

## Carolyn M. Teschke, Ph.D.

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### ADDRESS

University of Connecticut  
Departments of Molecular and Cell Biology, and Chemistry  
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**CITIZENSHIP:** United States

### EDUCATION

Ph.D., Biochemistry	1990
Washington State University	
B.S., Chemistry	1983
University of Wisconsin-Eau Claire	

### ADDITIONAL PROFESSIONAL EDUCATION

HERS Bryn Mawr Summer Institute for Women in Higher Education Administration	2013
COACH's training to facilitate career building workshops	2016

### PROFESSIONAL EXPERIENCE

<u>University of Connecticut Department of Molecular and Cell Biology</u>	
Department Head	2022-2027
Interim Department Head	Fall, 2021
Associate Department Head, Undergraduate Education and Research	2016-2021
Professor	2008-current
Joint appointment, Professor, Department of Chemistry	
Associate Professor	2000
Assistant Professor	1994

### Other experience

Visiting Professor (Fulbright Fellowship), University of York, UK	2022
Visiting Professor (Sabbatical Leave), University of Leeds, UK	2014
Visiting Professor (Sabbatical Leave, University of Utah	2007
Visiting Scientist (Sabbatical Leave), Institut de Biologie Structurale, Grenoble, France	2000
Post-doctoral, Associate Biology Dept., Massachusetts Institute of Technology	1991-1994

### HONORS

CT Academy of Science and Engineering, elected member	2022
Fulbright Scholar, University of York, UK	2022
AAAS Council Delegate, Section on Biological Sciences, nationally elected	2020-2023
Editorial Board, <i>Journal of Virology</i>	2020-2023
Associate Editor, <i>Science Advances</i> , AAAS	2018-
Alice C. Evans Award for the Advancement of Women, Amer. Society of Microbiology	2018
Committee on the Status of Women, American Society of Microbiology	2018-2024
Basic Science Awards Nominating Committee, Amer. Society of Microbiology	2016-2019
Jefferson Science Fellow, serving at the U.S. State Dept.	2015-2016

Embassy Science Fellow	2016
Fellow of the AAAS, elected	2015

### **PROFESSIONAL ACTIVITIES**

AAAS Kavli Science Journalism awards Screener	2020, 2021, 2022
CT Policy Fellowship Advisory Committee, CT Academy of Science & Engineering	2017-2019
Co-organizer Northeast Structure Symposium	2017, 2006
Co-chair the FASEB Summer Conference on <i>Virus Assembly and Structure</i>	2014
Co-vice chair for the FASEB Summer Conference on <i>Virus Assembly and Structure</i>	2012
Nominating Committee for the Protein Society, <i>Nationally elected position</i>	2005-2009

#### Grant Reviewer for:

Stage 2 Editorial Board reviewer for the NIH Director's New Innovator Award	2022
Ad hoc reviewer, Biotechnology & Biological Sciences Research Council (BBSRC), UK	2020
NSF ad hoc reviewer	2017, 2019, 2020, 2020
NIH Ad Hoc reviewer Prokaryotic Molecular and Cell Biology study section	2008, 2009, 2010, 2016
Ad hoc reviewer for NIH F31 fellowship in Molecular Genetics	2007
University of Kansas Cobre grants	2007, 2016
Ad hoc reviewer for United States-Israel Binational Science Foundation	1998, 2004, 2006
University of Connecticut Research Foundation Life Sciences Review Panel	1997-1999
Ad Hoc Reviewer UCRF Faculty Large /Faculty Excellence Grants	1995-1997, 2018
Review Panel Member for UCRF Equipment Competition	1995

#### Professional Societies:

American Association for the Advancement of Science  
 American Society for Microbiology  
 American Society for Biochemistry and Molecular Biology  
 American Society for Virology

#### Journals Reviewed for (partial list):

ACS Synthetic Biology	National Academy of Sciences-Proceedings
Biochemistry	Nature Communications
Biophysical Journal	Nature Microbiology
Chemical Biology	Nucleic Acids Research
Journal of Biological Chemistry	PLOS Pathogens
Journal of Virology	Structure
Molecular Microbiology	Virology

### **RESEARCH**

Research interests ([carolyn-teschke-lab.squarespace.com](http://carolyn-teschke-lab.squarespace.com))

- Mechanism of dsDNA viral capsid assembly.
- Protein folding *in vivo* and *in vitro*. Interaction of folding intermediates with molecular chaperones.
- The role of the two SecA homologs in protein export in *Mycobacterium tuberculosis*.

## Grant support

### *Active*

#### *Extramural:*

NIH R01 GM076661 13-16 (PI, Teschke; Alexandrescu co-I) "Understanding the protein:protein interactions required for virus assembly"	09/23/19 - 07/01/23
	<u>Total costs: \$2,237,721</u>
NIH Diversity supplement (for years 14 and 15)	
	<u>Total costs: \$135,604</u>
NIH R01 AI149727-01 (PI, Braunstein, Teschke subaward) "A Novel Protein Export Chaperone of Mycobacterium Tuberculosis" Subaward: 1/03/2020-12/31/2021	09/01/19 – 08/31/21
	<u>Total costs: \$123,515</u>
NIH R21 <u>1R21AI156838-01</u> (PI White, co-I Teschke, co-I Lynes) Characterization of long-circulating phages isolated from in vivo mouse studies	12/01/20-11/30/22
	<u>Total costs: \$427,500</u>
Defense Health Agency (CoPI, Robin Bogner; CoPI, Teschke) in consortium with Physical Sciences, Inc. Stabilized, Freeze Dried Bacteriophage for use in Austere Environments	03/25/22-09/25/22
	<u>Total costs: \$98,000</u>

