

Neal Krishna Devaraj Ph.D.
Presidential Chair in Biochemistry and Molecular Biophysics
Professor and Chair, Department of Biochemistry and Molecular Biophysics
Professor of Chemistry
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Education

Massachusetts Institute of Technology	Chemistry	BS	2002
Massachusetts Institute of Technology	Biology	BS	2002
Stanford University	Chemistry	PhD	2007

Professional Appointments

Postdoctoral Fellow	Harvard Medical School	2007-2011
Assistant Professor	University of California, San Diego	2011-2016
Associate Professor	University of California, San Diego	2016-2018
Professor	University of California, San Diego	2018-present
Russell F. Doolittle Faculty Scholar	University of California, San Diego	2020-2021
Murray Goodman Endowed Chair	University of California, San Diego	2021-2026
Section Chair, Biochemistry and Biophysics	University of California, San Diego	2023-2025
Chair (Founding), Department of Biochemistry and Molecular Biophysics	University of California, San Diego	2025-present
Presidential Chair in Biochemistry and Molecular Biophysics	University of California, San Diego	2026-present

Selected Honors and Awards

2025 - **Arthur C. Cope Scholar Award**

2022 - **Vannevar Bush Faculty Fellowship**

2022 - **Bioconjugate Chemistry Lectureship Award**

2022 - **Fulbright Specialist Award**

2021 - **Tetrahedron Young Investigator Award**

2019 - **Leo Hendrik Baekeland Award**

2019 - **Guggenheim Fellowship**

2019 - **Eli Lilly Award in Biological Chemistry**

2018 - **Blavatnik National Laureate in Chemistry**

2018 - **Magomedov-Shcherbinina Memorial Prize**

2017 - **ACS Award in Pure Chemistry**

2016 - **National Fresenius Award**

2016 - Camille Dreyfus Teacher-Scholar Award

Leadership and Administrative Experience

Founding Chair, Department of Biochemistry and Molecular Biophysics, UC San Diego (2025–present)

Led establishment of a new department within the School of Physical Sciences

Oversaw organizational planning, resource allocation, and transition from the Department of Chemistry and Biochemistry

Oversaw faculty recruitment, curriculum, governance, and space planning

Section Chair, Biochemistry and Biophysics, Department of Chemistry and Biochemistry, UC San Diego (2023–2025)

Directed academic and administrative activities of the Biochemistry and Biophysics Section

Chair, Space Committee, Department of Chemistry and Biochemistry, UC San Diego (2020-2022)

Oversaw strategic planning and allocation of research and teaching space

Chair, Faculty Search Committees, Department of Chemistry and Biochemistry, UC San Diego (2018-2020)

Led two successful faculty searches in Biochemistry and Biophysics

Publications: University of California, San Diego

119. A. Harjung, E. M. Ruth, M. Matyszewski, J. Park, C. Knittel, E. McCormack, N. K. Devaraj “Cryo-EM reveals that E. coli tRNA-transglycosylase can bind and act upon two tRNAs” *Proc. Natl. Acad. Sci. USA*, 2026. In press.

118. Z. Zhai, E. McCormack, A. Harjung, N. K. Devaraj “Harnessing S. aureus tRNA Guanine Transglycosylase for Efficient Site-Specific Covalent Labeling of DNA” *Chembiochem*, 2026, 27, e202500971.

117. S. Khanal, A. Fracassi, A. Harjung, M. D. Burkart, N. K. Devaraj “Breaking the membrane heredity paradox through de novo protocell formation” *Nat. Commun.*, 2026. In press.

116. A. Ryu, N. K. Devaraj “Enzyme-mediated covalent labeling enables in situ imaging of RNA modification states” *J. Am. Chem. Soc.*, 2026, 148, 18, 19238–19245.

115. C. H. Knittel, S. R. Chadwick, J. A. Vance, C. Kuehling, N. K. Devaraj “Achieving cell-type specific bioorthogonal chemistry via enzyme-activated caged tetrazines” *Nat. Chem. Biol.*, 2026, 22, 1067–1077 .

