

Curriculum Vitae – Nicolas L. Fawzi

1. Name, position, academic department (s)

Nicolas L. Fawzi, Ph.D.
Professor of Medical Science
Department of Molecular Biology, Cell Biology, and Biochemistry
Brown University

2. Work address

Room 129 Box G-E, 70 Ship St. Providence RI 02912

3. Education

2002 B.S. in Engineering, University of Pennsylvania
2002 B.S. in Economics, The Wharton School, University of Pennsylvania
2007 Ph.D., Bioengineering, UCSF/UC Berkeley Joint Graduate Group in
Bioengineering, University of California, Berkeley
Thesis: Early events in protein aggregation studied by physical
simulations.
Advisor: Teresa Head-Gordon

4. Professional appointments

2007-2012 NIDDK, National Institutes of Health, Postdoctoral Fellow
Topic: Structural biology of protein association and aggregation
Advisor: G. Marius Clore

2013-2019 Assistant Professor of Medical Science, Department of Molecular
Pharmacology, Physiology, and Biotechnology, Brown University

2019-2021 Associate Professor (with tenure)

2021-2023 Associate Professor, Department of Molecular Biology, Cell
Biology, and Biochemistry

2023- Professor, Department of Molecular Biology, Cell Biology, and
Biochemistry

Additional appointments

2016- Brown University, Division of Biology and Medicine, Structural
Biology Core Facility Director

2016- University of Rhode Island, George and Anne Ryan Institute for
Neuroscience, Adjunct Ryan Research Assistant Professor of
Neuroscience.

2023- Affiliate, Department of Chemistry

Consulting work:

2018 Tivorsan Pharmaceuticals
2020-2023 Dewpoint Therapeutics
2023- Confluence Therapeutics

5. Completed Research, Scholarship and/or Creative Work

a. Chapters in book

1. Cellmer T, **Fawzi NL**. Coarse-grained simulations of protein aggregation.
Methods Mol Biol. 899: 453-470. (2012).

2. Venditti V, **Fawzi NL**. Probing the Atomic Structure of Transient Protein Contacts by Paramagnetic Relaxation Enhancement Solution NMR. *Methods Mol Biol.* 1688:243-255. (2018).

b. Refereed journal articles

Training period

1. Brown S, **Fawzi NJ**, Head-Gordon T. Coarse-grained sequences for protein folding and design. *Proc Natl Acad Sci U S A.* 100: 10712-10717. (2003).
2. **Fawzi NL**, Chubukov V, Clark LA, Brown S, Head-Gordon T. Influence of denatured and intermediate states of folding on protein aggregation. *Protein Sci.* 14: 993-1003. (2005).
3. Marianayagam NJ*, **Fawzi NL***, Head-Gordon T. Protein folding by distributed computing and the denatured state ensemble. *Proc Natl Acad Sci U S A.* 102: 16684-16689. (2005). (*equal contributions)
4. Pflieger BF, **Fawzi NJ**, Keasling JD. Optimization of DsRed production in Escherichia coli: effect of ribosome binding site sequestration on translation efficiency. *Biotechnol Bioeng.* 92: 553-558. (2005).
5. **Fawzi NL**, Okabe Y, Yap EH, Head-Gordon T. Determining the critical nucleus and mechanism of fibril elongation of the Alzheimer's A β (1-40) peptide. *J Mol Biol.* 365: 535-550. (2007).
6. Lin MS, **Fawzi NL**, Head-Gordon T. Hydrophobic potential of mean force as a solvation function for protein structure prediction. *Structure.* 15: 727-740. (2007).
7. Yap EH, **Fawzi NL**, Head-Gordon T. A coarse-grained alpha-carbon protein model with anisotropic hydrogen-bonding. *Proteins.* 70: 626-638. (2008).
8. **Fawzi NL**, Yap EH, Okabe Y, Kohlstedt KL, Brown SP, Head-Gordon T. Contrasting disease and nondisease protein aggregation by molecular simulation. *Acc Chem Res.* 41: 1037-1047. (2008).
9. **Fawzi NL**, Phillips AH, Ruscio JZ, Doucleff M, Wemmer DE, Head-Gordon T. Structure and dynamics of the A β (21-30) peptide from the interplay of NMR experiments and molecular simulations. *J Am Chem Soc.* 130: 6145-6158. (2008).
10. **Fawzi NL**, Kohlstedt KL, Okabe Y, Head-Gordon T. Protofibril assemblies of the arctic, Dutch, and Flemish mutants of the Alzheimer's A β 1-40 peptide. *Biophys J.* 94: 2007-2016. (2008).
11. **Fawzi NL***, Doucleff M*, Suh JY, Clore GM. Mechanistic details of a protein-protein association pathway revealed by paramagnetic relaxation enhancement titration measurements. *Proc Natl Acad Sci U S A.* 107: 1379-1384. (2010). (*equal contributions)

12. **Fawzi NL**, Ying J, Torchia DA, Clore GM. Kinetics of amyloid beta monomer-to-oligomer exchange by NMR relaxation. *J Am Chem Soc.* 132: 9948-9951. (2010).
13. Ruscio JZ, **Fawzi NL**, Head-Gordon T. How hot? Systematic convergence of the replica exchange method using multiple reservoirs. *J Comput Chem.* 31: 620-627. (2010).
14. Ball KA, Phillips AH, Nerenberg PS, **Fawzi NL**, Wemmer DE, Head-Gordon T. Homogeneous and heterogeneous tertiary structure ensembles of amyloid-beta peptides. *Biochemistry.* 50: 7612-7628. (2011).
15. **Fawzi NL***, Fleissner MR*, Anthis NJ*, Kalai T, Hideg K, Hubbell WL, Clore GM. A rigid disulfide-linked nitroxide side chain simplifies the quantitative analysis of PRE data. *J Biomol NMR.* 51: 105-114. (2011). (*equal contributions)
16. **Fawzi NL**, Ying J, Ghirlando R, Torchia DA, Clore GM. Atomic-resolution dynamics on the surface of amyloid-beta protofibrils probed by solution NMR. *Nature.* 480: 268-272. (2011).
17. Venditti V, **Fawzi NL**, Clore GM. Automated sequence- and stereo-specific assignment of methyl-labeled proteins by paramagnetic relaxation and methyl-methyl nuclear Overhauser enhancement spectroscopy. *J Biomol NMR.* 51: 319-328. (2011).
18. **Fawzi NL**, Ying J, Torchia DA, Clore GM. Probing exchange kinetics and atomic resolution dynamics in high-molecular-weight complexes using dark-state exchange saturation transfer NMR spectroscopy. *Nat Protoc.* 7: 1523-1533. (2012).
19. Venditti V, **Fawzi NL**, Clore GM. An efficient protocol for incorporation of an unnatural amino acid in perdeuterated recombinant proteins using glucose-based media. *J Biomol NMR.* 52: 191-195. (2012).
20. Libich DS*, **Fawzi NL***, Ying J, Clore GM. Probing the transient dark state of substrate binding to GroEL by relaxation-based solution NMR. *Proc Natl Acad Sci U S A.* 110:11361-11366. (2013). (*equal contributions)
21. **Fawzi NL**[†], Libich DS, Ying J, Tugarinov V., Clore GM[†]. Characterizing methyl-bearing side chain contacts and dynamics mediating amyloid β protofibril interactions using $^{13}\text{C}_{\text{methyl}}$ -DEST and lifetime line broadening. *Angew Chem Int Ed Engl.* 53:10345-9. (2014) ([†]co-corresponding authors)

Independent Publications as Assistant Professor:

22. Conicella AE, **Fawzi NL**⁺. The C-terminal threonine of A β 43 nucleates toxic aggregation via structural and dynamical changes in monomers and protofibrils. *Biochemistry*. 53:3095-105. (2014) (⁺corresponding author)
23. Burke KA, Janke AM, Rhine CL, **Fawzi NL**⁺. Residue-by-Residue View of In Vitro FUS Granules that Bind the C-Terminal Domain of RNA Polymerase II. *Molecular Cell*. 60:231-41. (2015) (⁺corresponding author)
- Featured in a Preview article in *Molecular Cell*.
 - Web of Science “Highly Cited Publication”
 - 645 citations to date (Google Scholar, 3/4/2023).
 - 20th most in 2017 citations for *Molecular Cell* papers published in 2015+2016, Journal Citation reports
24. Conicella AE, Zerze GH, Mittal J, **Fawzi NL**⁺. ALS mutations disrupt phase separation mediated by α -helical structure in the TDP-43 low complexity C-terminal domain. *Structure*. 24:1537-49. (2016) (⁺corresponding author)
- Featured in a Preview article in *Structure*.
 - Web of Science “Highly Cited Publication”
 - 572 citations to date (Google Scholar, 3/4/2023).
 - 2nd most in 2017 citations for *Structure* papers published in 2015+2016, Journal Citation reports
 - 1st in 2018 citations for *Structure* papers published in 2016+2017, Journal Citation reports
25. Boeynaems S, Bogaert E, Kovacs D, Konijnenberg A, Timmerman E, Volkov A, Guharoy M, De Decker M, Jaspers T, Ryan VH, Janke AM, Baatsen P, Vercruyssen T, Kolaitis R, Daelemans D, Taylor JP, Kedersha N, Anderson P, Impens F, Sobbot F, Schymkowitz J, Rousseau F, **Fawzi NL**, Robberecht W, Van Damme P, Tompa P, Van Den Bosch L. Phase separation of C9orf72 dipeptide repeats perturbs stress granule dynamics. *Molecular Cell*. 65:1044-1055. (2017) Featured on cover of *Molecular Cell*.
26. Monahan Z*, Ryan VH*, Janke AM, Burke KA, Rhoads SN, Zerze GH, O'Meally R, Dignon GL, Conicella AE, Zheng W, Best RB, Cole RN, Mittal J, Shewmaker F⁺, **Fawzi NL**⁺. Phosphorylation of the FUS low-complexity domain disrupts phase separation, aggregation, and toxicity. *EMBO J*. 36:2951-2967. (2017). (*equal contributions) (⁺co-corresponding authors)
- Featured on the cover and in a News and Views article in *EMBO J*.
 - Web of Science “Highly Cited Publication”
 - 479 citations to date (Google Scholar, 3/4/2023).
 - 6th most in 2018 citations for *EMBO Journal* papers published in 2016+2017, Journal Citation reports
 - 6th most in 2019 citations for *EMBO Journal* papers published in 2017+2018, Journal Citation reports