### *Completed*

#### *Extramural:*

NIH R01 GM076661 09-12 (PI, Teschke; Alexandrescu co-PI) "Understanding the protein:protein interactions required for virus assembly"	09/01/15 - 8/31/19
	<u>Total costs: \$1,948,316</u>
NIH R01 GM076661 05-08 (PI, Teschke) "Understanding the protein:protein interactions required for virus assembly"	10/01/11 - 08/31/15
	<u>Total Costs: \$1,202,092</u>
Supplement for New Collaborative Science for the parent grant GM076661	03/25/12 - 08/31/15
	<u>Total Costs: \$455,168</u>
NIH R01 GM076661 01-04 (PI, Teschke) "Mechanism of phage P22 assembly, a model dsDNA virus"	04/15/07 - 09/30/11
	<u>Total Costs: \$1,138,302</u>
NIH R03 AI 072065 (PI, Teschke) "Function of SecA2 in Mycobacterium tuberculosis protein export"	07/01/07 - 06/31/11
	<u>Total Costs: \$152,000</u>
NIH R01 GM053567 (PI, Teschke) "Folding of Phage P22 Structural Proteins"	09/01/00 – 08/31/06
	<u>Total costs: \$896,021</u>
NIH R29 GM053567 (PI, Teschke) "Folding of Phage P22 Structural Proteins"	09/01/95 - 08/31/00

Donaghue Foundation New Investigator Grant (PI, Teschke)  
“The Effects of Mutations on Protein Folding and Structure”

Total costs: \$493,903  
07/01/95 - 06/30/98

Total costs: \$179,931

*Intramural:*

UConn Research Excellence Program (PI, Alexandrescu; co-PI, Teschke) “Structure and function of phage L decoration protein”	05/14/18 - 06/30/19 \$50,000
University of Connecticut Research Foundation (PI, Teschke) “Elucidating the mechanism of <i>M. tuberculosis</i> SecA2 interaction with precursor proteins during secretion”	01/01/11 - 12/31/12 \$20,000
University of Connecticut Research Foundation (PI, Teschke) “Mechanism of phage P22 assembly, a model dsDNA virus”	01/01/06 - 12/31/07 \$16,000
University of Connecticut Provost’s Competition (Yeagle, Director) “A Partnership for Excellence in Structural Biology” Role: Participant	01/01/05 – 12/31/07

Extramural Awards to Students:

NIH F31 GM073598 Minority Pre-doctoral fellowship for Kristin Parent	09/01/05 - 08/31/07
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Direct/total costs: \$63,568

Publications

*Peer Reviewed Articles:*

1. Woodbury, B.M., Motwani, T., Leroux, M.N., Barnes, L.F., Lykтей, N.A., Banerjee, S., Dedeo, C.L. Jarrold, M.F., Teschke, C.M. (2022). Tryptophan residues are critical for portal protein assembly and incorporation in bacteriophage P22. *Viruses* (special issue in memory of Lindsay Black), 14:1400. doi: 10.3390/v14071400
2. Whitehead III, R.D. 3rd, Teschke, C.M., Alexandrescu, A.T. (2022) Pulse-field gradient nuclear magnetic resonance of protein translational diffusion from native to non-native states, 31(5):e4321. doi: 10.1002/pro.4321.
3. Leavitt, J.C., Gilcrease, E.B., Woodbury, B.M., Teschke, C.M.\*, Casjens, S.R.\* (2021) Intravirion DNA can access the space occupied by the bacteriophage P22 ejection proteins. *Viruses*. 13:1504. doi: 10.3390/v13081504. \*co-corresponding authors
4. Dedeo, C.L., Teschke, C.M.\*, Alexandrescu, A.T.\* (2020) Keeping it together: structure, functions and applications of viral decoration proteins. *Viruses*. 12:1163. doi: 10.3390/v12101163. \*co-corresponding authors (Review).
5. Whitehead III, R.D., Teschke, C.M.\*, Alexandrescu, A.T.\* (2019) NMR Mapping of Disordered Segments from a Viral Scaffolding Protein Encapsulated in a 23 MDa Procapsid Complex, *Biophys. J.*, 17(8):1387-1392. doi: 10.1016/j.bpj.2019.08.038. \*co-corresponding authors
6. Dedeo C., Cingolani, G., Teschke, C.M. (2019) Portal protein: the orchestrator of capsid assembly for the dsDNA tailed bacteriophages and herpesviruses. *Ann. Review of Virology*, 6:141-160. doi: 10.1146/annurev-virology-092818-015819 (Review).
7. Asija, K., Teschke, C.M. (2019) Of capsid structure and stability: the partnership between charged residues of E-loop and P-domain of the bacteriophage P22 coat protein. *Virology*. 534:45-53. doi: 10.1016/j.virol.2019.05.021.
8. Asija, K, Teschke, C.M. (2019) A hydrophobic network: Intersubunit and intercapsomer interactions stabilizing the bacteriophage P22 capsid. *J. Virol.*, 93, pii: JVI.00727-19. doi: 10.1128/JVI.00727-19.