114. Y. Tsai, N. Lipp, O. Seidel, R. Varma, A. Laguerre, K. Solorio-Kirpichyan, A. M. Wong, R. J. Brea, G. H. McGregor, T. Cordes, N. K. Devaraj, L. Kuerschner, S. Neal, C. M. Metallo, I. Budin “1-Deoxysphingolipids dysregulate membrane properties and cargo trafficking in the early secretory pathway” *Cell Chem. Biol.*, 2026, 33(1), 45-58.

113. Z. Y. Mohamedshah, C. Chi, E. M. Tota, A. C. Komor, N. K. Devaraj “Highly efficient expression of DNA-peptide conjugates in growth-arrested cells” *Nat. Commun.*, 2026, 17, 1422.
112. W. M. Moore, R. J. Brea, C. Knittel, E. Wrightsman, B. Hui, J. Lou, C. F. Ancajas, M. D. Best, N. K. Devaraj, I. Budin “Subcellular imaging of lipids and sugars using genetically encoded proximity sensors,” *Nat. Chem. Biol.*, 2026, 22(1), 128-139.
111. J. Vance, W. Chen, P. Nepachalovich, C. Knittel, M. Federova, N. K. Devaraj “Targeted Detection of Phospholipid Aldehydes in Living Cells by Oxime Ligation” *Angew. Chem. Int. Ed.*, 2025, 64(48), e202512578.
110. M. Halder, Z. Jin, K. Li, L. Amer, T. He, S. Han, X. Zhong, N. K. Devaraj, J. V. Jokerst “ β -Sheet Structures Enhance Aggregation-Induced Emission Signals in Peptide-Based Coacervates,” *Chem. Mater.*, 2025, 37(19), 7588-7602.
109. P. Ji, A. Harjung, C. Knittel, A. Fracassi, R. J. Brea, N. K. Devaraj “Photochemical synthesis of natural membrane lipids in artificial and living cells,” *Nat. Commun.*, 2025, 16, 5068.
108. A. Fracassi, A. Seoane, R. J. Brea, N. K. Devaraj “An Abiotic Phospholipid Metabolic Network Facilitates Membrane Plasticity in Artificial Cells,” *Nat. Chem.*, 2025, 17, 799-807.
107. J. Chen, L. Tanwar, P. Ji, R. J. Brea, N. K. Devaraj “Aqueous Synthesis of Membrane Lipids via Amide Formation between Amphiphilic Amines and Thioacid,” *ChemSystemsChem*, 2025, 7, e202400077.
106. C. J. Cho, S. Kang, C. Pedebos, S. Khalid, R. J. Brea, N. K. Devaraj “Diacylation of Peptides Enables the Construction of Functional Vesicles for Drug-Carrying Liposomes,” *Angew. Chem. Int. Ed.*, 2025, 64(20), e202421932.
105. C. J. Cho, T. An, Y. Lai, A. Salazar, A. Fracassi, R. J. Brea, I. A. Chen, N. K. Devaraj “Generation of Protocells by Spontaneous Reaction of Cysteine with Short Chain Thioesters,” *Nat. Chem.*, 2025, 17, 148-155.
104. A. Harjung, A. Fracassi, N. K. Devaraj “Encoding extracellular modification of artificial cell membranes using engineered self-translocating proteins,” *Nat. Commun.*, 2024, 15, 9363.
103. Y. Lee, A. Fracassi, N. K. Devaraj “Control of Giant Vesicle Assemblies by Stimuli-Responsive Lipids,” *Chem. Commun.*, 2024, 60, 3930-3933.
102. Y. Lee, A. Fracassi, N. K. Devaraj “Light-driven membrane assembly, shape-shifting, and tissue formation in chemically responsive synthetic cells,” *J. Am. Chem. Soc.*, 2023, 145, 47, 25815–25823.
101. J. Chen, R. J. Brea, A. Fracassi, C. J. Cho, A. M. Wong, M. Salvador-Castell, S. K. Sinha, I. Budin, N. K. Devaraj “Rapid Formation of Non-canonical Phospholipid Membranes by Chemoselective Amide-forming Ligations with Hydroxylamines,” *Angew. Chem. Int. Ed.*, 2023, e202311635.
100. A. Bhattacharya, L. Tanwar, A. Fracassi, R. J. Brea, S. Khanal, M. Salvador-Castell, S. K. Sinha, N. K. Devaraj “Chemoselective Esterification of Natural and Prebiotic 1,2-amino

Alcohol Amphiphiles in Water,” *J. Am. Chem. Soc.*, 2023, 145, 49, 27149–27159.

