lecture hours/week*

Fall '98 -- 24 students

Fall '97 – 12 students (first time course was taught)

Biochemical Engineering Principles (BIOE 6310/8310); *3 lecture hours/week*

Fall '97 – 12 students

Winter '97 – 21 students (first time course taught by Professor Sharfstein)

Bioreactors (BIOE 633/833); *3 lecture hours/week*

Spring '97 -- 12 students

University of California, Berkeley

Biochemical Engineering (ChE 170); *3 lecture hours (~1/2 given by me), 3 lab hours/week*

Spring '93 -- 25 students

F.2b Invited Workshops/Courses

Suranaree University of Technology, Thailand: Biologics as Therapeutics, 7-hour workshop, May 2018

Universidad Nacional del Litoral, Santa Fe, Argentina: Therapeutics Mammalian Cell-Derived Glycoproteins: Design, Expression, and Glycosylation Analysis, delivered lectures on “Glycoengineering” (2 hours) and “The Challenge of Biosimilars” (1.5 hours), September 2018

Pharmaceutical Training International: A Beginner’s Guide to Biopharmaceutical Manufacturing, on-line course asynchronous course, first presented May 2019

A Beginner’s Guide to Biopharmaceutical Manufacturing, custom course prepared for AsahiKasei, on-line synchronous course, presented July-August 2020

Bioreactors in Biotech: Strategies for selection and optimization, on-line synchronous course, presented November – December 2020

E.3 Student Mentoring

F. 3a Undergraduate Students (research projects)

Total: ~90 undergraduate students

Since joining University at Albany/SUNY Polytechnic Institute

Jennifer Cao	Summer 2024	Tufts University Undergraduate
Sahasra Sagi	Summer 2024	RPI Undergraduate
Breanna Harris	Summer 2024	NSF REU student (Emory University)
Hiba Fahim	Fall 2023-Spring 2024	UAlbany Undergraduate ABio 499

Darian Parker	Summer 2023	NSF REU student (University of Rochester)
Katy Cable	Summer 2023-present	NSF REU student (UAlbany)
Glory Ajayi	Summer 2023	NSF REU student (UAlbany)
Eleanor Amodeo	Summer 2022	NSF REU student (University of Rochester)
Anthony Manning	Summer 2022	NSF REU student (SUNY Poly)
	Fall 2022-Summer 2024	CNSE undergraduate Honors Student (capstone)
Dana Peters	Summer 2022	Clarkson University undergraduate
Maryam Rehan	Spring 2022	UAlbany undergraduate
Vanessa Kramer	Summer 2021	CNSE intern
Adam Ross	Fall 2020-Spring 2021	CNSE undergraduate (capstone project)
Chiamaka Ofonagoro	Spring 2020	UAlbany undergraduate
Winora Buah	Spring 2020	UAlbany undergraduate
Adam Koplas	Summer 2019-Spring 2021	CNSE undergraduate Honors Student
Zachary Hanchon	Summer 2019-Spring 2020	CNSE Undergraduate Honors Student
Tanner Brooks	Summer 2019	UAlbany undergraduate
Danielle Infantado	Fall 2016-Spring 2018	UAlbany Undergraduate Honors College Student
Jeremy Shuman	Summer 2016	McGill University Undergraduate
Shawn Fidotta	Spring 2015-Fall 2015	CNSE undergraduate
Christine Chung	Spring 2015-Fall 2015	High school student
Benjamin Breiten	Summer 2015	CNSE Intern (CNSE with Professor Xie)
Michael Pugliese	Summer 2015	Post-baccalaureate (UAlbany)
Kayla Meyers	Summer 2015	CNSE Intern (Northeastern University)
David Allegakoen	Summer 2015	Post-baccalaureate (UC Berkeley)
Matthew Kerr	Summer 2014-Spring 2017	CNSE undergraduate (with Professor Xie)
Justin Halman	Summer 2014-Spring 2015	CNSE undergraduate (with Professor Xie)
Jesus Barragan	Summer 2014	CNSE intern
Dennis Szymanski	Fall 2013-Spring 2015	CNSE undergraduate
Shivani Patel	Summer 2013-Spring 2015	High school student
Alisha Desai	Summer 2013	High school student
Alex Jenkins	Summer 2013-Spring 2014	CNSE undergraduate
Eve Borden	Summer 2013	CNSE intern (with Professor Bergkvist)
Rajan Kumar	Summer 2012-Spring 2014	CNSE undergraduate/summer intern (with Professor Bergkvist)
Thomas Jordan	Fall 2012-Spring 2015	CNSE undergraduate/Honors Thesis
Adam Goodcoff	Spring 2013-Spring 2014	UAlbany undergraduate, ABIO 399, recipient of UAlbany UG Research Award
Joe Ronolder	Spring 2013-Spring 2014	ABio 399/CNSE summer intern
Lee Talman	Spring 2013-Spring 2014	CNSE student/intern
Erik Milosevic	Summer 2012	CNSE Intern (CNSE) with Professor Xie
Ryan Carpenter	Summer 2012	CNSE Intern (UBuffalo)
Jonathan Green	Spring 2012	ABIO 499
Eric Brown	Fall 2011-Spring 2013	UAlbany undergraduate
Asia Foster	Fall 2011	ABIO 399
Jainesh Patel	Fall 2011	RPI undergraduate
Andrew Brooks	Fall 2011-Spring 2012	RPI undergraduate