27. Janke AM, Seo DH, Rahmanian V, Conicella AE, Mathews KL, Burke KA, Mittal J, **Fawzi NL**⁺. Lysines in the RNA Polymerase II C-Terminal Domain Contribute to TAF15 Fibril Recruitment. *Biochemistry*. 57, 2549-2563. (2018) (⁺corresponding author)
28. Dempsey ME, Marble HD, Shen TL, **Fawzi NL**, Darling EM. Synthesis and Characterization of a Magnetically Active 19F Molecular Beacon. *Bioconjug Chem*. 29, 335-342. (2018).
29. Ryan VH, Dignon GL, Zerze GH, Chabata CV, Silva R, Conicella AE, Amaya J, Burke KA, Mittal J, **Fawzi NL**⁺. Mechanistic View of hnRNPA2 Low-Complexity Domain Structure, Interactions, and Phase Separation Altered by Mutation and Arginine Methylation. *Molecular Cell*. 69, 465-479. (2018). (19 citations). (⁺corresponding author)
 - 273 citations to date (Google Scholar, 3/4/2023).
30. Wang A*, Conicella AE*, Schmidt HB, Martin EW, Rhoads SN, Reeb AN, Nourse A, Ramirez Montero D, Ryan VH, Rohatgi R, Shewmaker F, Naik MT, Mittag T, Ayala YM, **Fawzi NL**⁺. A single N-terminal phosphomimic disrupts TDP-43 polymerization, phase separation, and RNA splicing. *EMBO Journal*. 37, e97452. (2018). (*equal contributions) (⁺corresponding author)
 - 262 citations to date (Google Scholar, 3/4/2023).
 - 15th most in 2019 citations for EMBO Journal papers published in 2017+2018, Journal Citation reports
 - 15th most in 2020 citations for EMBO Journal papers published in 2018+2019, Journal Citation reports
31. Kaye EG, Booker M, Kurland JV, Conicella AE, **Fawzi NL**, Bulyk ML, Tolstorukov MY, Larschan E. Differential Occupancy of Two GA-Binding Proteins Promotes Targeting of the Drosophila Dosage Compensation Complex to the Male X Chromosome. *Cell Reports*. 222, 3227-3239. (2018).
32. Boeynaems S, Alberti S, **Fawzi NL**, Mittag T, Polymenidou M, Rousseau F, Schymkowitz J, Shorter J, Wolozin B, Van Den Bosch L, Tompa P, Fuxreiter M. Protein Phase Separation: A New Phase in Cell Biology. *Trends in Cell Biology*. 28, 420-435. Review. (2018). doi: 10.1016/j.tcb.2018.02.004 (Review article)
33. Yoshizawa T, Ali R, Jiou J, Fung HYJ, Burke KA, Kim SJ, Lin Y, Peeples WB, Saltzberg D, Soniat M, Baumhardt JM, Oldenbourg R, Sali A, **Fawzi NL**, Rosen MK, Chook YM. Karyopherin- β 2 inhibits phase separation of FUS through binding multiple sites. *Cell*. 173, 693-70. (2018).
34. Johnston T, Van Tyne D, Chen RF, **Fawzi NL**, Kwon B, Kelso MJ, Gilmore MS, Mylonakis E. Propyl-5-hydroxy-3-methyl-1-phenyl-1H-pyrazole-4-carbodithioate (HMPC): a new bacteriostatic agent against methicillin-resistant *Staphylococcus aureus*. *Sci Rep*. 8, 7062. (2018).

35. Fratta P, Sivakumar P, Humphrey J, Lo K, Ricketts T, Oliveira H, Brito-Armas JM, Kalmar B, Ule A, Yu Y, Birsa N, Bodo C, Collins T, Conicella AE, Mejia Maza A, Marrero-Gagliardi A, Stewart M, Mianne J, Corrochano S, Emmett W, Codner G, Groves M, Fukumura R, Gondo Y, Lythgoe M, Pauws E, Peskett E, Stanier P, Teboul L, Hallegger M, Calvo A, Chiò A, Isaacs AM, **Fawzi NL**, Wang E, Housman DE, Baralle F, Greensmith L, Buratti E, Plagnol V, Fisher EM, Acevedo-Arozena A. Mice with endogenous TDP-43 mutations exhibit gain of splicing function and characteristics of amyotrophic lateral sclerosis. *EMBO J.* 37, e98684. (2018).
36. Amaya J*, Ryan VH*, **Fawzi NL**⁺. The SH3 domain of Fyn kinase interacts with and induces liquid-liquid phase separation of the low complexity domain of hnRNPA2. *Journal of Biological Chemistry.* 293,19522-19531 (2018). (*co-first authors) (⁺corresponding author)
- Selected as highlighted publication (top 2% of papers in JBC).
37. Yanagi KS, Wu Z, Amaya J, Chapkis N, Duffy AM, Hajdarovic KH, Held A, Mathur AD, Russo K, Ryan VH, Steinert BL, Whitt JP, Fallon JR, **Fawzi NL**, Lipscombe D, Reenan RA, Wharton KA, Hart AC. Meta-analysis of Genetic Modifiers Reveals Candidate Dysregulated Pathways in Amyotrophic Lateral Sclerosis. *Neuroscience.* 396:A3-A20. (2019).

Independent Publications as Associate Professor (after tenure and promotion)

Fawzi laboratory authors: undergraduate student[#], graduate student[†], postdoctoral[‡], research assistant/associate[§]

38. Murthy AC[†], Dignon GL, Kan Y, Zerze GH, Parekh SH, Mittal J, **Fawzi NL**⁺. Molecular interactions underlying liquid-liquid phase separation of the FUS low-complexity domain. *Nat Struct Mol Biol.* 26, 637-648. (2019). (⁺co-corresponding authors)
- 327 citations to date (Google Scholar, 3/4/2023).
 - Web of Science “Highly Cited Publication”
 - 6th most in 2021 citations for Nat Struct Mol Biol papers published in 2019+2020 (1st for non-SARS-CoV-2 paper), Journal Citation reports
39. Stackpole EE, Akins MR, Ivshina M, Murthy AC[†], **Fawzi NL**, Fallon JR. EGFP insertional mutagenesis reveals multiple FXR2P fibrillar states with differing ribosome association in neurons. *Biol Open.* 8, bio046383. doi: 10.1242/bio.046383. (2019).
40. Ryan VH[†], **Fawzi NL**⁺. Physiological, Pathological, and Targetable Membraneless Organelles in Neurons. *Trends Neurosci.* 42, 693-708. (2019). *Review.* (⁺corresponding author)
41. Murthy AC[†], **Fawzi NL**⁺. The (un)structural biology of biomolecular liquid-liquid phase separation using NMR spectroscopy. *J Biol Chem.* 295, 2375-2384. (2020). *Review.* (⁺corresponding author)

42. Conicella AE^{*†}, Dignon GL^{*}, Zerze GH, Schmidt HB, D'Ordine AM[†], Kim YC, Rohatgi R, Ayala YM, Mittal J⁺, **Fawzi NL**⁺. TDP-43 α -helical structure tunes liquid-liquid phase separation and function. *Proc Natl Acad Sci U S A*. 117(11):5883-5894. (2020) (*co-first authors) (⁺co-corresponding authors)
- Web of Science “Highly Cited Publication”
 - 186 citations to date (Google Scholar, 3/4/2023).
43. Frazer C, Staples MI, Kim Y, Hirakawa M, Dowell MA, Johnson NV, Hernday AD, Ryan VH[†], **Fawzi NL**, Finkelstein IJ, Bennett RJ. Epigenetic cell fate in *Candida albicans* is controlled by transcription factor condensates acting at super-enhancer-like elements. *Nat Microbiol*. 5, 1374-1389. (2020)
44. Ryan VH[†], Watters S[§], Amaya J[#], Khatiwada B, Venditti V, Naik MT, **Fawzi NL**⁺. Weak binding to the A2RE RNA rigidifies hnRNPA2 RRM2s and reduces liquid-liquid phase separation and aggregation. *Nucleic Acids Research*. 48, 10542-10554. (2020). (⁺corresponding author)
45. Tang WS[†], **Fawzi NL**, Mittal J. Refining All-Atom Protein Force Fields for Polar-Rich, Prion-like, Low-Complexity Intrinsically Disordered Proteins. *J Phys Chem B*. 124, 9505-9512. (2020).
46. Perdikari TM^{**†}, Murthy AC^{**†}, Ryan VH^{*†}, Watters S^{*§}, Naik MT, **Fawzi NL**⁺. SARS-CoV-2 nucleocapsid protein phase-separates with RNA and with human hnRNPs. *EMBO J*. 39, e106478. (2020) (*co-first authors) (⁺corresponding author)
- 150 citations to date (Google Scholar, 3/4/2023).
47. Zheng W, Dignon GL, Jovic N, Xu X, Regy RM, **Fawzi NL**, Kim YC, Best RB, Mittal J. Molecular Details of Protein Condensates Probed by Microsecond Long Atomistic Simulations. *J Phys Chem B*. 124, 11671-11679. (2020).
48. Ryan VH[†], Perdikari TM[†], Naik MT, Saueressig CF, Lins J, Dignon GL, Mittal J, Hart AC⁺, **Fawzi NL**⁺. Tyrosine phosphorylation regulates hnRNPA2 granule protein partitioning & reduces neurodegeneration. *EMBO Journal*. 40, e105001. (2021). (⁺co-corresponding authors)
- 29 citations to date (Google Scholar, 3/4/2023).
49. Bock AS^{*†}, Murthy AC^{*†}, Tang WS[†], Jovic N, Shewmaker F, Mittal J, **Fawzi NL**⁺. N-terminal acetylation modestly enhances phase separation and reduces aggregation of the low-complexity domain of RNA-binding protein fused in sarcoma. *Protein Sci*. 30, 1337-1349. (2021). (*co-first authors)(⁺corresponding author)
50. Perdikari TM[†], Jovic N, Dignon GL, Kim YC, **Fawzi NL**⁺, Mittal J⁺. A predictive coarse-grained model for position-specific effects of post-