99. C. Xu, A. Fracassi, C. P. Baryames, A. Bhattacharya, N. K. Devaraj, C. R. Baiz “Sponge-phase Lipid Droplets as Synthetic Organelles: An Ultrafast Study of Hydrogen Bonding and Interfacial Environments” *ChemPhysChem*, 2023, e202300404.

98. E.M. Tota, N. K. Devaraj “RNA-TAG Mediated Protein-RNA Conjugation” *ChemBioChem*, 2023, 24(18), e202300454.

97. F. A. Souto-Trinei, R. J. Brea, N. K. Devaraj “Biomimetic Construction of Phospholipid Membranes by Direct Aminolysis Ligations” *Interface Focus*, 2023, 1320230019.

96. E. M. Tota, N. K. Devaraj “Site-specific Labeling of DNA Substrates by an RNA Transglycosylase,” *J. Am. Chem. Soc.*, 2023, 145, 14, 8099–8106.

95. A. Fracassi, K. A. Podolsky, S. Pandey, C. Xu, J. Hutchings, S. Seifert, C. R. Baiz, S. K. Sinha, N. K. Devaraj “Characterizing the Self-Assembly Properties of Monoolein Lipid Isosteres,” *J. Phys. Chem. B.*, 2023, 127, 8, 1771–1779.

94. N. K. Devaraj, S. Tsukiji, “Editorial overview: Synthetic biomolecules for probing lipid membranes” *Curr. Opin. Chem. Biol.* 2023, 73, 102271.

93. S. Suzuki, M. Yoshikawa, S. Sawada, N. K. Devaraj, S. Tsukiji “Miniaturized Synthetic Palmitoylation Motifs for Small Molecule Localization in Living Cells,” *Bioconjugate Chem.*, 2023, 34, 1, 169–173.

92. C. Knittel N. K. Devaraj “Bioconjugation strategies for revealing the roles of lipids in living cells” *Acc. Chem. Res.* 2022, 55, 21, 3099–3109.

91. L. Liu, D. Zhang, M. Johnson N. K. Devaraj “Light-activated tetrazines enable precision live-cell bioorthogonal chemistry” *Nat. Chem.* 2022, 14, 1078–1085.

90. J. Flores, R. J. Brea, A. Lamas, A. Fracassi, M. Salvador-Castell, C. Xu, C. R. Baiz, S. K. Sinha, N. K. Devaraj “Rapid and Sequential Dual Oxime Ligation Enables De Novo Formation of Functional Synthetic Membranes from Water Soluble Precursors,” *Angew. Chem. Int. Ed.* 2022, 61, e202200549.

89. L. Tanwar, N. K. Devaraj “Engineering materials for artificial cells,” *Curr. Opin. Solid State Mater. Sci.* 2022, 26(4), 101004.

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87. D. Zhang, L. Liu, J. Shuaijiang, E. Tota, Z. Li, X. Pao, X. Zhang, X. Fu, N. K. Devaraj “Site-specific and enzymatic cross-linking of sgRNA enables wavelength-selectable photo-activated control of CRISPR gene editing,” *J. Am. Chem. Soc.* 2022, 144, 10, 4487–4495.