Rachel Stein	Summer 2011	CNSE Intern (University of Maryland)
Mark Julian	Summer 2011	CNSE Intern (Clarkson University)
		Recipient of a National Science Foundation Graduate Fellowship
Joshua Reichler	Summer 2011	High school student
Laura Morris	2011-2012	ABIO 499 2011-12 academic year
James McDonald	2010-2011	ABIO 499 2010-11 academic year
Laura Hickey	Summer 2010	CNSE Intern (McGill University)
Pablo Soriano	Summer 2010	CNSE Intern (Universidad de las Americas Puebla)
Christian Schenkelberg	2008-2013	RPI undergraduate
Yong Jun An	2008-2012	RPI undergraduate

Prior to joining University at Albany

2009 6 students + 1 post-baccalaureate student
 2008 7 students + 1 post-baccalaureate student
 2007 6 students
 2006 7 students
 2005 4 students
 2004 2 students
 2003 1 student
 2001 1 student

E.3b Masters Students

Total: 19 masters students

MBA Projects (University at Albany)

Ms. Linda Finkle, MBA, *Understanding cellular responses to hyperosmotic stress*

Masters Theses (University at Albany/SUNY Polytechnic Institute)

Mr. Eric Hexemer, *Design of Microfluidic Perfusion Chambers for Higher Throughput Screening of Glaucoma Drugs Using a Bioengineered Human Outflow Tract*, December 2015

Masters Projects (University at Albany/SUNY Polytechnic Institute)

Dr. Eziafa Oduah (MD), *Production of a Bioengineered Heparin*, May 2016

Masters Theses (Rensselaer Polytechnic Institute)

Ms. Mahwish Khan, *Nuclear Phospho-proteomic Analysis of Chinese hamster ovary cells*, December 2012 (jointly with Professor Mark Platt).

Ms. Stephanie Hays, M.S. *Hyperosmotic Shock and Recombinant Antibody Production in CHO Cells: Characterization and Gene Expression*, May 2011, currently a doctoral student at Harvard University (recipient of a **National Science Foundation Graduate Fellowship**)

Ms. Ying Huang, M.S., *Characterization of Gene Copy Number and mRNA Expression for Chinese Hamster Ovary Cells Producing a Recombinant Humanized Monoclonal Antibody*, August 2004, currently working for GlaxoSmithKline in Shanghai, China.