- translational modifications. *Biophys J.* 120, 1187-1197. (2021) (⁺co-corresponding authors)
51. Yuan F, Alimohamadi H, Bakka B, Trementozzi AN, Day KJ, **Fawzi NL**, Rangamani P, Stachowiak JC. Membrane bending by protein phase separation. *Proc Natl Acad Sci U S A.* 118, e2017435118. (2021)
 52. Newton JC, Naik MT, Li GY, Murphy EL, **Fawzi NL**, Sedivy JM, Jogle G. Phase separation of the LINE-1 ORF1 protein is mediated by the N-terminus and coiled-coil domain. *Biophys J.* 120, 2181-2191. (2021)
 53. Lin YC, Kumar MS, Ramesh N, Anderson EN, Nguyen AT, Kim B, Cheung S, McDonough JA, Skarnes WC, Lopez-Gonzalez R, Landers JE, **Fawzi NL**, Mackenzie IRA, Lee EB, Nickerson JA, Grunwald D, Pandey UB, Bosco DA. Interactions between ALS-linked FUS and nucleoporins are associated with defects in the nucleocytoplasmic transport pathway. *Nat Neurosci.* 24, 1077-1088. (2021)
 54. **Fawzi NL**⁺, Parekh SH, Mittal J. Biophysical studies of phase separation integrating experimental and computational methods. *Curr Opin Struct Biol.* 70:78-86. (2021) (⁺corresponding author)
 55. Duan J, Rieder L, Colonna MM, Huang A, Mckenney M, Watters S[§], Deshpande G, Jordan W, **Fawzi N**, Larschan E. CLAMP and Zelda function together to promote Drosophila zygotic genome activation. *Elife.* 10. doi: 10.7554/eLife.69937. (2021)
 56. Owen I, Yee D, Wyne H, Perdikari TM[†], Johnson V, Smyth J, Kortum R, **Fawzi NL**, Shewmaker F. The oncogenic transcription factor FUS-CHOP can undergo nuclear liquid-liquid phase separation. *J Cell Sci.* 134, jcs258578. (2021)
 57. Hallegger M, Chakrabarti AM, Lee FCY, Lee BL, Amalietti AG, Odeh HM, Copley KE, Rubien JD, Portz B, Kuret K, Huppertz I, Rau F, Patani R, **Fawzi NL**, Shorter J, Luscombe NM, Ule J. TDP-43 condensation properties specify its RNA-binding and regulatory repertoire. *Cell.* 184, 4680-4696. (2021)
 58. Murthy AC[†], Tang WS[†], Jovic N, Janke AM^{§#}, Seo DH[#], Perdikari TM[†], Mittal J, **Fawzi NL**⁺. Molecular interactions contributing to FUS SYGQ LC-RGG phase separation and co-partitioning with RNA polymerase II heptads. *Nat Struct Mol Biol.* 28:923-935. (2021) (⁺corresponding author)
 59. Chatterjee S, Kan Y, Brzezinski M, Koynov K, Regy RM, Murthy AC[†], Burke KA[†], Michels JJ, Mittal J, **Fawzi NL**, Parekh SH. Reversible Kinetic Trapping of FUS Biomolecular Condensates. *Adv Sci (Weinh).* 9:e2104247. (2021)

60. Viola MG*, Perdikari TM*[†], Trebino CE, Rahmani N, Mathews KL[†], Pena CM[†], Chua XY[†], Xuan B[†], LaBreck CJ, **Fawzi NL**, Camberg JL. An enhancer sequence in the intrinsically disordered region of FtsZ promotes polymer-guided substrate processing by ClpXP protease. *Protein Sci.* 31:e4306. (2022) *co-first authors
 61. Maltseva D*, Chatterjee S*, Yu CC, Brzezinski M, Nagata Y, Gonella G, Murthy AC[†], Stachowiak JC, Fawzi NL, Parekh S, Bonn M. Fibril formation and ordering of disordered FUS LC driven by hydrophobic interactions. *Nature Chemistry.* (accepted) (*co-first authors)
 62. Kumar MS, Stallworth KM, Murthy AC[†], Lim SM, Li N, Jain A, Munro JB, **Fawzi NL**, Lagier-Tourenne C, Bosco DA. Interactions between FUS and the C-terminal Domain of Nup62 are Sufficient for their Co-phase Separation into Amorphous Assemblies. *J Mol Biol.* 435:167972. (2023).
 63. Staples MI, Frazer C, **Fawzi NL**, Bennett RJ. Phase separation in fungi. *Nature Microbiology.* 8:375-386. (2023). *Review.*
- c. Pre-prints (with manuscripts in review)**
1. Perdikari TM[†], Murthy AC[†], **Fawzi NL**⁺. Molecular insights into the effect of alkanediols on FUS liquid-liquid phase separation. *bioRxiv* 2022.05.05.490812; doi: <https://doi.org/10.1101/2022.05.05.490812> (⁺corresponding author)
 2. Mohanty P*, Shenoy J*[‡], Rizuan A*, Mercado Ortiz JF[†], **Fawzi NL**⁺, Mittal J⁺. Aliphatic residues contribute significantly to the phase separation of TDP-43 C-terminal domain. *bioRxiv* 2022.11.10.516004; doi: <https://doi.org/10.1101/2022.11.10.516004> (*co-first authors) (⁺co-corresponding authors)
- d. Non-Refereed journal articles**
1. Mittag T, **Fawzi NL**. Protein quality and miRNA slicing get into phase. *Nat Cell Biol.* 20, 635-637. (2018).
 2. Cable J, Brangwynne C, Seydoux G, Cowburn D, Pappu RV, Castañeda CA, Berchowitz LE, Chen Z, Jonikas M, Dernburg A, Mittag T, **Fawzi NL**. Phase separation in biology and disease—a symposium report. *Ann N Y Acad Sci.* 1452, 3-11. (2019).
 3. **Fawzi NL**. Elastin phase separation - structure or disorder? *Nat Rev Mol Cell Biol.* 21, 568-569. (2020).
 4. Giamb Bruno R, Grzybowska EA, **Fawzi NL**, Dormann D. Editorial: The Role of Protein Post-Translational Modifications in Protein-RNA Interactions and RNP Assemblies. *Front Mol Biosci.* 8:831810. (2021) doi: 10.3389/fmolb.2021.831810.
- e. Abstracts and Conference Presentations**

1. **Fawzi NJ**. Fibril type assemblies from a coarse-grained model of aggregation. Podium presentation. *American Chemical Society, Spring National Meeting*. 2005.
2. **Fawzi NJ**, Chubukov V, Clark LA, Brown S, Head-Gordon T. Denatured and intermediate state protection from aggregation: Insights from protein simulations. Podium presentation. *American Chemical Society, Spring National Meeting*. 2005.
3. **Fawzi NL**. Denatured and intermediate state protection from aggregation: Insights from protein simulations. Conference abstract. *Protein Folding Dynamics, Gordon Research Conference*. 2006.
4. **Fawzi NL**, Yap EH, Head-Gordon T. Molecular simulations of fibril stability and elongation of the Alzheimer's A beta 1-40 peptide. Podium presentation. *American Chemical Society, Fall National Meeting*. 2006.
5. Yap EH, **Fawzi NL**, Head-Gordon T. A physics-based, coarse-grained model with orientation-dependent hydrogen bond potential for investigating protein folding. Conference abstract. *American Chemical Society, Fall National Meeting*. 2006.
6. **Fawzi NL**. Denatured and intermediate state protection from aggregation: Insights from protein simulations. Conference abstract. *Berkeley Mini Statistical Mechanics Meeting*. 2007.
7. **Fawzi NL**, Head-Gordon T. Joining NMR and simulation to capture Alzheimer's A beta monomer and fibril structural ensembles. Podium presentation. *American Chemical Society, Fall National Meeting*. 2007.
8. **Fawzi NL**, Head-Gordon T. Forcefields for A β simulations: TIP4P-Ew and Amber99SB. Conference abstract. *American Chemical Society, Fall National Meeting*. 2007.
9. Lin MS, **Fawzi NL**, Head-Gordon T. Hydrophobic potential of mean force as a solvation function for protein structure prediction. Conference abstract. *American Chemical Society, Fall National Meeting*. 2007.
10. **Fawzi NL**. Engineering faster associating protein complexes by PRE characterization of transient encounter states. Conference abstract. *International Conference on Magnetic Resonance in Biological Systems*. 2008.
11. **Fawzi NL**, Doucleff M, Clore GM. Paramagnetic relaxation enhancement NMR for the structural characterization of amyloid beta 40 and 42 oligomers in aqueous buffers. Podium presentation. *American Chemical Society, Fall National Meeting*. 2009.
12. **Fawzi NL**. Amyloid-beta Monomer-to-Oligomer Exchange Kinetics by NMR Relaxation. Conference Abstract. *Frontiers of NMR in Biology, Keystone Symposium*. 2011.
13. **Fawzi NL**. DEST: a solution NMR method to probe dynamics on the surface of amyloid beta protofibrils at atomic resolution. Podium presentation. *The 17th International Biophysics Congress (IUPAB)*. 2011.
14. **Fawzi NL**. Kinetics of amyloid-beta monomer to oligomer exchange by NMR relaxation. Podium presentation. *Biophysical Society Annual Meeting*. 2011.
15. **Fawzi NL**. Dynamics on the surface of amyloid-beta protofibrils in solution: Dark-state exchange saturation transfer NMR. Podium presentation. *American Chemical Society, Fall National Meeting*. 2012.

16. **Fawzi NL.** Dark-state Exchange Saturation Transfer: a solution NMR method to probe dynamics on the surface of amyloid beta protofibrils at atomic resolution. Podium presentation. *The 51st Annual Meeting of the NMR Society of Japan.* 2012.
17. **Fawzi NL,** Ying J, Ghirlando R, Torchia DA, Clore GM. Dark-state Exchange Saturation Transfer: a solution NMR method to probe dynamics on the surface of amyloid beta protofibrils at atomic resolution. Podium presentation. *12th Chianti/INSTRUCT Workshop on BioNMR.* 2012.