9. Newcomer, R.L., Schrad, J.R., Gilcrease, E.B., Casjens, S.R., Feig, M., Teschke, C.M.\*, Alexandrescu, A.T., and Parent, K.N.\* (2019) The phage L capsid decoration protein has a novel OB-fold and an unusual capsid binding strategy. *Elife*. 8:e45345. doi: 10.7554/eLife.45345. \*co-corresponding authors
10. Duda, R.L., Teschke, C.M. (2019) The amazing HK97 fold: versatile results of modest differences. *Curr. Opin. Virol*, 36:9-16, doi: 10.1016/j.coviro.2019.02.001 (Review).
11. Motwani, T., Teschke, C.M. (2019). The architect of virus assembly: portal protein nucleates procapsid assembly in bacteriophage P22. *J. Virol.*, 93:e00187-19. doi: 0.1128/JVI.00187-19. **Selected by editors for a JVI Spotlight.**
12. Tripler, T.N. Kaplan, A.R., Alexandrescu, A.T.\*, and Teschke, C.M.\* (2019) Conservation and divergence of the I-domain inserted into the ubiquitous HK97 coat protein fold in the P22-like bacteriophages. *J. Virol.*, 93:e00007-19. doi:10.1128/JVI.00007-19. \*co-corresponding authors
13. Newcomer, R.L., Belato, H., Teschke, C.M.\*, Alexandrescu, A.A.\* (2018) NMR assignments of Decorator, a phage-cementing 43 kDa homotrimer, *Biomol. NMR Assignments*, 12:339-343. doi: 10.1007/s12104-018-9836-1. \*co-corresponding authors
14. Asija, K., Teschke, C.M. (2018) Lessons from bacteriophages I: Deriving utility from protein structure, function and evolution. *PLOS Pathogens Pearls*, 14, e1006971. doi: 10.1373/journal.ppat.116971. eCollection 2018 May (Review).
15. Asija, K., Teschke, C.M. (2018) Lessons from bacteriophages II: A saga of scientific breakthroughs and prospects for their use in human health. *PLOS Pathogens Pearls*, 14, e1006970. doi: 10.1373/journal.ppat.116970. eCollection 2018 May (Review).
16. Motwani, T. Lokareddy, R.K., Dunbar, C.A., Cortines, J.R., Jarrold, M.F., Cingolani, G., Teschke, C.M. (2017) A viral scaffolding protein triggers portal ring oligomerization and incorporation during procapsid assembly. *Sci. Advances*, 3, e1700423. doi: 10.1126/sciadv.1700423. eCollection 2017 July.
17. Lokareddy, R., Sankhala, R., Roy, A., Afonine, P., Motwani, T., Teschke, C.M., Parent, K.N., and Cingolani, G. (2017) Portal protein functions akin to a DNA-sensor that couples genome-packaging to icosahedral capsid maturation. *Nature Communications*, 8:14310. doi: 10.1038/ncomms14310.
18. Tripler, T.N., Teschke, C.M.\*, Alexandrescu, A.T.\* (2017) NMR assignments for the insertion domain of bacteriophage Sf6 coat protein. *Biomol. NMR Assignments*, 11:35-38. doi: 10.1007/s12104-016-9716-5. Epub 2016 Oct 31. \*co-corresponding authors
19. Wu, W., Leavitt, J.C., Cheng N., Gilcrease, E.B., Motwani, T., Teschke, C.M., Casjens, S.R., Steven, A.C. (2016) Localization of the Houdinisome (Ejection Proteins) inside the Bacteriophage P22 Virion by Bubblegram Imaging. *MBio*, 7(4). pii: e01152-16. doi: 10.1128/mBio.01152-16.
20. Keifer, D.Z., Motwani, T., Teschke, C.M., Jarrold, M.F. (2016) Measurement of the accurate mass of a 50 MDa infectious virus. *Rapid Commun. Mass Spectrom.*, 30:1957-62. doi: 10.1002/rcm.7673.
21. Keifer, D.Z., Motwani, T., Teschke, C.M., Jarrold, M.F. (2016) Acquiring Structural Information on Virus Particles with Charge Detection Mass Spectrometry. *J. Amer. Soc. for Mass Spec.*, 27,1028-36. doi: 10.1007/s13361-016-1362-8
22. Harprecht, C, Okifo, O, Robbins, K.J., Motwani, T., Alexandrescu, A.T.\*, Teschke, C.M.\* (2016) Contextual Role of a Salt-Bridge in the Phage P22 Coat Protein I-Domain. *J. Biol. Chem.*, 291:11359-72. doi: 10.1074/jbc.M116.716910. \*co-corresponding authors
23. Newcomer, R., Fraser, L., Teschke, C.M.\*, Alexandrescu, A.T.\* (2015) Mechanism of protein denaturation: partial unfolding of the P22 coat protein I-domain by urea binding. *Biophys. J.*, 109, 2666-77. \*co-corresponding authors
24. D’Lima, N.G., Teschke, C.M. (2015) A molecular staple: D-loops in the I-domain of bacteriophage P22 coat protein make important inter-capsomer contacts required for procapsid assembly. *J. Virol.*, 89, 10569-79. doi: 10.1128/JVI.01629-15
25. D’Lima, N.G., Teschke, C.M. (2015) A method to investigate protein association with intact sealed Mycobacterial membrane vesicles. *Analytical Biochemistry*, 485, 109-111. doi: 10.1016/j.ab.2015.06.023