Master of Engineering Projects (Rensselaer Polytechnic Institute)

Ms. Jennifer Gerlock, M.E., *Characterization of Cellular Responses to Insulin and a Recombinant Insulin-Like Growth-Factor*, December 2006.

Masters projects (University of Toledo)

Ms. Kathleen McNeeley, M.S., *A Study of the Effect of Hyperosmotic Stress on Cell Cycle and Antibody Production in Murine Hybridoma Cells*, August 2000

Mr. Suri Chitti, M.S., *HPLC Analysis of Immunoglobulins Produced in Murine Hybridoma Cells*, August 1999

Mr. Jiang Xuefeng, M.S., (jointly with Professor Paul Erhardt, Department of Medicinal Chemistry and Professor Stephan Goldman, Department of Biology), *The Chemical Analysis of Soybean Cultivars Hartwig, Williams and their Hybrid in Relation with their Reaction to Soybean Cyst Nematode*, August 1999

Mr. Charles Shulkins, M.S., *Recombinant tPA Production in CHO cells Under Various Culture Conditions*, December 1998

Mr. Jayavelu Karthikeyan, M.S., *Design of Laboratory Experiments for an Undergraduate Biotechnology Laboratory*, August 1998

Ms. Shuyan Liang, M.S., *Osmotic Stress Response on Antibody Production in Two Different Hybridoma Cell Lines*, August 1998

Mr. Rajani Maddhi, M.S., *Process Economics Software in Biochemical Engineering*, May 1998

Ms. Claudia Eid, M.S., *The Role of Cytoskeleton in Gene Expression in Chinese Hamster Ovary (CHO) Cells*, May 1998

Mr. Ali Fakih, M.S., *The Role of the Cytoskeleton in Gene Expression*, May 1998

Mr. Babu Ganeson, M.S., *Over-expression of Beta-galactosidase in E. Coli*, August 1997

Mr. Chee-Hong Chat, M.S., *Improved Cell-Substrate Interactions in Mammalian Cells Cultured on Biodegradable Polymers*, August 1997

Ms. Rui Zhou, M.S., *Hyperosmotic Stress Response in Murine Hybridoma Cells*, August 1997

F.3c Doctoral Students (committee chair or co-chair)

Total: 21 doctoral students; 18 completed

University at Albany/SUNY Polytechnic Institute

Ms. Paria Baninoe, expected May 2028 (jointly with Professor Yubing Xie)

Mr. Dipayan Sarkar, expected May 2027 (jointly with Professor Yubing Xie)

Mr. Fernando Pesantez Torres, *Culture of neural stem cells on semiconductor photonic devices* expected May 2026 (jointly with Professor Yubing Xie)

Dr. Stephen (Chris) Rose, *A 3D Co-Culture Model of Senescent Cell Burden and Salivary Gland Fibrosis* August 2024 (jointly with Professor Yubing Xie)

Dr. Eziafa Oduah, *Therapeutic Targeting of Oncogenic Gain-of-Function Mutant p53 by Proteasome Inhibition*, August 2022. Currently an Assistant Professor of Oncology at Duke University

Dr. Pujhitha Ramesh, *Biomimetic scaffolds targeting regeneration of the salivary gland*, May 2022 (jointly with Professor Yubing Xie). Currently a research scientist with Humonix.

Dr. Jake Terracina, *Development of biosensors for bioreactors*, May 2017 (jointly with Professor Magnus Bergkvist). Currently a principal scientist with ViaeX Technologies.

Dr. Sarah Nicoletti, *Epigenetic modification of Chinese hamster ovary cell lines producing recombinant monoclonal antibodies*, December 2015. Currently a research scientist at Samsung Biologics.

Dr. Karen Torrejon, *Bioengineering In Vitro Human Trabecular Meshwork Models for Glaucoma Therapeutic Screening*, August 2015 (jointly with Professor Yubing Xie). **Funded by an NSF graduate fellowship.** Currently CSO of Humonix, Inc.