86. C. J. Cho, H. Niederholtmeyer, H. Seo, A. Bhattacharya, N. K. Devaraj “Functionalizing lipid sponge droplets with DNA,” *ChemSystemsChem* 2022, 4, e202100045.
85. M. Moinpour, A. Fracassi, R. J. Brea, M. Salvador-Castell, S. Pandey, M. M. Edwards, S. Seifert, S. Joseph, S. K. Sinha, N. K. Devaraj “Controlling Protein Enrichment in Lipid Sponge Droplets using SNAP-tag Bioconjugation,” *ChemBioChem*, 2022, 23, e202100624.
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83. H. S. Martin, K. A. Podolsky, N. K. Devaraj “Probing the Role of Chirality in Phospholipid Membranes,” *ChemBioChem*, 2021, 22(22), 3148-3157.
82. A. Bhattacharya, C. J. Cho, R. J. Brea, N. K. Devaraj “Expression of fatty acyl-CoA ligase drives one-pot de novo synthesis of membrane-bound vesicles in a cell free transcription-translation system,” *J. Am. Chem. Soc.*, 2021, 143, 29, 11235–11242.
81. N. K. Devaraj, M. G. Finn “Introduction: Click Chemistry,” *Chem. Rev.*, 2021, 121, 12, 6697–6698.
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79. S. Khanal, R. J. Brea, M. D. Burkart, N. K. Devaraj “Chemoenzymatic Generation of Phospholipid Membranes Mediated by Type I Fatty Acid Synthase,” *J. Am. Chem. Soc.*, 2021, 143, 23, 8533–8537.
78. J. A. Vance, N. K. Devaraj “Membrane Mimetic Chemistry for Artificial Cells,” *J. Am. Chem. Soc.*, 2021, 143, 22, 8223–8231.
77. Y. Lee, N. K. Devaraj “Lipase Mimetic Cyclodextrans,” *Chem. Sci.*, 2021, 12, 1090-1094.
76. L. Liu, Y. Zou, A. Bhattacharya, D. Zhang, S. Q. Lang, K. N. Houk, N. K. Devaraj “Enzyme-free Synthesis of Natural Phospholipids in Water,” *Nat. Chem.*, 2020, 12, 1029-1034.
75. A. K. Rudd, N. Mittal, E. W. Lim, C. M. Metallo, N. K. Devaraj “A Small Molecule Fluorogenic Probe for the Detection of Sphingosine in Living Cells,” *J. Am. Chem. Soc.*, 2020, 142, 42, 17887–17891.
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73. H. Vora, M. Johnson, R. J. Brea, A. K. Rudd, N. K. Devaraj “Inhibition of NRAS Signaling in Melanoma through Direct Depalmitoylation Using Amphiphilic Nucleophiles,” *ACS Chem. Biol.*, 2020, 15, 8, 2079-2086.

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71. D. Zhang, S. Jin, X. Piao, N. K. Devaraj "Multiplexed Photoactivation of mRNA with Single Cell Resolution," *ACS Chem. Biol.*, 2020, 15(7), 1773-1779.

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69. S. Jin, R. J. Brea, A. K. Rudd, S. P. Moon, M. R. Pratt, N. K. Devaraj "Traceless Native Chemical Ligation of Lipid-modified Peptide Surfactants by Mixed Micelle Formation," *Nat. Commun.*, 2020, 11, 2793.

68. M. Johnson, A. Bhattacharya, R. J. Brea, K. A. Podolsky, N. K. Devaraj "Temperature-Dependent Reversible Morphological Transformations in *N*-Oleoyl β -D-Galactopyranosylamine," *J. Phys. Chem. B*, 2020, 124, 26, 5426-5433.

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66. K. N. Busby, N. K. Devaraj "Enzymatic Covalent Labeling of RNA with RNA Transglycosylation at Guanosine (RNA-TAG)," *Method Enzymol.*, 2020, 641, 373-399.

65. A. Nakamura, C. Oki, S. Sawada, T. Yoshii, K. Kuwata, A. Rudd, N. K. Devaraj, K. Noma, S. Tsukiji "Designer Palmitoylation Motif-Based Self-Localizing Ligand for Sustained Control of Protein Localization in Living Cells and *C. elegans*," *ACS Chem. Biol.*, 2020 15(4), 837-843.

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63. A. Bhattacharya, N. K. Devaraj, "Tailoring the Shape and Size of Artificial Cells," *ACS Nano*, 2019, 13(7), 7396-7401.