26. Tripler, T.N., Maciejewski, M.W., Teschke, C.M.\*, Alexandrescu, A.T.\* (2015) NMR assignments for the insertion domain of bacteriophage CUS-3 coat protein, *Biomol. NMR Assignments*, 9, 333-6. doi: 10.1007/s12104-015-9604-4. \*co-corresponding authors
27. Suhanovsky, M.M., Teschke, C.M. (2015) Nature's favorite building block: Deciphering folding and capsid assembly of proteins with the HK-97 fold. *Virology*, 479-480C, 487-497. (Review)
28. Rizzo, A.A., Suhanovsky, M.M., Baker, M.L., Fraser, L.C.R., Jones, L.M., Rempel, D.L., Gross, M.L., Chiu, W., Alexandrescu, A.A.\*, Teschke, C.M.\* (2014) Multiple functional roles of the accessory I-domain of bacteriophage P22 coat protein revealed by NMR structure and cryoEM imaging. *Structure*, 22, 830-41. \*co-corresponding authors
29. Cortines, J.R., Motwani, T., Vyas, A.A., Teschke, C.M. (2014) Highly specific salt bridges govern bacteriophage P22 icosahedral capsid assembly: identification of the site in coat protein responsible for interaction with scaffolding protein. *J. Virol.*, 88, 5287-97. **Selected by editors for a JVi Spotlight.**
30. D'Lima, N.G., Teschke, C.M. (2014) ADP-dependent conformational changes distinguish Mycobacterium tuberculosis SecA2 from SecA1. *J. Biol. Chem.* 289, 2307-17.
31. Suhanovsky, M.M. and Teschke, C.M. (2013) An intramolecular chaperone inserted in bacteriophage P22 coat protein mediates its chaperonin-independent folding, *J. Biol. Chem.*, 288, 33772-83.
32. Rizzo, A.A., Fraser, L.C.R., Sheftic, S.R., Suhanovsky, M.M., Teschke, C.M.\*, Alexandrescu, A.T.\* (2013) NMR assignments for the telokin-like domain of bacteriophage P22 coat protein, *Biomol. NMR Assignments*, E-published Sept. 18. \*co-corresponding authors
33. Padilla-Meier, G.P., Gilcrease, E.B., Weigle, P.R., Cortines, J.R., Siegel, M., Leavitt, J.C., Teschke, C.M.\*, Casjens, S.R.\* (2012) Unraveling the role of the C-terminal helix-turn-helix of the coat-binding domain of bacteriophage P22 scaffolding protein, *J. Biol. Chem.*, 287, 33766-80. \*co-corresponding authors
34. Parent, K.N., Deedas, C.T., Egelman, E.H., Casjens, S.R., Baker, T.S.\*, and Teschke, C.M.\* (2012) Stepwise molecular display utilizing icosahedral and helical complexes of phage coat and decoration proteins, *Biomaterials*, 33, 5638-37. \*co-corresponding authors
35. Zlotnick, A.\*, Suhanovsky, M.M., Teschke, C.M. (2012) The energetic contributions of scaffolding and coat proteins to the assembly of bacteriophage procapsids, *Virology*, 428, 64-9. \*corresponding author.
36. Teschke, C.M. (2012) Themes and variations of viral small terminase proteins. *Structure*, 20, 1291-2.
37. Cortines, J.R., Weigle P.R., Gilcrease, E.B., Casjens, S.R., Teschke, C.M. (2011) Decoding bacteriophage P22 assembly: Identification of two charged residues in scaffolding protein responsible for coat protein interaction. *Virology*, 421, 1-11.
38. Suhanovsky, M.M., Teschke, C.M. (2011) Bacteriophage P22 capsid size determination: Roles for the coat protein telokin-like domain and the scaffolding protein amino-terminus, *Virology*, 417, 418-29.
39. Padilla-Meier, G.P., Teschke, C.M. (2011) Conformational changes in bacteriophage P22 scaffolding protein induced by interaction with coat protein, *J. Mol. Biol.*, 410, 226-40.
40. Parent, K.N., Sinkovits, R.S., Suhanovsky, M.M., Teschke, C.M., Egelman, E.H., Baker, T.S. (2010) Cryo-reconstructions of P22 polyheads suggest that phage assembly is nucleated by trimeric interactions among coat proteins. *Phys. Biol.*, 7, special issue on Physics of Virus Assembly, submitted by invitation, 7, 045004.
41. Suhanovsky, M.M., Parent, K.N., Dunn, S.E., Baker, T.S., Teschke, C.M. (2010) Determinants of bacteriophage P22 polyhead formation: the role of coat protein flexibility in conformational switching. *Molecular Microbiol.*, 77, 1568-82.
42. Teschke, C.M., Parent, K.N. (2010) 'Let the phage do the work': using the phage P22 coat protein structures as a framework to understand its folding and assembly mutants. *Virology*, 401, 119-30. (Review).
43. Parent, K.N., Khayat, R., Tu, L.H., Suhanovsky, M.M., Cortines, J.R., Teschke, C.M., Johnson, J.E., Baker, T.S. (2010) P22 coat protein structures reveal a novel mechanism for capsid maturation: stability without auxiliary proteins or chemical crosslinks. *Structure*, 18, 390-401.