Dr. Cula Dautriche-Svidzinski, *3D-Bioengineering of the Conventional Outflow Tract for High Throughput Drug or Gene Transfer Screening for Glaucoma Treatment*, May 2015 (MD/Ph.D. student, jointly with

Professor Yubing Xie and Professor Magnus Bergkvist). Currently Scientific Director of Research at Sadick Dermatology.

Rensselaer Polytechnic Institute

Dr. Payel Datta, *Understanding the regulation of heparan sulfate production in Chinese hamster ovary cells*, May 2013 (jointly with Professor Robert Linhardt). Currently a faculty member at Albany College of Pharmacy and Health Sciences.

Dr. Leyla Gasimli-Gamache, *Metabolic Engineering of CHO Cells for Production of Heparin*, May 2013 (jointly with Professor Robert Linhardt). Currently a cardiologist at St. Luke's Cardiology Associates, Bethlehem, PA.

Dr. Hussain Dahodwala, *Understanding Transcriptional regulation in recombinant monoclonal producing Chinese hamster ovary cells*, August 2011. Currently a Research Associate Professor at University of Maryland.

Dr. Adam Baughman, *Topological Metabolic Analysis: A Robust Optimization-Based Framework for Metabolic Process Systems Engineering*, May 2011 (jointly with Professor Lealon Martin). Currently a Naval Reactors Engineer with the U.S. Navy.

Dr. Megan Mason, *Understanding the Effect of Sequence on Expression of Recombinant Monoclonal Antibodies*, December 2010. **Received ACS BIOT Peterson Award for best student oral presentation at 2010 Spring Annual Meeting.** Currently a research scientist at Lonza, Slough UK.

Dr. Thomas Kiehl, *A Systems Biology Approach for Understanding Osmotic Stress in Antibody-Producing Cell Lines*, August 2009. **Funded by an NSF graduate fellowship.** Currently a research scientist at the Neural Stem Cell Institute, Rensselaer, NY.

Dr. Duan Shen, *Analysis of Hyperosmotic Response of Mammalian Cell Lines*, August 2008. Currently IP Director at EpimAb Biotherapeutics, Shanghai, China.

Dr. Zhou Jiang, *Transcriptional Regulation of the Production of a Humanized Monoclonal Antibody by CHO Cells*, August 2007. Currently a research and development scientist at Cytiva.

Dr. Jong Hyun Nam, *Effects of culture conditions on cell growth, production, metabolism and glycosylation of recombinant glycoproteins produced by CHO cells*, December 2006. Currently a technical investment officer in Korea.

University of Toledo

Dr. Rui Zhou, *Mechanisms of increased antibody production in murine hybridoma cells in response to hyperosmotic stress*, April 2002. Currently Director of the Central Research Lab, 1st Affiliated Hospital, Shantou University, China.

Dr. Zhe Sun, *Cellular Mechanisms of the Hyperosmotic Stress Response of Hybridoma Cells*, August 2000. Currently a Research Assistant Professor at University of Missouri, Columbia

F.3d Postdoctoral Fellows

Total: 7 postdoctoral fellows

Dr. Setareh Adibzadeh, 2024-

Dr. Runya Roy, 2022-2023, currently a research scientist at Neural Stem Cell Institute

Dr. Mihyun Choi, 2020-2022

Dr. Vandhana Chari, 2017-2020, currently a research scientist at Next Advanced

Dr. Vijay Tejawani, 2016-2017, currently a research scientist in India

Dr. Hussain Dahodwala, 2013-2014, currently a Research Associate Professor at University of Maryland.

Dr. Matthew DeSieno, 2012-2013, currently a research scientist at Regeneron.

Dr. Jong Youn Baik, 2009-2013, Assistant Professor, Inha University, Korea.

Dr. Haiyuan Zhang, 2008- 2009, Professor, Changchun Institute of Applied Chemistry, Chinese Academy of Science.