Presentations as Assistant Professor

18. **Fawzi NL.** NMR Methods to Monitor Protein Aggregation and Monomer-Aggregate Interaction Kinetics at Atomic Resolution. Podium presentation (invited). *The Bioprocessing Summit.* 2013.
19. **Fawzi NL.** Seeing high molecular weight dynamic complexes: Dark-state exchange saturation transfer NMR. Podium presentation. *The 13th Upstate NY NMR Symposium.* 2013
20. **Fawzi NL,** Conicella AE. Slow motions in the monomer and protofibril-bound states of A β 43, a potent aggregate nucleator in Alzheimer's Disease. Conference Abstract. *55th Experimental Nuclear Magnetic Resonance Conference.* 2013
21. Burke KA, Silva R, **Fawzi NL.** Dynamic assembly of the unstructured prion-like domain of FUS in solution. Conference Abstract. *26th International Conference on Magnetic Resonance in Biological Systems.* 2014.
22. **Fawzi NL.** Characterizing the dynamic formation of disease protein aggregates using Dark-state Exchange Saturation Transfer (DEST) NMR. Podium Presentation (invited). *Eastern Analytical Symposium.* 2014.
23. **Fawzi NL.** An atomistic view of the liquid-liquid phase separated state of FUS. *Intracellular Phase Transitions: RNA, Protein, Lipids and Beyond (Princeton University).* Podium Presentation. 2015
24. **Fawzi NL.** Atomic details of FUS granules that bind the C-terminal domain of RNA polymerase II. *12th Annual New England Structure Symposium.* Podium Presentation (invited). 2015
25. **Fawzi NL.** Atomic Details of RNA-Binding Protein Phase Separation Mediated by Low Complexity Domains. *Gordon Research Conference, Intrinsically Disordered Proteins.* Podium Presentation. 2016
26. **Fawzi NL.** Structural details of RNA-binding protein disordered domain phase separation in ALS and cancers. *30th Anniversary Symposium of the Protein Society.* Podium Presentation. 2016
27. **Fawzi NL.** Structural details of disordered protein granule formation and aggregation associated with neurodegenerative diseases. *16th Eibsee Meeting "Cellular Mechanisms of Neurodegeneration".* Podium Presentation (invited). 2016
28. **Fawzi NL.** Visualizing structural details of disordered domain phase separation associated with ALS and cancers. Podium Presentation. *Biophysical Society Biopolymers in Vivo subgroup symposium.* 2017.
29. **Fawzi NL.** Visualizing structural details of disordered domain phase separation associated with ALS and cancers. Podium Presentation. *Rhode Island IDeA Meeting.* 2017.

30. **Fawzi NL.** Visualizing structural details of disordered domain phase separation associated with ALS and cancers. Podium Presentation. *Phase Transitions in Biology and Disease*, organized by KU Leuven, Belgium. 2017.
31. **Fawzi NL.** Using NMR and simulations to see structural details of phase separating IDPs. Podium Presentation. *Telluride Science Research Center Workshop: Intrinsically Disordered Proteins*. 2017.
32. **Fawzi NL.** Seeing disordered protein LLPS with atomistic detail– role of disease mutation, post translational modification, and structured regions in LLPS, aggregation, and function. Podium presentation. EMBO | EMBL Symposium: Cellular Mechanisms Driven by Liquid Phase Separation. 2018.
33. **Fawzi NL.** Disease Mutations and Post-Translational Modifications Alter Disordered Protein Liquid-Liquid Phase Separation. Podium presentation. *32nd Symposium of the Protein Society*. Podium presentation (invited). 2018.
34. **Fawzi NL.** Functional and pathological RNA-binding protein phase separation with atomistic detail. Podium presentation. *5th RNA Metabolism in Neurological Disease Conference*. 2018.
35. **Fawzi NL.** Functional and pathological RNA-binding protein phase separation with atomistic detail. Podium presentation (invited). *Cellular aspects of phase separation*. New York Academy of Sciences. 2019.
36. **Fawzi NL.** Functional and pathological RNA-binding protein phase separation with atomistic detail. Podium presentation (invited). *March Annual Meeting*. American Physical Society. 2019.
37. **Fawzi NL.** Structural biology of RNA-binding protein phase separation in health and disease. Podium presentation (invited). *Molecular Biophysics in the Northeast*. 2019.

Presentations as Associate Professor (after tenure and promotion)

38. **Fawzi NL.** Seeing the molecular details linking aggregation and phase separation of RNA-binding proteins FUS and TDP-43. Podium presentation (invited). 2021 FASEB Summer Research Conference on The Protein Aggregation: Function, Dysfunction, and Disease. 2021.
39. **Fawzi NL.** Seeing the residue-by-residue details of phase separating proteins using NMR spectroscopy. Webinar (invited). Liquid-liquid phase separation (LLPS) of proteins and their role in pathology - Protein Society Webinar. 2020
40. **Fawzi NL.** Solution NMR of phase separated disordered proteins associated with cancer and neurodegeneration. Webinar (invited). Emerging Topics in Biomolecular Magnetic Resonance, supported by ICMRBS and EUROMAR. 2021.
41. **Fawzi NL.** Using NMR spectroscopy to see RNA-binding protein phase separation. Podium Presentation (invited). Biophysical Society Annual symposium. 2022. *Anastasia Murthy, former PhD student, presented in place of me due to shoulder fracture.*
42. **Fawzi NL.** Using NMR spectroscopy to see RNA-binding protein phase separation. Podium Presentation (invited). Biopolymers Murray Goodman Memorial Prize for G Marius Clore Symposium, Spring National Meeting, American Chemical Society. March 2022.
43. **Fawzi NL.** Using NMR spectroscopy to see RNA-binding protein phase separation and aggregation. Webinar (invited). Molecular Bases of Proteinopathies Webinar Series. March 2022.

44. **Fawzi NL.** Seeing disordered protein LLPS with atomistic detail– role of disease mutation, post translational modification, and structured regions in LLPS, aggregation, and function. Podium presentation. EMBO | EMBL Symposium: Cellular Mechanisms Driven by Liquid Phase Separation. May 2022 (invited).
45. **Fawzi NL.** Visualizing disordered domain phase separation associated with ALS and cancers. Podium presentation (zoom). GlycoNMR Summit, May 2022 (invited).
46. **Fawzi NL.** Seeing the atomic determinants of phase separation in function and disease. Invited presentation for Young Investigator Award. 36th Symposium of the Protein Society. Podium presentation (invited). 2022.
47. **Fawzi NL.** Seeing the atomic determinants of phase separation in function and disease. Podium presentation (invited). XXIX International Council on Magnetic Resonance in Biological Systems Meeting. 2022.
48. **Fawzi NL.** Structural details of protein phase separation by NMR spectroscopy. (Invited presentation). Phase Separation Regulated Life, In and Outside of Cells - LLPS Workshop Singapore. March 2023.
49. **Fawzi NL.** Seeing the molecular and atomic details of biomolecular condensates. (invited). NIH Common Fund Workshop on Biomolecular Condensates / RADAR. March 2023.

f. Invited lectures

1. National Institutes of Health, NIDDK, Laboratory of Chemical Physics, September 2007.
2. National Institutes of Health, Structural Biology Interest Group, April 2010.
3. Princeton University, Department of Chemistry, January 2012.
4. Michigan State University, Department of Chemistry and Department of Biochemistry, January 2012.
5. Ohio State University, Department of Chemistry and Biochemistry, February 2012.
6. Medical College of Wisconsin, Department of Biochemistry, February 2012.
7. Brown University, Department of Molecular Pharmacology, Physiology, and Biotechnology, February 2012.
8. Lehigh University, Department of Chemical Engineering, March 2012.
9. Brown University, Molecular Biology, Cellular Biology, and Biochemistry Graduate Program Seminar Series, September 2012.
10. Osaka University, Institute for Protein Research, November 2012.
11. National Institutes of Natural Sciences, Okazaki Institute for Integrative Bioscience, November 2012.
12. Providence College, Department of Chemistry, November 2013.
13. Rhode Island Hospital, Orthopaedics Department, May 2015.
14. Women and Infants Hospital, Pediatrics Department, June 2015.
15. Columbia University, Department of Biochemistry and Molecular Biophysics, January 2016. *Atomic details of the prion-like domain of FUS in membrane-less organelles associated with ALS and cancers.*
16. Rhode Island Hospital, Orthopaedics Department, April 2016. *A molecular switch for RNA-binding protein aggregation in inclusion body myositis, ALS, and Ewing's sarcoma.*

17. University of Massachusetts Medical School, Biochemistry and Pharmacology, April 2016. *Structural biology of low complexity protein domain aggregation and phase separation in ALS and cancers.*
18. Iowa State University, Department of Biochemistry, January 2017.
19. Albert Einstein College of Medicine, Department of Biochemistry, February 2017.
20. University of Massachusetts Medical School, Neurology, February 2017.
21. University of Connecticut Health Center, Molecular Biology and Biophysics, February 2017.
22. University of Michigan, Department of Biophysics, April 2017.
23. Rhode Island Hospital, Orthopaedics Department, June 2017.
24. Dartmouth College, Department of Chemistry, October 2017.
25. Yale University, Biophysics seminar series, February 2018.
26. University of Texas at Austin, Institute for Cell and Molecular Biology Seminar series, September 2018.
27. City College of New York (CCNY) and the CUNY Advanced Science Research Center (ASRC), Biochemistry, Biophysics, and Biodesign seminar series, February 2019.
28. Weill Cornell Medicine, Biochemistry Department Seminar Series, January 2020.
29. Rhode Island College, Department of Biology, February 2020.
30. TU Delft Bionanoscience Department, March 2021.
31. Faze Medicines, September 2022.
32. Genentech, November 2022.
33. University of Washington, Biochemistry Department Series, *planned for 2023-2024 academic year.*

g. Media coverage of scholarship

1. Alzforum article: *Do Membraneless Organelles Host Fibril Nucleation?* October 8, 2015.
2. Brown Daily Herald: *Researchers explore protein with potential link to cancer.* October 29, 2015.
3. Alzforum article: *Helical Tail Holds Sway Over TDP-43 Packaging.* September 7, 2016.
4. Alzforum article: *Phosphorylation of FUS Does Away with Droplets.* August 8, 2017.
5. Alzforum article: *How Does a Neuron Avoid Aggregation of Liquid Protein Droplets?* February 2, 2018.
6. Alzforum article: *Structural Biology Sheds Light on Regulation of Liquid-Liquid Phase Transition.* April 6, 2018.

h. Webinars

1. Alzforum webinar: *Fluid Business: Could "Liquid" Protein Herald Neurodegeneration?* October 30, 2015.
<https://www.alzforum.org/webinars/fluid-business-could-liquid-protein-herald-neurodegeneration>
2. *Liquid-Liquid Phase Separation: Interactions, Function, and Disease.* March 15, 2018. Biophysical Journal / Cell Press biophysics week webinar,

<https://www.biophysics.org/blog/biophysics-week-webinar-liquid-liquid-phase-separation-interactions-function-and-disease>

3. *Biomolecular Liquid-Liquid Phase Separation: What Does Magnetic Resonance Tell Us About the Phase-Separated State?* ISMAR Conversations on Magnetic Resonance. October 10, 2019.
<https://tube.switch.ch/videos/3f4e6c4f>

6. Research grants

Current grants

1845734 (PI: Fawzi) 2/1/2019 – 1/31/2024
National Science Foundation (BIO, MCB) (\$913,703 total)
CAREER: Structural aspects of glutamine-rich domain liquid-liquid phase separation in transcription and RNA processing
The major goal of this project is to reveal the molecular interactions of glutamine residues in phase separation of regions of proteins conserved from yeast to invertebrates.