44. Hou, J.M., D'Lima, N.G., Rigel, R.W., Gibbons, H.S., Braunstein, M., Teschke, C.M. (2008) ATPase activity of Mycobacterium tuberculosis SecA1 and SecA2 proteins and its importance to SecA2 function in macrophages. *J. Bacteriology*, 190, 4880-7.
45. Parent, K.N., Suhanovsky, M.M., Teschke, C.M. (2007) Polyhead formation in phage P22 pinpoints a region in coat protein required for conformational switching. *Molecular Microbiol.* 65, 1300-10.
46. Parent, K.N., Teschke, C.M. (2007) GroEL/S substrate specificity based on substrate unfolding propensity. *Cell Stress and Chaperones*, 12, 20-32.
47. Parent, K.N., Suhanovsky, M.M., Teschke, C.M. (2007) Phage P22 procapsids equilibrate with free coat protein subunits. *J. Mol. Biol.*, 365, 513-22.
48. Parent K.N., Zlotnick, A., Teschke, C.M. (2006) Quantitative analysis of multi-component spherical virus assembly: Scaffolding protein contributes to the global stability of phage P22 procapsids. *J. Mol. Biol.*, 359,1097-106.
49. Teschke, C.M. (2006) Molecular Glue to Cement a Phage. *Structure*, 14:803-4.
50. Parent, K.N., Doyle, S.M., Anderson, E., Teschke, C.M. (2005) Electrostatic interactions govern both nucleation and elongation during phage P22 procapsid assembly. *Virology*, 340, 33-45.
51. Parent, K.N, Ranaghan, M.J., Teschke, C.M. (2004) A second site suppressor of a folding defect functions via interactions with a chaperone network to improve folding and assembly in vivo. *Molecular Microbiol.*, 54, 1036-1050.
52. Doyle, S.M., Bilsel, O., Teschke, C.M. (2004) SecA folding kinetics: a large dimeric protein rapidly forms multiple native states. *J. Mol. Biol.*, 341, 199-214.
53. Doyle, S.M., Anderson, E., Parent, K.N, Teschke, C.M (2004) Enhanced interactions with chaperones due to an amino acid substitution in aggregation-prone variants of P22 coat protein. *J. Biol. Chem.*, 279, 17473-17482.
54. Doyle, S.M., Anderson, E., Zhu, D., Braswell, E.H., Teschke, C.M. (2003) Rapid unfolding of a domain populates an aggregation-prone intermediate that can be recognized by GroEL. *J. Mol. Biol.*, 332, 937-951.
55. Anderson, E., Teschke, C.M. (2003) Folding of Phage P22 Coat Protein Monomers: Kinetic and Thermodynamic Properties. *Virology*, 313, 184-197.
56. Teschke, C.M., McGough, A., Thuman-Commike, P.A. (2003) Penton release from P22 heat expanded capsids reveals importance of stabilizing penton-hexon interactions during capsid maturation. *Biophys. J.*, 84, 2585-2592.
57. Aramli, L.A., Teschke, C.M. (2001) Alleviation of a defect in folding by increasing the rate of subunit assembly. *J. Biol. Chem.*, 276, 25372-25377.
58. Doyle, S.M., Braswell, E.H., Teschke, C.M. (2000) SecA folds through a dimeric intermediate. *Biochemistry*, 39, 11667-11676.
59. de Beus, M.D., Doyle, S.M., Teschke, C.M. (2000) GroEL binds a late folding Intermediate of phage P22 coat protein. *Cell Stress & Chaperones*, 5, 163-172.
60. Capen, C.M., Teschke, C.M. (2000) Folding defects caused by single amino acid substitutions in a subunit are not alleviated by assembly. *Biochemistry*, 39, 1142-1151.
61. Aramli, L.A., Teschke, C.M. (1999) Single amino acid substitutions globally suppress the folding defects of temperature-sensitive-folding mutants of phage P22 coat protein. *J. Biol. Chem.*, 274, 22217-22224
62. Teschke, C.M. (1999) Aggregation and assembly of phage P22 temperature-sensitive coat protein mutants in vitro mimic the in vivo phenotype. *Biochemistry*, 38, 2873-2881.
63. Nakonechny, W.S., Teschke, C.M. (1998) GroEL and GroES control of substrate flux in the in vivo folding pathway of phage P22 coat protein. *J. Biol. Chem.*, 273, 27236-27244.
64. Fong, D.G., Doyle, S.M., Teschke, C.M. (1997) The folded conformation of phage P22 coat protein is affected by amino acid substitutions that lead to a cold-sensitive phenotype. *Biochemistry*, 36, 3971-3980.
65. Teschke, C.M., Fong, D.G. (1996) Interactions between coat and scaffolding protein of phage P22 are altered in vitro by amino acid substitutions in coat protein that cause a cold-sensitive phenotype. *Biochemistry*, 35, 14831-14840.

66. Teschke, C.M., King, J. (1995) In vitro folding of phage P22 coat protein with amino acid substitutions that confer in vivo temperature-sensitivity. *Biochemistry*, 34, 6815-6826.
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68. Teschke, C.M., King, J., Prevelige, P.E., Jr. (1993) Inhibition of capsid assembly by 1,1'-bi(4-anilino)naphthalene-5,5'-disulfonic acid. *Biochemistry*, 32, 10658-10665.
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70. King, J., Teschke, C.M., Haase-Pettingell, C., and Mittraki, A. (1993) Protein misfolding and inclusion body formation in prokaryotes. In: *Research Opportunities in Biomolecular Engineering: the interface between chemical engineering and biology*. (I. Glowinski and G. Georgiou, Eds.) N.I.H., Bethesda, MD, pp. 25-32
71. Teschke, C.M., King, J. (1992) Folding and assembly of oligomeric proteins in *Escherichia coli*. *Current Opinions in Biotechnology*, 3, 468-473.
72. Teschke, C.M., Kim, J., Song, T., Park, S., Park, C., Randall, L.L. (1991) Mutations that affect the folding of ribose-binding protein selected as suppressors of a defect in export in *Escherichia coli*. *J. Biol. Chem.*, 266, 11789-117962.