F.3e Visiting Students/Research Scientists

Total: 3 visiting students/research scientists

Ms. Ranya Pranomonphon, doctoral student, Suranaree Institute of Technology, Thailand, September 2019-June 202, April 2023-August 2023 (also served on dissertation committee)

Dr. Matthew Henry, doctoral student, University of Queensland, Australia, March 2019-May 2019

Dr. Vijay Tejwani, visiting scientist, March 2019-May 2019

F.3f Doctoral/Masters Student Committees (member)

SUNY Polytechnic Institute/UAlbany

Sujith Chander Reddy Kollampally

Matthew Jorgensen

Isabel Tian

Paul Kutscha

Sarah Engleberth

Michael Padgen

Miriam Toro (M.S.)

Nooshin Amini

Stephen Kasper

Mary Graham

Waseem Khan Raja

Rensselaer Polytechnic Institute

Randolf Ashton

MaryKate DiTursi

BoSung Ku

Pip Reader

Gautam Baruah

Sanchayita Ghose

John Lindsay

Xinqun Huang

Adith Venkiteshwaran

University of Toledo

Jin Yuan

G. SERVICE ACTIVITIES

G.1 University Service

SUNY Research Foundation

Proposal reviewer, SUNY Research Seed Grant Program, 2024

SUNY Senior Vice Chancellor's Scientific Advisory Panel 2019-2020

Faculty Research Fellow 2015-2016: Engaged in a project to support research instrumentation systemwide. Evaluated sources of funding for instrumentation and benchmarking with peer and aspirant institutions. Developed instrumentation database to promote systemwide sharing of research instrumentation.

University at Albany/ SUNY Polytechnic Institute

UAlbany, University Council on Promotions and Continuing Appointments 2024-

UAlbany, Department of Nanoscale Science and Engineering, Academic Excellence/Curriculum Committee 2023-

UAlbany, Department of Nanoscale Science and Engineering, Graduate Policy Committee 2023-24

SUNY Poly CNSE Graduate Admissions Committee (became UAlbany Department of Nanoscale Science Graduate Admissions Committee) 2021-

Center for Advanced Technology in Nanomaterials and Nanoelectronics (CATN2) Matching Investment Program (MIP) Review Panel 2022-

SUNY Poly Exchange Visitor Advisor 2022-2023
SUNY Poly CNSE College Life Council 2022-2023
UAlbany/SUNY Poly RNA Training grant selection committee 2022-
SUNY Poly Chancellors Award for Faculty Excellence Selection Committee 2021-22
SUNY Poly Diversity, Equity and Inclusion Committee 2021-2022
SUNY Poly Council on Promotions and Continuing Appointments, Chair 2021-2023
SUNY Poly COVID Faculty Advisory Committee 2020
SUNY Poly Presidential Search Committee 2019-2020
SUNY Poly Chair CNSE College Senate 2019-2020
SUNY Poly PRODI-G Committee 2019
SUNY Poly Innovative Graduate and Continuing Professional Education (CPE) Committee 2018-2019
SUNY Poly Search Committee-Dean of Engineering 2018-2019
SUNY Poly Bridge to Nano Planning Committee 2018-2019
SUNY Poly Framework Committee-Diversity, Equity and Inclusion 2018-2019
SUNY Poly-Vice Chair CNSE College Senate 2018-2019
SUNY Poly Tactical Team-Diversity and Inclusion 2017
SUNY Poly Academic Affairs Council 2015-2017
Council on Promotions and Continuing Appointments 2014-2016
ABET Accreditation Advisory Committee 2013-2015
CNSE, Educational Outreach and Internships Council 2013-2017
Transition to Independence Peer Mentoring Committee for Nadine Hempel (junior faculty member) 2011-2015
CNSE, Undergraduate/Graduate Recruitment Council (previously UG recruitment committee) 2011-2017
CNSE Undergraduate Curriculum Committee 2011-2017
UAlbany Institutional Biosafety Committee 2011-2012
CNSE, Summer Internship Program Committee, chair 2011-2017
CNSE, Committee on Admissions, Academic Standing and Appeals, 2010-
CNSE Nanobioscience Graduate Curriculum Committee, chair 2010-2013, member 2013-2017