R01NS116176 (MPIs: Fawzi and Mittal) 4/1/2020 – 3/31/2025
NIH, NINDS and NIA (\$2,649,190 direct, \$699,545 indirect)
Functional and pathological interactions of TDP-43
The major goals of this project is to determine the atomistic details of the assembly of a helical sub-region of TDP-43, identify how known and novel post-translational modifications and disease-associated mutations alter TDP-43 assembly and function, and map the structural basis of interactions of TDP-43 with poly(ADP-ribose) and importin machinery that serve as promising therapeutic targets.
Amount does not include \$221,569 Supplement for Diversity and \$50,000 Supplement for helium recovery.

R01GM147677 (PI: Fawzi) 9/23/2022 – 8/31/2026
NIH, NIGMS (\$1,200,000 direct, \$367,594 indirect)
Residue-by-residue details of FUS protein phase separation and interactions
The major goal of project is to determine the structure of the protein FUS and its interactions with RNA polymerase II C-terminal domain and RNA.

P20GM103430 supplement for Helium Recovery (PI: Cho – Fawzi: subcontract PI)
5/1/2022 – 4/30/2023
NIH, NIGMS (\$200,000 direct)
Supplement for Helium Recovery – Rhode Island IDeA Network
The major goal is to acquire helium liquification system for helium recycling.

2233775 (PI: Fawzi) 9/15/2022 – 8/31/2025
NSF BIO DBI (\$322,300 direct)
Equipment: Helium Recovery Equipment: Securing Rhode Island and Southern New England NMR structural biology infrastructure
The major goal is to acquire helium recovery and purification system for helium recycling.

Carney Innovation Award (PIs: Hart and Fawzi) 1/1/2020 – 12/31/2024
Carney Institute for Brain Science, Brown University (\$465,000 total; \$200,000 for Fawzi)

Targeting Huntington's disease from disease genes to molecular interactions
The major goals of this project are to identify the toxic species in HD using new organism models of Huntington's disease and probe the molecular structure of these toxic assemblies.

Faculty Seed Award (PI: Wessel, Co-PI: Fawzi) 3/1/2022 – 6/30/2023
Brown University (Grant total: \$75,000. Fawzi: \$35,500)

An extracellular Prion-like protein is essential for fertilization
The major goal of this project is to reveal the structural basis for bindin protein function in sea urchin fertilization and for species specificity. My specific role is to perform preliminary NMR spectroscopy on sea urchin bindin, the protein in question important in fertilization.

R01AI081704 (PI: Bennett, Co-I: Fawzi) 9/1/2022 – 8/31/2027
NIH, NIAID

Transcriptional Regulation of C. albicans Cell Fate and Host Interactions
The project seeks to understand the role of prion-like domain containing transcription factors in *C. albicans* that control phenotypic switching. My specific role is perform NMR spectroscopy on phase separating transcription factors involved in phenotypic switching in *C. albicans*.

Completed grants

Major completed grants:

R01GM118530 (PI: Fawzi) 4/7/2016 – 3/31/2022 (NCE)
NIH, NIGMS (\$1,129,917 direct, \$472,058 indirect)

Turning off the molecular switch for pathological self-assembly of FUS
The major goal of project is to determine the structure of the protein FUS and its ALS-associated variants along its assembly pathway and test the potential for post translational modification to alter the self-assembly in cancer and neurodegenerative disease.

RGP0045/2018 (Parekh and Fawzi, equal co-investigators) 7/1/2018 – 6/30/2022
Human Frontier Science Program (at Brown: \$340,909 direct, 34,091 indirect)

Structure and biophysics of disordered domains mediating RNP granules: from atoms to cells
The major goal of this project is to develop a physical-chemical toolbox based on *in situ* molecular spectroscopies to experimentally observe protein contacts that stabilize membraneless organelles in cells.

P20GM104937-07 (PI: Chen, Investigator: Fawzi) 9/1/2013-8/30/2017
COBRE for Skeletal Health and Repair, RIH (\$326,041 direct, \$77,959 indirect)
Prime sponsor: NIGMS/NIH

Seeds of protein aggregation in inclusion body myositis
The major goal of this pilot project is to develop a molecular picture of aggregation of hnRNP proteins in inclusion body myositis and myopathy.

Additional completed grants:

Graduate Fellowship in Biomedical Engineering 09/01/2002-08/31/2006
Whitaker Foundation (\$126,000 direct)

P20GM103430 (Shaikh, PI; Fawzi, Project Investigator) 11/15/2012-04/30/2013
RI-IDEA/INBRE; Prime sponsor: NIGMS/NIH
Research Proposal Development Project (\$15,000 direct, \$9300 indirect)
Structural characterization of soluble and neurotoxic aggregates of FUS
The goal of this project was to develop the protocols for recombinant protein expression and purification of FUS, a human RNA binding protein that forms neuronal inclusions in ALS and frontotemporal dementia.

Medical Research Grant (PI: Fawzi) 3/1/2014 – 2/28/2015
Rhode Island Foundation (\$15,000 direct)
Finding the molecular switch of FUS protein aggregation in neurodegeneration
The major goal of this project is to determine how ALS-causing mutations and post-translation modifications in the protein FUS affect aggregation.

Richard B. Salomon Faculty Research Award (PI: Fawzi) 3/1/2015 – 2/28/2016
Brown University (\$15,000 direct)
Turning off the molecular switch for RNA-binding protein aggregation in neurodegenerative diseases
The major goal of this project is to map the effect of disease-causing mutations in the protein FUS and evaluate the potential of post-translational modification to act as the protein clustering switch.

DEANS Award (PIs: Fawzi/Sharma) 7/1/2015-12/31/2016
Brown University (\$80,000 direct)
Protein Aggregation in Preeclampsia: New Mechanism for a Deadly Pregnancy Disease
The major goal of this project is to elucidate the role of protein aggregation in etiology of preeclampsia.

17-IIP-342 (PI: Fawzi) 8/1/2016 – 12/31/2017
ALS Association (\$45,455 direct, \$4545 indirect)
Disruption of TDP-43 granule assembly by ALS mutations
The major goal of this project is to understand how ALS associated mutations alter TDP-43 self-assembly via its prion-like domain.

ALS Research Grant (PI: Fawzi) 1/1/2017 – 12/31/2017
Judith and Jean Pape Adams Foundation (\$40,909 direct, \$4091 indirect)
Mapping the mechanistic details of TDP-43 phosphorylation as a toxic switch in ALS
The major goal of this project is to understand how phosphorylation and post-translational modifications alter TDP-43 aggregation in ALS.

Faculty Seed Award (PI: Fawzi, Co-PI: Mowry), 3/1/2016 – 6/30/2018
Brown University (\$50,000 direct)
Visualizing the dynamic architecture of germ granules

The major goal of this project is to determine the molecular interactions between prion-like domains mediating assembly of germ granule components in *Xenopus laevis* oocytes.

GRH_AWD_006108 (PI: Hart; Co-PI: Fawzi) 8/1/2018-7/31/2019
ALS Association (Total \$100,000; \$25,000 for my work)
Mechanisms underlying neuronal dysfunction and death in ALS caused by mutation of PFN1

The major goal of this project is to understand the etiology of familial forms of ALS caused by mutations in profilin.

Brown COVID-19 Research Seed Award 5/15/2020 – 5/15/2021
Brown University (PI: Naik; Co-PIs: Jogl, Atwood, Fawzi) (\$40,000 shared)
Structure-based design of inhibitors against SARS-CoV-2 nucleocapsid protein
This research will identify inhibitors of SARS-CoV-2 nucleocapsid protein that can potentially be further developed as drugs against coronaviruses.

R21GM118530 (PI: Bennett, Co-I: Fawzi) 1/15/2018 – 12/31/2020 (NCE)
NIAID, NIH (for my minor subproject: \$10,032 direct, \$6,270 indirect)
Defining the role of prion-like domains in a C. albicans transcription factor network
The major goal of this project is to evaluate if the glutamine-rich disordered domains of transcription factors regulating phenotype switching in a pathogenic yeast control transcription via phase separation mediated self-assembly

P20GM103430 (Cho, PI; Fawzi, Project Mentor) 5/1/2019-04/30/2022
RI-IDEA/INBRE; Prime sponsor: NIGMS/NIH
Collaborative Research Project (Subcontract total \$90,000 direct, \$55,174 indirect)
The effects of N-terminal acetylation on the structure and aggregation of Tau
The goal of this project is to provide mentorship for Dr. William Holmes, Assistant Professor at Rhode Island College (a PUI in Providence, RI) and to assist and support his laboratory's structural and biophysical characterization of tau and the effect of N-terminal acetylation.

Faculty Seed Award (PI: Bennett, Co-PI: Fawzi) 3/1/2021 – 6/30/2022
Brown University (Grant total: \$75,000. Fawzi: \$35,500)
Structure and Post-Translational Modifications of Candida Transcription Factors and their Impact on Phase Separation
The major goal is to probe how *C. albicans* transcription factors undergo LLPS and how post-translational modifications (PTMs) regulate transcription networks.