*Invited Symposia at National and International Conferences*

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| 2023 | Physical Virology Gordon Conference, Barga, Italy   |
| 2022 | American Society for Virology, Keynote Speaker, Madison, WI   |
| 2021 | Society for Mathematical Biology, June, online<br>"Using a scaffold to build a virus"   |
| 2019 | European Society of Clinical Microbiology and Infectious Diseases, Amsterdam, The Netherlands<br>"How to build a phage"<br>Phage and Virus Assembly, Keynote address<br>"The search for a second site and other amazing stories about phage P22's scaffolding protein"<br>American Society of Virology, invited speaker, satellite meeting<br>"The good, the (somewhat) bad, and the lucky: using sequence homology to inform structure/function experiments" |
| 2017 | American Society of Virology— 'State of the Art' Lecture<br>"Using nature's favorite building block: Assembly of icosahedral capsids"   |
| 2016 | FASEB Conference on Virus Assembly<br>"Portal protein: the business end of dsDNA viruses"   |
| 2014 | Mathematical Virology, York, UK<br>"Role of the I-domain in phage P22 coat protein folding and assembly: What do salt bridges have to do with it?"  |
| 2013 | Physical Virology Gordon Conference, CA<br>"Structure and Function of the Telokin-like Domain Inserted into Phage P22's Coat Protein"   |
| 2012 | 2 <sup>nd</sup> International Conference on Molecular Recognition, Rhodes, Greece<br>"Why so complicated? The impact of acidic substitutions in bacteriophage P22 scaffolding protein's C-terminal helix-turn-helix on its structure and activity."   |
| 2010 | FASEB Conference on Virus Assembly<br>"Virus assembly the P22 way: the role of scaffolding protein"<br>Mathematical Virology, Ambleside UK<br>"Determinants of bacteriophage P22 polyhead formation"  |



- 2007 Colorado Protein Stability Conference  
 “Understanding the Thermodynamics of Capsid Assembly”  
 20th biennial conference on Phage/Virus Assembly  
 “Polyhead formation in phage P22 pinpoints a region in coat protein required for conformational switching”
- 2005 Colorado Protein Stability Conference  
 “Control of the nucleation and elongation reactions of viral capsid assembly (and a little folding, too)”
- 1998 FASEB Conference on Protein Folding and Assembly in the Cell  
 “The role of GroEL/S in the folding of phage P22 coat protein”  
 FASEB Conference on Virus Assembly  
 “The conformation of phage P22 coat protein is affected by conditional lethal amino acid substitutions in all stages of biogenesis”
- 1996 FASEB Conference on Protein Folding and Assembly in the Cell  
 “Folding and assembly of cold-sensitive P22 coat protein mutants”

*Session Chair at International Conferences*

- 2017 Session Chair, 25<sup>th</sup> Biannual Phage/Virus Assembly meeting  
 2016 Session Chair, FASEB Summer Conference on Virus Structure and Assembly  
 2013 Session Chair, 23<sup>rd</sup> Biannual Phage/Virus Assembly meeting  
 2011 Session Chair, 22<sup>nd</sup> Biannual Phage/Virus Assembly meeting  
 2011 Session chair, Gordon Conference on Physical Virology  
 2010 Moderator, Hot Topics discussion, Mathematical Virology meeting  
 2009 Session Chair, 21<sup>st</sup> Biannual Phage/Virus Assembly Meeting  
 2007 Session Chair, 20<sup>th</sup> Biannual Phage/Virus Assembly Meeting  
 2003 Session Chair, 18<sup>th</sup> Biannual Phage/Virus Assembly Meeting  
 2000 Session Chair, FASEB Summer Conference on Virus Assembly

*Invited Departmental Seminars – International*

- 2022 Fulbright Forum, Cardiff, Wales, UK  
 Birkbeck College, College of London, UK  
 University of Leicester, UK  
 University of York, UK
- 2016 ESTH officers meeting, U.S. Dept. of State, Bangkok, Thailand  
 2009 Universitaet Potsdam, Physikalishe Biochimie, Postdam, Germany  
 2001 Vrije Universiteit, Biochemistry Department, Amsterdam, The Netherlands  
 2000 Universitaet Potsdam, Physikalishe Biochimie, Postdam, Germany  
 1999 Institut de Biologie Structurale, Grenoble, France

*Invited Departmental Seminars – National*

- 2022 University of Minnesota, Shelly Grimes Memorial Lecture  
 2018 University of Pittsburgh Biology Dept  
 UConn Health, Dept. of Microbiology and Structural Biology  
 2016 New York University, Department of Chemical and Biomolecular Engineering  
 North Carolina State University, Biochemistry Dept.  
 National Academy of Sciences, Distinguished JSF lecture  
 NIH Lambda lunch

2015 U.S. Dept. of State, Mini University  
 2008 University of Alabama Medical School, Microbiology Dept.  
 Bates College, Maine, Chemistry Dept.  
 2007 Univ. of Kentucky Medical School, Biochemistry Dept.  
 Univ. of Missouri-Columbia Medical School, Biochemistry Dept.  
 2003 Purdue University, Biochemistry Dept.  
 2002 North Carolina State University, Raleigh. Biochemistry Dept.  
 1999 University of Connecticut, Pharmacy Dept.  
 1998 Washington State University, Biochemistry and Biophysics Dept.  
 1997 Wesleyan University, Biochemistry and Microbiology Dept.  
 1996 Univ. of Connecticut Health Science Center, Biochemistry & Microbiology Dept.  
 1995 University of New York, Stony Brook, Microbiology and Genetics Dept.