62. A. Bhattacharya, R. J. Brea, J. Song, R. Bhattacharya, S. K. Sinha, N. K. Devaraj "Single-Chain β -d-Glycopyranosylamides of Unsaturated Fatty Acids: Self-Assembly Properties and Applications to Artificial Cell Development," *J. Phys. Chem. B*, 2019, 123(17), 3711-3720.

61. A. Bhattacharya, R. J. Brea, H. Niederholtmeyer, N. K. Devaraj "A Minimal Biochemical Route towards de novo Formation of Synthetic Phospholipid Membranes," *Nat. Commun.* 2019, 10, 300.
-Highlighted in *Chemical and Engineering News* February 9, 2019, 97, 6 "Simplified Route to Phospholipid Membranes"

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-Highlighted in *Science*, 2018, 362(6417), 877 “Artificial Cells Gain Communication Skills”
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53. D. Zhang, C. Y. Zhou, K. N. Busby, S. C. Alexander, N. K. Devaraj “Light-activated control of translation by enzymatic covalent mRNA labeling,” *Angew. Chem. Int. Ed.*, 2018, 57, 2822.
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51. N. K. Devaraj, C. L. Perrin “Approach control. Stereoelectronic origin of geometric constraints on N-to-S and N-to-O acyl shifts in peptides,” *Chem. Sci.*, 2018, 9, 1789-1794.
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45. S. C. Alexander, N. K. Devaraj “Developing a fluorescent toolbox to shed light on the mysteries of RNA,” *Biochemistry*, 2017, 56 (39), 5185–5193.

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18. I. Budin, N. K. Devaraj "Membrane Assembly Driven by a Biomimetic Coupling Reaction," **J. Am. Chem. Soc.**, 2012, 134(2), 751-753.