7. Service

a. To the scientific profession

Conference organization

Sailing the Protein Seas in the Ocean State
Brown University, Providence, RI – April 2016

Role: co-organizer

Intrinsically Disordered Proteins: Structure, Function, and Interactions
Role: Equal co-organizer with Jeetain Mittal, Lehigh University

Division of Physical Chemistry, American Chemical Society
252nd American Chemical Society National Meeting
Philadelphia, PA – August 2016

2019 Subgroup Saturday Symposium for Intrinsically Disordered Proteins Subgroup
Role: Equal co-organizer with Hue Sun Chan, University of Toronto
Biophysical Society 2019 Annual Meeting
Baltimore, MD – March 2019

Scientific Society Leadership

Biophysical Society, Intrinsically Disordered Protein Subgroup
Role: Chair-elect (2019-2020), Chair (2020-2021), Executive committee (2021-2022)

Advisory Committees

External Advisory Committee, Biological Magnetic Resonance Data Bank (BMRB)
2020 - present

Society Memberships

2005-present Member of American Chemical Society
2015-present Member of Protein Society
2015-present Member of Biophysical Society

Journal reviewing

2005-present Ad-hoc reviewer for *Nature*, *Biophysical Journal*, *Journal of Molecular Biology*, *Journal of Structural Biology*, *Protein Expression and Purification*, *Journal of Biological Chemistry*, *FEBS Journal*, *FEBS Letters*, *Journal of Biological Chemistry*, *Cellular and Molecular Bioengineering*, *Concepts in Magnetic Resonance Part A*, *Biochemistry*, *Molecules*, *Journal of Neurochemistry*, *Brain Research*, *Nature Communications*, *Research and Reports in Biology*, *PLoS ONE*, *PNAS*, *Science Advances*, *Journal of Physical Chemistry Letters*, *Scientific Reports*, *Nature Structural and Molecular Biology*, *EMBO Journal*, *Molecular Cell*

Editor duties

2020 Editor for “The Role of Protein Post-Translational Modifications in Protein-RNA Interactions and RNP Assemblies” article collection for *Frontiers in Molecular Biosciences*

Proposal reviewing

2014 MRC (UK) grant review
2015 Alzheimer’s Association grant review
2016 Human Frontier Science Program grant review
2016 National Science Foundation grant review
2016 Agence Nationale de la Recherche (ANR, French National Research Agency) grant review
2016 Reviewer for Special Emphasis panel, Biological Chemistry & Macromolecular Biophysics (BCMB) IRG (Integrated Review

- Group) Center for Scientific Review (CSR), NIH. Reviewer #1 for one R01, reviewer 2 and 3 for two R01s and one R21
- 2017 Reviewer for Special Emphasis panel, Biological Chemistry & Macromolecular Biophysics (BCMB) IRG (Integrated Review Group) Center for Scientific Review (CSR), NIH. Reviewer #1 for one R21, reviewer 2 and 3 for two R01s
- 2018 Reviewer for Lister Institute Research Prizes
- 2018 Invited as Reviewer for German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) for Priority Program “Molecular mechanisms of functional phase separation” (SPP 2191), declined
- 2022 National Science Foundation grant review panel, BIO Directorate, Panel Member

Advising, Judging, and Speaking about mentoring

- 2008 NIH Graduate Student Symposium, Poster Judge
- 2011, 2012 NIH Postbaccalaureate Poster Day, Poster Judge
- 2012 Physical Chemistry Student Poster session, American Chemical Society Fall National Meeting, Judge
- 2016 Poster Judge for conference: Gordon Research Conference, Intrinsically Disordered Proteins.
- 2018 University of Massachusetts, Dartmouth, Undergraduate Research Mentoring Symposium, invited as keynote speaker
- 2018, 2022 Poster Judge for conference: EMBO | EMBL Symposium: Cellular Mechanisms Driven by Liquid Phase Separation.

Academic Advising – undergraduate Biology Concentration advising

Brian Franklin '16
 Samuel Sander Efron '16
 Megan McCarthy '19
 Valerie Zhu '19
 Troy Li '20
 Mary Lou '22
 Matthew Rossman '23
 Rachyl Francisco '23
 Eric Sorge '24
 Josephine Miner '24
 Nhu Tran '25

Student research mentoring

Undergraduate students:

Kohana Leuba (Brown '14) biomedical engineering, graduated with honors
 3 semester of independent study (BIOL 1950/60, spring 2013, fall 2013, spring 2014)
 Summer 2013 UTRA fellow (declined)
 Graduate with honors
 Thesis: *Aggregation of the low complexity domain of FUS: effect of temperature and ALS-associated disease mutations*
 Awarded: George H. Main '45 Award from Engineering
 Subsequent position: co-op at Genentech, South San Francisco, CA

Subsequent position: co-op Biogen IDEC, Cambridge, MA
Subsequent position: research associate at Juno Therapeutics, Seattle, WA
Subsequent position: process engineer I,II at Juno Therapeutics and Bristol Myers Squibb, Seattle, WA
Subsequent position: senior engineer I, process development, Be Biopharma

Jamie Fried (Brown '14) neuroscience, graduated with honors
2 semester of independent study (BIOL 1950/60, fall 2013, spring 2014)
Summer 2013 UTRA fellow: *Do mutations in the protein FUS speed aggregation to cause neurodegenerative disease?*
Thesis: *Observing the Neurodegenerative Disease Associated Aggregation of the Protein FUS Using NMR Spectroscopy*
Subsequent position: Research Technician, Lab of Richard Axel, Columbia University, NY
Subsequent position: Neuroimaging Research Associate, Kallyope

Louis Taylor (Tulane '14) biochemistry
Summer 2013 Undergrad research assistant
Subsequent position: Post baccalaureate IRTA fellow, NIH Intramural Program
Subsequent position: Graduate student, Molecular Biology, University of Penn.

Lillian Duran (Brown '14) biology
2 semester of independent study (BIOL 1950/60, fall 2013, spring 2014)
Subsequent position: Medical student, Brown University

Charlene Chabata (Brown '16) biochemistry, graduated with honors
Summer 2014 Team UTRA fellow: *Locating functional interaction sites in the prion-like domains of RNA-binding proteins*
Summer 2015 UTRA *Why does a single missense mutation in an unstructured domain of hnRNP A2 cause multisystem proteinopathy?* (declined)
Summer 2015 LINK Award recipient (Brown University) for work at African Institute of Biomedical Science, Zimbabwe
Richard J. Goss Prize in Experimental Biology, 2016
Project for Peace, role: PI, 2016
Subsequent position: PhD program in Biology, Duke University, advanced to candidacy
Subsequent position: Senior Scientist, DICE Therapeutics.

Abigail Janke (Brown '16) computational biology, graduated with honors
3 semester of independent study (BIOL 1950/60)
Summer 2014 Team UTRA fellow: *Locating functional interaction sites in the prion-like domains of RNA-binding proteins*
Summer 2015 UTRA fellow: *Visualizing the atomic details of the complex of RNA polymerase II C-terminal domain binding to RNA-binding protein transcriptional activation domains*
Senior Biology Prize for Academic Excellence, 2016
Brown University Distinguished Thesis Prize, 2016 (*sole prize in natural science*)
Subsequent position: Research Assistant, Fawzi laboratory, Brown University
Subsequent position: Tri-institutional MD-PhD Program Weill Cornell/Rockefeller/Sloan Kettering

Daniel Ramirez Montero (Brown '16) biochemistry, graduated with honors
3 semester of independent study (BIOL 1950/60)
Summer 2014 Team UTRA fellow: *Locating functional interaction sites in the prion-like domains of RNA-binding proteins*

Chemistry department 2015 Junior Prize in Biochemistry
Lleallyn B. Clapp Prize for Outstanding Senior Honors Thesis in Biochemistry, 2016
Subsequent position: Early Development Programme, AstraZeneca
Subsequent position: PhD program in Biology, Massachusetts Institute of Technology (transferred to Nanoscience Department, TU Delft University, NL)

Da Hee Seo (Brown '17) biochemistry, graduated with honors
3 semester of independent study (BIOL 1950/60)
Summer 2016 Team UTRA fellow: *Structural details of protein-protein interactions in ribonucleoprotein granules*
Subsequent position: Graduate student, PhD program in Biology, University of Texas South Western Medical Center (UTSW)

Joshua Amaya (Brown '18) neuroscience
2 semester of independent study (BIOL 1950/60)
Summer 2016 Team UTRA fellow: *Structural details of protein-protein interactions in ribonucleoprotein granules*
Summer 2017 UTRA fellow: *Determining the interactions and structural details of the low complexity domain of heterogeneous nuclear ribonucleoprotein A2 (hnRNP A2) and Fyn kinase*
Neuroscience Award For Excellence in Academics and Research
Subsequent position: Post baccalaureate fellow, laboratory of National Institutes of Health.
Subsequent position: Medical Student, UT Southwestern.
Subsequent position: Resident, Radiology, University of Texas.

Shivam Nadimpalli (Brown '19) applied math
Summer 2016 Team UTRA fellow: *Structural details of protein-protein interactions in ribonucleoprotein granules*

Mark Liang (Brown '19) biochemistry
3 semester of independent study (BIOL 1950/60)
Fall 2016 UTRA fellow: *Probing the structural and molecular interactions of the domains of FUS*
Summer 2017 UTRA fellow: *Investigating Phase Separation in Frog Oocyte Proteins*
Summer 2018 UTRA fellow: *In-Vitro Analysis of FUS and its Mutations in Neurodegenerative Disease*
Subsequent position: Research Assistant, Kaiser Permanente School of Medicine
Subsequent position: Medical Student, University of California, Irvine (2022 -)

Jonathan Huang (Brown '20)
Summer research, summer 2017

David Bautista (Texas A&M Kingsville '18)
Leadership Alliance summer research student, summer 2017

Soham Kale (Brown '21)
Volunteer Research (computational), Fall 2017-Summer 2019
Summer 2018 UTRA fellow: *Automation of NMR Spectroscopy Protein Assignment using Simulated Annealing Algorithm*
Subsequent position: Medical student, Dartmouth College

Rahul Jayaram (Brown '21)
Volunteer Research (computational), Spring 2018

Jacob Marglous (Brown '21)

Student Research Assistant, Summer 2019

Semester UTRA fellow, Fall 2019

Subsequent position: Brown PLME medical student

Valentin Kirilenko (Brown '24)

Volunteer Research, Fall 2021, Spring 2022

Summer 2022 UTRA fellow: *Impact of RGG1 domain on intermolecular drivers of Liquid-Liquid Phase Separation in the FUS Low-Complexity Domain*

Samara Cummings (Brown '24)

Volunteer Research, Fall 2021, Spring 2022

Summer 2022 UTRA fellow: *Investigation of FUS-RNA interaction in the context of liquid-liquid phase separation*

Leanna Bai (Brown '25)

Volunteer Research, Spring 2022

Summer 2022 NSF supported research: *Assessing the Impact of ALS-Associated Mutations on TDP-43 CTD Aggregation Capacity and Interactions*

PhD students

Alexander Conicella (MCB, entered 2012)

Rotation: April/May 2013

Joined group: June 2013

Advanced to candidacy: May 2014

Defended PhD: March 2018, left laboratory July 2018.