*Abstracts and Poster Presentations (last 5 years)*

2022 Leroux, M.N., and Teschke, C.M. Characterization of portal protein residues involved in the signal for dna packaging completion in bacteriophage P22. FASEB Summer Conference on *Virus Structure and Assembly*.  
 Bridges, C.M. and Teschke C.M. Development of an *in vitro* DNA packaging system in bacteriophage P22. FASEB Summer Conference on *Virus Structure and Assembly*.

2019 Dedeo, C., and Teschke, C.M. Characterization of bacteriophage P22 scaffolding protein mutants that later phage assembly. *26<sup>th</sup> Biannual Phage/Virus Assembly meeting*  
 Whitehead, R. and Teschke, C.M. Scaffolding protein characterization of P22 and closely related bacteriophages. *26<sup>th</sup> Biannual Phage/Virus Assembly meeting*.  
 Banerjee, S., and Teschke, C.M. Elucidation of the protein conformational changes occurring during assembly of bacteriophage P22 coat protein. *Physical Virology Gordon Conference. (chosen for a short talk)*

2018 Newcomer, R.L., Schrad, J.R., Gilcrease, E.B., Casjens, S.R., Feig, M., Teschke, C.M., Alexandrescu, A.T., Parent, K.N. Structure and Function of the Phage L Decoration Protein, FASEB Summer Conference on *Virus Structure and Assembly. (chosen for a short talk)*.  
 Motwani, T. Woodbury, B.M. and Teschke, C.M. Tripping over tryptophans: targeting key residues in phage P22 portal protein crucial for incorporation into procapsids. FASEB Summer Conference on *Virus Structure and Assembly*.  
 Tripler, T. N., Kaplan A. D., Alexandrescu, A. T., Teschke, C. M., Structure-function conservation and divergence in the P22-like phage coat protein I-domains. *American Society for Virology meeting*  
 Asija K., and Teschke C.M The role of E-loop in capsid stability and maturation of Bacteriophage P22. *American Society for Virology meeting*  
 Alexandrescu, A.T., Tripler, T.N., Kaplan, A.R., Parent, K.N., Teschke, C.M. Idp segment conservation and divergence in i-domains of the phage lambda supercluster. *Biophysical Society meeting*.

2017 Motwani, T., Teschke, C.M. Scaffolding protein: An engineer of the portal ring complex in bacteriophage P22, *25<sup>th</sup> Biannual Phage/Virus Assembly meeting*- chosen as a short talk  
 Sanchari, B., Teschke C.M. Elucidation of the protein conformational changes occurring during assembly of P22 bacteriophage coat protein, *25<sup>th</sup> Biannual Phage/Virus Assembly meeting*.

- 2016 Asija, K., Teschke, C.M. Amino acyl residues crucial to capsid size determination in bacteriophage P22. FASEB Summer Conference on *Virus Structure and Assembly*.
- Motwani, T., Cortines, J.R., Lokareddy, R., Dunbar, C., Jarrold, M., Cingloani, G., Teschke, C.M. A novel role for phage P22's scaffolding protein: triggering portal ring oligomerization and incorporation during procapsid assembly. FASEB Summer Conference on *Virus Structure and Assembly*.

### **UNIVERSITY SERVICE**

#### Major University Responsibilities

President's Research Advisory Committee	2020-2023
Chair, Research Advisory Council	2018-2019
Search committee member: Dean of the School of Engineering	2013-2014
University Scholars Selection Committee	2003-2009,2010-2015
Chair, University Radiation Safety Committee	2005-2015
Institutional Biological Safety Committee	2006-2009
Provost's Academic Plan Implementation Committee	2004-2005

#### University Responsibilities

University Research Policy Review committee	2018
Research Advisory Council	2017-2019
Faculty Senate	2011-2015,2016-2017
Senate Growth and Development Committee	2013-2015
Advisory Committee Member for the Institute for Materials Sciences	2013-2015
Senate Faculty Standards Committee	2011- 2013
Campus Master Plan Advisory Committee	2014-2015
Selection committee for the Master Plan Architectural Firm	2014
Co-organizer for Women in Math, Science & Engineering Conference on 'Negotiating your Way to Success'	2007
University Radiation Safety Committee	2004-2005
University Lab Safety Committee	1997-2000

### **COLLEGE OF LIBERAL ARTS AND SCIENCES SERVICE**

Dean CLAS Promotion and Tenure Review Advisory Committee	2013-2014,2016-2018
Search committee member, Director of Biology	2017
Academic Leadership Team for Effective Recruiting & Retention (ALTERR) committee	2010-2012
College of Liberal Arts and Sciences grade appeal committee	2018-2019
College of Liberal Arts and Sciences Course & Curriculum Committee	2001-2002

### **DEPARTMENTAL SERVICE**

#### Major Molecular and Cell Biology Departmental Responsibilities

Member, Search Committee, Genetics and Genomics	2019-2020
Member, Search Committee, Structural Biology, Biochemistry, Biophysics	2016-2017
Director of Educational and Research Resources for MCB	2013-2015
Chair of the Graduate Biochemistry Field of Study	2010-2011, 2002-2007, 1996-2000
Chair, MCB Awards Committee	2001-2015
Chair, Promotion and Tenure Review Committee	2008, 2009