Graduate and Postdoctoral Publications

17. N. K. Devaraj, G. M. Thurber, E. J. Keliher, B. Marinelli, R. Weissleder, "Reactive Polymer Enables Efficient In Vivo Chemistry," *Proc. Natl. Acad. Sci. USA*, 2012, 109 (13), 4762-4767.
16. N. K. Devaraj, R. Weissleder "Biomedical Applications of Tetrazine Cycloadditions," *Acc. Chem. Res.*, 2011, 44(9), 816-827.
15. J. B. Haun, N. K. Devaraj, B. S. Marinelli, H. Lee, R. Weissleder "Probing Intracellular Biomarkers and Mediators of Cell Activation Using Nanosensors and Bioorthogonal Chemistry" *ACS Nano*, 2011, 5 (4), 3204-3213.
14. J. B. Haun, N. K. Devaraj, S. A. Hilderbrand, H. Lee, R. Weissleder "Bioorthogonal Chemistry Amplifies Nanoparticle Binding and Enhances Signal Detection" *Nat. Nanotechnol.*, 2010, 5(9), 660-5.
13. H. S. Han, N. K. Devaraj, J. Lee, S. A. Hilderbrand, R. Weissleder, M. G. Bawendi "Development of a Bioorthogonal and Highly Efficient Conjugation Method for Quantum Dots Using Tetrazine Norbornene Cycloaddition" *J. Am. Chem. Soc.*, 2010, 132(23), 7838-9.
12. N. K. Devaraj, S. A. Hilderbrand, R. Upadhyay, R. Mazitschek, R. Weissleder "Bioorthogonal Turn-On Probes for Imaging Small Molecules Inside Living Cells" *Angew. Chem. Int. Ed.*, 2010, 49(16), 2869-2872.
11. N. K. Devaraj, R. Upadhyay, J. B. Haun, S. A. Hilderbrand, R. Weissleder "Fast and Sensitive Pretargeted Labeling of Cancer Cells via Tetrazine/*Trans*-Cyclooctene Cycloaddition" *Angew. Chem. Int. Ed.*, 2009, 48(38), 7013-7016.
10. N. K. Devaraj, E. J. Keliher, G. M. Thurber, M. Nahrendorf, R. Weissleder "¹⁸F Labeled Nanoparticles for *in-vivo* PET-CT Imaging" *Bioconjugate Chem.*, 2009, 20(2) 397-401.
9. N. K. Devaraj, R. Weissleder, S. A. Hildebrand "Tetrazine-Based Cycloadditions: Application to Pretargeted Live Cell Labeling" *Bioconjugate Chem.*, 2008, 19(12), 2297-2299.
8. N. K. Devaraj, J. P. Collman, "Copper Catalyzed Azide-Alkyne Cycloadditions on Solid Surfaces: Applications and Future Directions" *QSAR and Comb. Sci.*, 2007, 26(11), 1253-1260.
7. J. P. Collman; R. A. Decreau; Y. Yan; Y. Yang; N. K. Devaraj, "Synthesis of Cytochrome c Oxidase Models that can be Covalently Attached onto Electrode Surfaces" *J. Org. Chem.*, 2007, 72(8), 2794-2802.
6. J. P. Collman, N. K. Devaraj, R. A. Decreau, Y. Yang, Y. Yan, W. Ebina, T. A. Eberspacher, C. E. D. Chidsey, "A Cytochrome c Oxidase Model Catalyzes the Four-Electron Reduction of Oxygen under Rate-Limiting Electron Flux" *Science*, 2007, 315, 5818, 1565-1568.
5. N. K. Devaraj, R. A. Decreau, J. P. Collman, C. E. D. Chidsey, "Rate of Interfacial Electron Transfer Through the 1,2,3-Triazole 'Click' Linkage," *J. Phys. Chem. B.*, 2006, 110(32), 15955-15962.
4. J. P. Collman, N.K. Devaraj, T. A. Eberspacher, C. E. D. Chidsey, "Mixed Azide-terminated Monolayers; A Platform for Modifying Electrode Surfaces," *Langmuir*, 2006, 22(6), 2457-2464.
3. N. K. Devaraj, P. H. Dinolfo, C. E. D. Chidsey, J. P. Collman, "Selective Functionalization of Independently Addressable Microelectrodes by Electrochemical Activation and Deactivation of a Coupling Catalyst," *J. Am. Chem. Soc.*, 2006, 128 (6), 1794 -1795.

2. N. K. Devaraj, G. P. Miller, W. Ebina, B. Kakaradov, J. P. Collman, E. T. Kool, C. E. D. Chidsey, "Chemoselective Coupling of Oligonucleotides to Self-Assembled Monolayers," *J. Am. Chem. Soc.*, 2005, 127(24), 8600-8601.

1. J. P. Collman, N. K. Devaraj, C. E. D. Chidsey, "Clicking Functionality onto Electrode Surfaces," *Langmuir*, 2004, (20), 1051-1053.

Patents Granted

1. C. E. D. Chidsey, A. Devadoss, N. K. Devaraj, "Preparation of Azide-Modified Carbon Surfaces for Coupling to Various Species." U.S. Patent 8,592,565 issued Nov. 26, 2013.

2. S. A. Hilderbrand, N. K. Devaraj, R. Weissleder, "Compositions and methods for delivering a substance to a biological target." U.S. Patent 8,900,549 issued Dec. 2, 2014.

3. N. K. Devaraj, J. Yang, "Tetrazines and method of Synthesizing the Same." U.S. Patent 9,533,957 issued Jan. 3, 2017.

4. S. A. Hilderbrand, N. K. Devaraj, R. Weissleder, M. R. Karver, "Functionalized 1,2,4,5-tetrazine compounds for use in bioorthogonal coupling reactions." US Patent 9,902,705 issued February 27, 2018.

5. S. A. Hilderbrand, N. K. Devaraj, R. Weissleder, M. R. Karver, "Functionalized 1,2,4,5-tetrazine compounds for use in bioorthogonal coupling reactions." US Patent 10,611,738 issued April 7, 2020.

6. R. J. Brea, C. M. Cole, N. K. Devaraj, B. Lyda, R. Sunahara, "In situ lipid synthesis for protein reconstitution." US Patent 11,052,044 issued July 6, 2021.