Barry Jay Rosen Memorial Award, MCB Department

Subsequent position: postdoctoral research with Lewis Kay, University of Toronto

Subsequent position: Senior scientist, C4 Therapeutics.

Veronica Ryan (NSGP, entered 2014), **NIH NINDS F31 Fellow**

Rotation: August-October 2014

Joined group: June 2015

Advanced to candidacy: May 2015

Defended PhD: August 2020, left laboratory August 2020.

Subsequent position: postdoctoral research with Michael Ward, NINDS

Anastasia Murthy (MCB, entered 2015), **NSF GRFP Fellow**

Rotation: November 2015-January 2016

Joined group: June 2016

Advanced to candidacy: May 2017

Defended PhD: March 2020, left laboratory May 2020.

Barry Jay Rosen Memorial Award, MCB Department

Subsequent position: postdoctoral, Wayne Fairbrother, Genentech, 2020-2022

Subsequent position: Scientist II, Faze Medicines, 2022

Subsequent position: Scientist II, Monte Rosa Therapeutics, 2022-

Kaylee Mathews (MCB, entered 2016)

Rotation: January-March 2017

Joined group: June 2017

Advanced to candidacy: May 2018

Defended PhD: September 2021, left laboratory November 2021.

Subsequent position: Science Writer at Broad Institute of MIT and Harvard

Wai Shing Tang (Physics, entered 2017)

Joined group: January 2018

Moved to Crawford research group: July 2020
Theodora Myrto Perdikari (Biomedical Engineering, entered 2017)
Joined group: January 2018
Advanced to candidacy: May 2019
Defended PhD: April 2022, left laboratory May 2022.
Subsequent position: Scientist, Dewpoint Therapeutics
Anna Bock (Biotechnology, entered 2019)
Joined group: September 2019 (INBRE Bridges to Graduate School fellow 2019)
Advanced to candidacy: June 2021
José Mercado Ortiz (MPP, entered 2019)
Rotation: February-March 2020
Joined group: May 2020
Noah Wake (MPP, entered 2020)
Rotation: October 2020 – March 2021
Joined group: May 2021
Advanced to candidacy: June 2022
Helen Danielson (Biomedical Engineering, entered 2022) **NSF GRFP Fellow**
Joined group: July 2022
Julia Zaborowsky (Biomedical Engineering, entered 2022)
Joined group: August 2022

Rotation students

Valerie Zabala (MPP, entered 2013)
Rotation: July/August/September 2013
Veronica Ryan (Neuroscience, entered 2014)
Rotation: August-December 2014
Alejandro Scaffa (MPP, entered 2014)
Rotation: September-December 2014
Christy Rhine (MCB, entered 2014)
Rotation: February/March 2015
Anastasia Murthy (MCB, entered 2015)
Rotation: November 2015-January 2016
Amanda Dombroski (MPP, entered 2015)
Rotation: January-March 2016
Heather Conboy (MPP, entered 2016)
Rotation: July-September 2016 (INBRE Bridges to Graduate School fellow)
Xien Yu Chua (MPP, entered 2016)
Rotation: September-December 2016
Botai Xuan (MPP, entered 2016)
Rotation: September-December 2016
Carolina Meija Peña (MCB, entered 2016)
Rotation: January-March 2017
Kaylee Mathews (MCB, entered 2016)
Rotation: January-March 2017
Alexandra D'Ordine (MCB, entered 2017)
Rotation: October 2017-January 2018
Helen Belato (MPP, entered 2018)
Rotation: September-December 2018
José Mercado Ortiz (MPP, entered 2019)

Rotation: February-March 2020
Noah Wake (MPP, entered 2020)
Rotation: October 2020- March 2021
Yanitza Rodriguez (MCB, entered 2020)
Rotation: January 2021- March 2021
Raphael Britt (MCB, entered 2020)
Rotation: March 2021- May 2021
Ryan Puterbaugh (MPP, entered 2021)
Rotation: August 2021- December 2021
Renjith Viswanathan (Therapeutic Sciences, entered 2022)
Rotation: August 2022- December 2022

Co-mentored PhD students

Hetal Desai (IMNI graduate fellow, role: co-mentor, primary mentor: Eric Darling)
entered 2011, graduated 2016

Masters students

Ryan Bello (Biomedical Engineering, entered 2017) *graduated Fall 2019.*
Nataliya (Natalie) Palaychuk (Biotechnology 5th year MS, entered 2017)
graduated Spring 2018
Amber Chevannes (Biotechnology, entered 2017) *graduated Spring 2019*
Victoria Johnson (Biotechnology, entered 2022)

Postdoctoral Researchers

Kathleen Burke (Ph.D. Chemistry, West Virginia University, 2013)
July 2013-March 2016
Subsequent position:
Principal Scientist, Eurofins Lancaster Laboratories,
March 2016-February 2017
Principal Scientist and Group Leader, Eurofins Lancaster Laboratories,
February 2017-August 2017
Quality Control Specialist | QC Molecule Lead, Chromatography Technical
Excellence Team Lead, Amgen
September 2017-August 2020
Attribute Sciences Team Lead | Process Development Senior Scientist,
Amgen
September 2020-July 2023
Attribute Sciences Team Lead | Process Development Principal Scientist,
Amgen
September 2023-present

Ailin Wang (Ph.D. Chemistry, Mississippi State University, 2016)

July 2016-June 2018

Subsequent position:

Senior Scientist, Jecho Laboratories, Inc., July 2018-March 2022
Senior Scientist – Protein Engineering, Sanofi, March 2022-July 2023
Competitive Intelligence Analysis Expert, Sanofi, March 2022-July 2023

Jayakrishna Shenoy (Ph.D. Chemistry, University of Bordeaux, 2021)

May 2021-present -- **ALS Association Postdoctoral Fellow**

Tongyin Zheng (Ph.D. Chemistry, Syracuse University, 2021)

August 2021-present **Pape Adams Postdoctoral Fellow**

Research Assistants and Student Research Assistants

Rute Silva (Rothwell) (B.S, immunology, Brown University, 2013)

Student RA: June-August 2013; RA: September 2013- August 2014

Subsequent position:

Medical student, University of Massachusetts Medical School

Subsequent position: Internal Medicine/Pediatrics resident, Maine.

Abigail Janke (B.S, computational biology, Brown University, 2016)

Student RA: June-August 2016; RA: September 2016-June 2017

Subsequent position:

MD/PhD student, Tri-institutional Program at Cornell/Rockefeller/Memorial

Sloan Kettering

Scott Watters (B.S, biology, Kenyon College, 2016)

RA: October 2018-July 2020

Subsequent position: PhD student in Biochemistry, UC Santa Cruz

Subsequent position: Scientist, biotech company in Bay Area

Victoria Johnson (B.S, biology, University of Rhode Island, 2020)

RA: July 2020-present

Szu-Huan (Sandy) Wang (MS, Taiwan)

Research Associate: February 2021-present

Thesis Committee Service

Edward Andersen

MCB entered 2011, *graduated 2017*

Alexander Conicella (role: thesis advisor)

MCB entered 2012, *graduated 2018*

Jennifer Forcina

MCB entered 2012, *graduated 2017*

Emily Kaye

MCB entered 2012, *graduated 2017*

Saba Nur Baskoylu

Neuroscience entered 2013, *grad. 2019*

Veronica Ryan (role:thesis advisor)

Neuroscience entered 2014, *grad. 2020*

Rebecca Newcomer (role:outside member) Biochemistry, UConn entered 2014
graduated 2020

Brian Mackness (role:outside member)
entered 2012, *graduated 2016*

Biochemistry, UMass Medical

Liam O'Connell

MCB entered 2015, *graduated 2021*

Brett Baggett

MCB entered 2015, *changed lab 2018*

Anastasia Murthy (role: thesis advisor)

MCB entered 2015, *graduated 2020*

Xinru Wang

MCB entered 2014, *graduated 2019*

Joceyln Newton

Pathobiology entered 2013, *grad. 2019*

Kaylee Mathews (role: thesis advisor)

MCB entered 2016, *graduated 2021*

Mae Staples

Pathobiology entered 2016, *grad. 2021*

Emily Chen

MCB entered 2016, *graduated 2022*

Alexandra D'Ordine

MCB entered 2017

Helen Belato

MPP entered 2018

Maureen Dowell

MCB entered 2018

Anna Bock (role: thesis advisor)

Biotech entered 2019

Nathan (Gordo) King	MCB entered 2020
Erin Skeens	MCB entered 2020
Joseph Aguilera	MCB entered 2020
Noah Wake (role: thesis advisor)	MPP/TS entered 2020
Kenneth Callahan	MCB entered 2020
Collin Ganser	Pathobiology entered 2020
Maddie Clark	MCB entered 2021

b. To the University

Molecular Pharmacology and Physiology Graduate Program Steering and Admissions Committee

Member, 2015-16 academic year

Neuroscience Graduate Program Admission Committee

Member, 2013-14 academic year

Member, 2015-16 academic year

MPPB Department seminar committee

co-chair/member, 2014-2015 academic year

chair, 2015-16, 2016-17 academic years

MPPB Department diversity committee

member, 2019-2021

MPPB Department Self-study subcommittee

member, 2019

Center for Translational Neuroscience, Executive Committee Member, 2021 - present

Structural Biology Core Facility, Director, December 2016 – present

Genomics Core Facility, Chair of the Advisory Council, March 2017 - present

MCB Faculty Search committee member, Structural Biology search 2017-2018 – *resulted in hire*

Division of Biology and Medicine Faculty Search committee, Tenure

Track or Tenured Position in Molecular and Cellular Biology of Alzheimer's Disease and Neurodegeneration search 2018-2109 – *resulted in two hires*

Member

Carney Institute for Brain Science Search Committee, Tenure Track or Tenured Position, 2019-2020 – *resulted in two hires*

Member

Sidney Frank Fellowship Selection Committee, Division of Biology and Medicine 2017 - present

COVID-19 Research Ramp Up Floor Coordinator for 1st Floor of the Laboratories for Molecular Medicine building (70 Ship St.), 2020 – 2021

MCB Department Faculty Tenure Committees (two committees) 2022-2023

Carney Graduate Award Review Committee, Member, 2023

c. To the community

Brown University Brain Fair – Fawzi laboratory had a table and we hosted a presentation on phase separation in membraneless organelles. Public event for community children and adults. 2018 and 2019.