Member, Promotion and Tenure Review Committee, elected yearly by department faculty	2003, 2006 2008-2011
Member, Search Committee, Structural Biologist	2011
Graduate Admissions Committee	1999-2000,2006-2009
Search Committee Chair, Biochemistry Faculty	2007-2008
Member, Search Committee for two Microbiology Faculty	2006-2007
Chair, Search Committee, joint search for Protein Crystallographer in IMS/MCB	2003-2004
Member, Search Committee, Protein Crystallographer	2003-2004
Member, Search Committee for Biochemistry Faculty	1998-1999

#### Molecular and Cell Biology Departmental Activities

Education Committee for the Partnership in Structural Biology	2005-2007
Courses and Curriculum Committee	2001-2006
Biology Honors Advisor	2006-2008
Laboratory Teaching Space Subcommittee	1998-2000
Graduate Advisory Committee	1997-2000
Teaching Laboratory Assistant Search Committee	1999
Teaching Laboratory Coordinator Search Committee Member	1997
Organizer of the 8th Annual Departmental Retreat	Fall 1996
Organizer of the 7th Annual Departmental Retreat	Fall 1995

## **TEACHING**

### *Research Training*

#### *Post-doctoral Associates:*

Juliana Cortines, Ph.D, Aug. 2021-current (sabbatical leave from Universidade Federal do Rio de Janeiro)  
Charles Bridges, PhD. Aug. 2021-current

#### *Previous:*

Sanchari Banerjee, Ph.D., Nov. 2015-June 2021. Current Position: Scientist, Mercy BioAnalytics, Boston MA  
Tina Motwani, Ph.D., 2012-2018, Current Position: Assistant general manager, Intas Pharmaceuticals Ltd (Biopharma Division), Ahmedabad, India  
Nadia D’Lima, Ph.D., 2014-2015, Current Position: Research Scientist, Biogen, Cambridge, MA  
Kevin Robbins, Ph.D., 2013-2014, Current Position: NMR Specialist, AstraZeneca, Waltham, MA  
Juliana Cortines, Ph.D. 2008-2011, Current Position: Associate Professor—Universidade Federal do Rio de Janeiro, Brazil  
Shannon Doyle, Ph.D., 2002-2004, Current Position: Program Officer, National Cancer Institute  
Mitchel de Beus, Ph.D., 1995-1998, deceased

#### *Ph.D. Students:*

Makayla Leroux, current  
Richard Whitehead, current, co-advisor Andrei Alexandrescu

#### *Previous:*

Corynne Dedeo (graduated 08/2022) Current position: Medical Associate at Health Science Communications. Storrs, CT  
Rebecca Newcomer, co-advisor Andrei Alexandrescu, (graduated 08/2020), Current position: Lab tech for MCB teaching labs  
Therese Tripler (graduated 05/2019), Current Position: Post-doc Yale University  
Kunica Asija (graduated 05/2019), Current Position: Senior Research Associate, UC Berkeley.

Nadia D’Lima (graduated 05/2013), Current Position: Scientist, Biogen, Cambridge, MA  
Margaret Suhanovsky (graduated 05/2013); Current position: New England Regional Manager, Eurofins, Cambridge, MA  
Gay Pauline Padilla-Meier (graduated 06/2012), Current position: Adjunct Biochemistry Instructor  
Kristin Parent (graduated 04/2007), Current position: Associate Professor, Michigan State University  
Shannon Doyle (graduated 12/2002), Current position: Program Officer at the NIH  
Lili Aramli (graduated 08/2000), Current position: Biology teacher at Hartford Science Magnet School

*Master’s Degree students:*

Garrett Skidds, current  
Sichu Wang, current

*Previous:*

Jackson Keaton (graduated 2021)  
Alessandro Rizzo (graduated 2013), Current Position: Completed PhD at UConn Health, now at Silicon Therapeutics, Cambridge MA  
Molly Siegel Pollard (graduated 2013), Current Position: Manager, Analytics Consulting at Profitect Inc, Boston, MA  
Jie Hou (graduated 2007), Current Position: Officer in the Air Force  
Miriam Mei-Yen Lau (graduated 2002), Current Position: Quality Assurance Specialist at Miltenyi Biotec  
Walter Nakonechny (graduated 2000), Current Position: Associate Director, Genomic Education, The Jackson Laboratory

*Undergraduate Researchers:*

Nancy Fuller, current

*Previous University Scholars:*

Aashay Vyas (2012-2014), *Physician, Madera, CA*  
Jie Hou (2005-2007), *Officer in the Air Force*

*Previous Independent Study Students: Michelle Ruiz (2020) graduated UConn 2020; Rachel Grella (2019) UConn Student; Brianna Woodbury (2017-2018) Technician Teschke Lab, UConn; Oghenefejiro Okifo (2014-2016), attending Harvard Medical School; Jonathan Novak (2010-2012), Scientist at Pfizer; Long Tu (2007-2010), Physician, Yale University; Gregory Moore (2005); Joseph deBartolo (2004-2005), Principal Scientist Pfizer; Miriam Mei-Yen Lau (2000-2001), Quality Assurance Specialist at Miltenyi Biotec.; Sara Reynolds (2000); Hilary Whitlatch (1997-1999), Physician, Assistant Professor, University of Maryland School of Medicine; Elizabeth Cresman (1995-1997); Monique Samuels (1995-1997); Derek Fong (1994-1996), Physician, Harbor City, CA; Mike Masone (1995)*

*Classroom Teaching:*

Current: Virology, Virus Hunters (HHMI SEA-PHAGES program), Biological Optical Spectroscopy  
Previous: Biochemistry, Advanced Biochemistry Lab, Protein Folding,