Rensselaer Polytechnic Institute

School of Engineering Curriculum Committee 2008-2009
Institutional Biosafety Committee 2007-2008
Internal Advisory Board for the NSF-supported RAMP-Up! Project 2006-2009
Center for Biotechnology and Interdisciplinary Studies, Microscopy Core Advisory and Search Committee 2006-2009
School of Engineering, childcare advisory committee 2005-2009
SWE co-advisor 2005-2009
Oversaw renovation of Science Center BC21 for preparatory space for Bioprocessing Laboratory and Microbiology 2004-2007
Faculty Academic Board 2004-2009
Advisory Committee for Life Sciences Core Course 2003-2004
Biotechnology Center and Research Planning Committee 2003-2004

Department of Chemical Engineering, Curriculum Committee 2003-2009

Oversaw curriculum redevelopment for 2006 catalog

Chair of committee 2006-2009

Department of Chemical Engineering, Graduate Admissions Committee 2001-2002, 2003-2008

Faculty search committee, Department of Chemical Engineering 2001-2002

University of Toledo

Chair, visiting professor search committee, 1999-2000

Faculty search committee 1997-2000

Rocket Entry Program, guest speaker, 1999

Search Committee for Vice President for Enrollment and Placement, 1999

Academic Excellence Committee, 1997-1999

Campus Radiation Safety Committee, 1996-1999

G.2 Curricular advising

SUNY Polytechnic Institute

2016-2017 4 undergraduate students + 4 graduate students

2015-2016 4 undergraduate students + 8 graduate students

2014-2015 3 undergraduate students + 9 graduate students

University at Albany

2013-2014 4 undergraduate students + 9 graduate students

2012-2013 4 undergraduate students + 8 graduate students

2011-2012 4 undergraduate students + 4 graduate students

Rensselaer Polytechnic Institute (all undergraduate students)

2008-2009 36 students

2007-2008 34 students

2006-2007 40 students

2005-2006 41 students

2004-2005 27 students

2003-2004 30 students

2002-2003 30 students

2001-2002 30 students

University of Toledo (all undergraduate students)

1998-1999 6 students

1997-1998 6 students

G.3 Professional Service

G.3a Reviewer

Journals/Books/Conferences

11th IFAC Symposium on Computer Applications
in Biotechnology

ACS Applied Nano Materials

Acta Biomaterialia

AIChE Journal

ACS Books-chapter from Current, State of the
Art, and Emerging Technologies for the Analysis
of Monoclonal Antibodies

ACS Synthetic Biology

African Journal of Biotechnology

American Society for Engineering Education,
Meeting Proceedings

Analytical Chemistry
 APL Materials
 Biochemical Engineering Journal
 Bioengineering
 Bioprocess and Biosystems Engineering
 Biomaterials
 Biotechnology Advances
 Biotechnology and Applied Biochemistry
 Biotechnology Journal
 Biotechnology Progress
 Book chapter from Novel Bioprocessing
 Technology for Production of
 Biopharmaceuticals and Bioproducts
 Cell Structure and Function
 Critical Reviews in Biotechnology
 Elsevier Science & Technology Books, book
 proposal reviewer
 Emerging Topics in Life Sciences
 Encyclopedia of Industrial Biotechnology
 Enzyme and Microbial Technology

Fungal Genomics and Biology
 Gene
 Glycobiology
 IEEE Transactions, Biomedical Engineering
 International Journal of Pharmaceutics
 John Wiley and Sons, book proposal reviewer
 Journal of Biotechnology and Biomaterials

Journal of Chemical Technology and
 Biotechnology
 Journal of Immunological Methods
 Journal of Medicinal Chemistry
 Journal of Microbiology and Biotechnology
 Metabolic Engineering
 Molecular Biotechnology
 Nature Communications
 Pharmaceutical Bioprocessing
 Proteomics
 Springer Plus
 Tissue Engineering
 Trends in Biotechnology