Vartan Gregorian Science Day 2022, 3x 20 minute presentations for elementary school students grades 3,4,5. School has 50% of students with free or reduced price lunch eligible students.

8. Academic honors, fellowships, honorary societies

a. Awards and Academic Honors

- 2002 Graduate Fellow, Whitaker Foundation
- 2012 Sacconi Centennial Grant, 12th Chianti/INSTRUCT Workshop on BioNMR
- 2012 Postdoctoral Research Award, Division of Physical Chemistry Division, American Chemical Society
- 2015 Spirit of Lou Gehrig Award (shared with Brown ALS researchers), ALS Association Rhode Island Chapter
- 2015 Richard B. Salomon Faculty Research Award, Brown University
- 2016 DEARS Foundation, Brown Institute for Brain Science, Funds allocation for ALS research on TDP-43
- 2017 Excellence in Research Mentoring (ERM) Award, Brown University (inaugural recipient)
- 2018 CAREER Award, National Science Foundation
- 2020 Early Career Research Achievement Award, Brown University
- 2022 Protein Society Young Investigator Award

9. Teaching

Primary instructor

BIOL1300/2300 Biomolecular Interactions: Health, Disease and Drug Design

Fall 2014: 13 students (3 graduate, 10 undergraduate)

Reviews: Course effectiveness 1.46; Instructor effectiveness 1.31 (where 1 is best and 5 is worst)

Fall 2015: 13 students (2 graduate, 11 undergraduate)

Reviews: Course effectiveness 1.62; Instructor effectiveness 1.08 (where 1 is best and 5 is worst)

Fall 2016: 20 students (9 graduate: BIOL2300; 11 undergraduate: BIOL1300) BIOL1300 designated as WRIT, fulfilling Writing requirement, only upper level biology class offered that term.

Reviews 1300: Course effectiveness 1.4; Instructor effectiveness 1.3 (where 1 is best and 5 is worst)

Reviews 2300: Course effectiveness 1.75; Instructor effectiveness 2.0 (where 1 is best and 5 is worst, only 4 respondents in BIOL2300 so small sample size)

Fall 2018: 22 students (10 graduate: BIOL2300; 12 undergraduate: BIOL1300)

Fall 2019: 17 students (9 graduate: BIOL2300; 8 undergraduate: BIOL1300)
Reviews: Course effectiveness 4.38; Instructor effectiveness 4.38 (where 5 is best and 1 is worst)

Fall 2020: 17 students (9 graduate: BIOL2300; 8 undergraduate: BIOL1300)
Reviews 1300: Course effectiveness **5.0**; Instructor effectiveness **5.0** (where 5 is best and 1 is worst)
Reviews 2300: Course effectiveness 4.75; Instructor effectiveness 4.25 (where 5 is best and 1 is worst)

Fall 2021: 21 students (9 graduate: BIOL2300; 12 undergraduate: BIOL1300)
Reviews 2300: Course effectiveness 1.75; Instructor effectiveness 2.0 (where 1 is best and 5 is worst, only 4 respondents in BIOL2300 so small sample size)
Reviews from 1300 were lost by the Registrar (error in cross listing data collection)

Fall 2022: 31 students (18 graduate: BIOL2300; 14 undergraduate: BIOL1300)

Independent Study

Kohana Leuba (Brown '14) biomedical engineering
3 semester of independent study (BIOL 1950/60, spring 2013, fall 2013, spring 2014)

Jamie Fried (Brown '14) neuroscience,
2 semester of independent study (BIOL 1950/60, fall 2013, spring 2014)

Lillian Duran (Brown '14) biology
2 semester of independent study (BIOL 1950/60, fall 2013, spring 2014)

Daniel Ramirez Montero (Brown '16) biochemistry
3 semester of independent study (BIOL 1950/60, spring 2015, fall 2015, spring 2016)

Charlene Chabata (Brown '16) biochemistry
3 semester of independent study (BIOL 1950/60, spring 2015, fall 2015, spring 2016)

Abigail Janke (Brown '16) computational biology
3 semester of independent study (BIOL 1950/60, spring 2015, fall 2015, spring 2016)

Da He Seo (Brown '17) biochemistry
3 semester of independent study (BIOL 1950/60, spring 2016, fall 2016, spring 2017)

Joshua Amaya (Brown '18) neuroscience
3 semester of independent study (BIOL 1950/60, spring 2017, fall 2017, spring 2018)

Mark Liang (Brown '19) biochemistry
3 semester of independent study (BIOL 1950/60, spring 2017, fall 2017, fall 2018)

Samara Cummings (Brown '24) biochemistry

1 semester of independent study (BIOL 1950/60, spring 2023)

Valentin Kirilenko (Brown '24) applied math / biochemistry

1 semester of independent study (BIOL 1950/60, spring 2023)

Guest lectures

BIOL2010: Quantitative Approaches to Biology

January 23, 2013. Primary Instructor: Will Fairbrother
one hour lecture

BIOL1200: Protein Biophysics and Structure

April 23, 2013 and April 22, 2014. Primary Instructor: Wolfgang Peti
two lectures/discussion, each 2hr 20min

Rhode Island College, CHEM435. March, 29, 2013. Primary Instructor: John Williams

one lecture, 1hr 30min

NEUR1930G: Disease, Mechanism, Therapy: Harnessing Basic Biology for Therapeutic Development

November 12, 2013. Primary Instructor: Justin Fallon
one lecture/discussion, 2hr 20min

NEUR2040: Advanced Molecular and Cellular Neurobiology II

April 15, 2016. Primary Instructor: Justin Fallon
one lecture/discussion, 3hr

BIOL2030: Foundations for Advanced Study in the Life Sciences

October 24, 2017. Primary Instructor: Alison DeLong
one lecture, 1hr 20 min

BIOL1270/2270: Advanced Biochemistry

November 21, 2017.

Primary Instructor: Gerwald Jogl/Alexandra Deaconescu
one lecture, 1hr 20 min

NEUR1740: The Diseased Brain

April 11, 2018. Primary Instructor: Justin Fallon
one lecture, 1hr 20min

April 8, 2019. Primary Instructor: Justin Fallon
one lecture, 1hr 20min

October 27, 2021. Primary Instructor: Justin Fallon
one lecture, 1hr 20min

March 20, 2023. Primary Instructor: Justin Fallon
one lecture, 1hr 20min

NEUR1930G: Disease, Mechanism, Therapy: Harnessing Basic Biology for Therapeutic Development

October 11, 2017. Primary Instructor: Justin Fallon
one lecture/discussion, 2hr 20min
September 17, 2019. Primary Instructor: Justin Fallon
one lecture/discussion, 2hr 20min

Summer@Brown: Biochemistry: The Magic that Keeps Us Alive
August 1, 2019. Primary Instructor: Heather Conboy
one lecture+facility tour, 1hr 20min

BIOL1050/2050: Biology of the Eukaryotic Cell
September 23, 2021. Primary Instructor: Susan Gerbi
one lecture, 1hr 20min
September 23, 2022. Primary Instructor: Susan Gerbi
one lecture, 1hr 20min

BIOL1810: 21st Century Applications in Cell and Molecular Biology
April 12, 2023. Primary Instructor: Michelle Dawson
one lecture, 50 min

10. Mentoring and Diversity, Equity and Inclusion training

Mentoring

Center for Improvement of Mentored Experiences in Research: Entering Mentoring Program. Topics: Maintaining Effective Communication, Aligning Expectations, Addressing Equity and Inclusion. October 20, 2020. Host program: Molecular Biology, Cell Biology, and Biochemistry Graduate Program. Workshop led by Erica Larschan, PhD. 2 hours.

Center for Improvement of Mentored Experiences in Research: Entering Mentoring Program. Topics: Assessing Understanding and Fostering Independence. May 28, 2021. Workshop led by Erica Larschan, PhD. 1 hour.

Center for Improvement of Mentored Experiences in Research: Entering Mentoring Program. Topics: Mentoring and Fellowships. October 18, 2022. Workshop led by Erica Larschan, PhD. 1 hour.

Center for Improvement of Mentored Experiences in Research: Entering Mentoring Program. Topics: Mentorship Training Session, Communication. January 17, 2023. Workshop led by Erica Larschan, PhD and Melissa Walsh, PhD. 1 hour.

Center for Improvement of Mentored Experiences in Research: Entering Mentoring Program. Topics: Resiliency. March 20, 2023. Workshop led by Audra Van Wart, PhD and Melissa Walsh, PhD. 1 hour.

Center for Improvement of Mentored Experiences in Research: Entering Mentoring Program. Topics: Mentoring Compacts. May 16, 2023. Workshop led by Melissa Walsh, PhD. 1 hour

Diversity, Equity, and Inclusion

Diversity & Inclusion in STEM Workshop including discussion of "Can we talk?" July 21, 2020. Host program: Brown University Division of Biology and Medicine Office of Graduate and Postdoctoral Studies. Marlina Duncan, EdD. 1.5 hours.

11. Date of preparation of the document: September 16, 2023