Antibody Therapeutics
 Applied Biochemistry and Biotechnology
 Applied Microbiology and Biotechnology
 Biodrugs
 Bioengineered
 Biosensors and Bioelectronics
 Biotechnology and Bioengineering
 Biotechnology Letters
 BMC Biotechnology
 BMC Genomics
 Cellular Physiology and Biochemistry

Current Biotechnology
 Current Microbiology
 Elsevier, book proposal reviewer
 Engineering in Life Sciences
 Frontiers in Bioengineering and Biotechnology
 Garland Science, book chapter from An
 Integrative Approach to Nanobiotechnology:
 Design Concepts for Scientists and Engineers
 Genes (MDPI)
 HT-FED 2004 conference
 International Journal of Molecular Sciences
 In Vitro, Cell and Developmental Biology
 Journal of Biotechnology
 Journal of Chemical Engineering Japan
 Journal of Computer Science and Systems
 Biology
 JoVE

Journal of Proteome Research
 mAbs
 MDPI-Processes
 Metabolites
 Mutation Research
 New Biotechnology
 PLOS One
 Proteome Science
 Process Biochemistry
 Scientific Reports (Nature Publishing Group)
 The Open Biomedical Engineering Journal

Funding Agencies

National Science Foundation: Faculty Early Career Development Panel, Graduate Fellowship Panel,
 Metabolic Engineering Panel, EFRI Pre-proposal, SBIR/STTR panel, Future Manufacturing, Biofoundries
 Panel, unsolicited proposals (Biotechnology and Biomass Engineering), ERC Site visitor
 National Institutes of Health: SBIR program (mail reviewer), SBIR/STTR Cell and Molecular Biology panel
 United Kingdom, Biotechnology and Biological Sciences Research Council
 BOKU DOC Grants, Austrian Graduate Fellowship Awards

Thalis, Hellenic Republic, Ministry of Education, Lifelong Learning and Religious Affairs (Greece)
Maryland Technology Development Corporation
National Fund for Scientific and Technological Development of the Chilean National Commission for
Scientific and Technological Research
Science Foundation Ireland
Indo-US Science & Technology Forum
Cariplo Foundation (Italy)
Fulbright Ireland
Moorfields Eye Charity
Singapore National Research Foundation, Competitive Research Programme
Australian Research Council: Industrial Transformation Research Hubs, Industrial Transformation Training
Centres
United Nations University Biotechnology Programme for Latin America and the Caribbean, Training program
reviewer, Fellowship Reviewer
Swiss National Science Foundation

Other

University of British Columbia, Ph.D. dissertation, external reviewer
Selection committee for the 2008 Cell Culture Engineering Merck Award
Danish Technical University (DTU), selection committee for senior researcher at the Novo Nordisk
Foundation Center for Biosustainability
Albany College of Pharmacy and Health Sciences Bioanalytical Sciences Faculty Search Committee 2019
University of Queensland, Ph.D. dissertation external reviewer, Spring 2021
Florida A&M University/Florida State University, College of Engineering, Promotion Case 2022
Albany College of Pharmacy and Health Sciences, Department of Pharmaceutical Sciences, Promotion and
Tenure Case 2022

G.3b Professional Activities

Albany College of Pharmacy and Health Sciences Center for Biopharmaceutical Education and Training
Advisory Group 2019-
Director Search Committee 2021

National Institute for Innovation in Manufacturing Biopharmaceuticals
Technology Advisory Council 2018-2020
Governance Council 2019-2020

Cell Culture Engineering XVII (2020/2023) Workshop session co-chair
Cell Culture Engineering XV (2016) Session co-chair
Cell Culture Engineering XIII (2012) Session co-chair
Cell Culture Engineering X (2006), Poster Session co-chair

American Chemical Society
Annual Meeting Session Co-chair 2021
Annual Meeting Session Co-chair 2015
ACSBIOT - ESBES (European Society of Biochemical Engineering) joint meeting programming
committee 2011-2012
Annual Meeting Session Co-chair 2011
Upstream program coordinator 2010
Annual Meeting Session Co-chair 2009
Annual Meeting Session Co-chair 2007
Annual Meeting Session Co-chair 2004

American Institute of Chemical Engineers/Society for Biological Engineering
Annual Meeting Session Co-chair 2006

Annual Meeting Session Co-chair 2002

Annual Meeting Session Co-chair 2000

Biochemical Engineering 2007 Session co-chair

G.4 Community Service/Outreach Activities

- Guest speaker at City of Albany's Summer Youth Employment Program (SYEP)
- Developed novel robotic outreach activity and presented at Tech Valley High Camp Innov@tion, 15-Love, Flying Cloud Young Women in Science Summer Camp, 2023-present
- Committee Member, ACS Biot Gender Diversity Workshop, 2019
- Panelist IEEE Nanotechnology Symposium, Women in Engineering Dinner, 2018
- Van Antwerp Middle School Career Day Guest Speaker, 2017
- Caltech Alumni Women's Peer Mentor, engaged in one-on-one peer mentoring with a female doctoral student, 2016-present
- Flying Cloud Girls Science Club, Lee MA, presented laboratory activities to elementary and middle school girls, 2011-present
- NanoHigh Outreach Program, presented a laboratory activity to students from Albany High School as part of our on-going program, 2012-2015
- Lansingburgh High School Career Fair, Guest speaker, discussed careers in engineering with high school students, 2007
- Children's Museum of Science and Technology, Guest speaker, presented introduction to biotechnology and genetic engineering to elementary and middle school students in scientific discovery camp, 2006-2008
- Flying Cloud Young Women in Science Program, Guest speaker instructor-provided laboratory training and lectures on biotechnology for women middle-school and high school students, 2006, 2019, 2023
- Rensselaer PREFACE Program, made presentations to high school sophomores/juniors from underrepresented groups to introduce chemical and biological engineering, 2005
- Toledo PREPTECH/EXCELL Program, made presentations to Junior high school students to convey practical applications of math and science, 1998
- Girl Scouts of America, Guest speaker -- Quantum Leap program to introduce Jr. high school girls to science and engineering, 1997
- African American Male Achievement Network, provided laboratory training and scientific instruction for minority students, 1995-1996
- In addition to formal advising, I also meet with new and prospective students (particularly women) and meet with students who are interested in biotechnology/nanobioscience

H. PROFESSIONAL AFFILIATIONS

American Association of University Women

American Chemical Society

American Institute of Chemical Engineering

American Society for Biochemistry and Molecular Biology

American Society for Engineering Education

Fulbright Association

International Society for Stem Cell Research

Sigma Xi

Tau Beta Pi

L. CONSULTING ACTIVITIES

Aegros Scientific Advisory Board 2022-

Biomilq Technical Advisory Board 2021-

Consultant, Arthur D. Little 2021-22

Consultant, GLG Research 2020-

Expert witness, Marshall Gernstein 2022-
Expert witness, Fish and Richardson, 2019-2021, 2023-
Expert witness, Cooley, 2019-
Expert witness, Proskauer-Rose, 2018-2024
Expert witness, Wilkie Farr and Gallagher, 2018
Expert witness, Mintz, 2024-
Expert witness, Choate, 2024-

J. PROFESSIONAL DEVELOPMENT ACTIVITIES

NSF-funded Towards Civility Workshop Participant 2021-22
MaxQuant Summer School, August 2019
NIH Foundation for Advanced Education in the Sciences Workshop on Bioinformatics, June 2019
SUNY Voices, Campus Governance Leadership Training, June 2019
Next Generation Sequencing Workshop, September 2016
Society of Women Engineers Workshop for Women in Academic Leadership, November 2015