7. S. A. Hilderbrand, N. K. Devaraj, R. Weissleder, M. R. Karver, "Functionalized 1,2,4,5-tetrazine Compounds for use in Bioorthogonal Coupling Reactions." US Patent 11,208,390 issued December 28, 2021.

8. N. K. Devaraj, S. C. Alexander, "Enzymatic modification of nucleic acids." US Patent 11,267,842 issued March 8, 2022.

Professional Activities

2025-Participant, National Academies Workshop on Mirror Biology

2025-Mail-in reviewer, NIH Director's New Innovator Award

2025-Ad hoc reviewer NASA Exobiology

2025-Ad hoc reviewer NSF MCB

2023-Member, NIH MIRA for Early-Stage Investigators Study Section Mar. 14-15

2022-2024 Consultant Seawolf Therapeutics

2021-2023 Consultant Shasqi, Inc.

2021-present Consultant Ionis Pharmaceuticals

2021-present Member International Advisory Board *Angewandte Chemie*

2020-Panel review member NSF Centers for Chemical Innovation

2020-Panel review member Alfred P. Sloan Foundation

2020-2023 Member, Editorial Advisory Board *Bioorganic and Medicinal Chemistry Letters*

2020-2023 Member, Editorial Advisory Board *Bioorganic and Medicinal Chemistry*

2020-2021 Consultant Encodia Inc.

2019-present Scientific Founder, Palm Therapeutics
2019-2020 Member Site Visit Review Committee NSF STC Center for Cellular Construction
2020-present Scientific Advisory Board, Triton Algae Innovations
2018-2022 Standing Member NIH EBIT Study Section
2020- Co-Chair NIH EBIT Study Section Oct. 8-9
2021-2023 Defense Science Study Group (DSSG)
2018 Member Site Visit Review Committee NIH/NICHD
2017 Ad Hoc Member NIH EBIT Study Section Feb. 7-8
2016-present Member, Editorial Advisory Board *ChemBioChem*
2018-present Member, Editorial Advisory Board *Biochemistry*
2018-present Member, Editorial Advisory Board *ChemSystemsChem*
2013-2015 Scientific Advisory Board, Prolynx
2007-present Member, American Chemical Society
2016-present Member, American Association for the Advancement of Science

Guest Editor:

2021-Chemical Reviews Thematic Issue on “Click Chemistry”
2022-Current Opinion in Chemical Biology, Synthetic Biomolecules Section “Synthetic Biomolecules for probing lipid membranes”
2023-Journal of Organic Chemistry Special Issue on "Next-Generation Organic Chemistry for Labeling and Imaging”

Symposia/Workshop Organizer:

2020-Organizing Committee “Bioorthogonal Chemistry: Tools and Applications in Chemical Biology” Pacifichem
2020-Organizing Committee “Synthetic Biology Approaches to Improve Human and Environmental Health” New York Academy of Sciences
2025-Co-organizer “Frontiers in Dynamic Supramolecular Chemistry: Towards Practical Functions” Pacifichem 2025 Congress
2026-Co-Chair Future Directions Workshop on Synthesis and Evolution of Life-like Artificial Systems (sponsored by Department of Defense)

Department and University Service

2017-2019 Academic Senate: Campus and Community Environment Committee
2017-2019 Faculty Club Board of Directors
2016-2017 Chair, Endowed Lectures Committee
2016-2020 Graduate Affairs Committee (Chemistry and Biochemistry)
2014-2016 Stanley Miller Memorial Lecture Committee (Chemistry and Biochemistry)
2013-2020 Chair Agilent Lectureship Committee (Physical Sciences)
2013-2015 Medical Science Training Program (MSTP) Admissions Committee
2013-2015 Safety Committee (Chemistry and Biochemistry)
2013-2014 Contracts and Grants Manager Search Committee (Chemistry and Biochemistry)
2013-2014 MS Task Force (Chemistry and Biochemistry)
2012-2016 Graduate Admissions and Recruitment Committee (Chemistry and Biochemistry)
2012-2018 Served on 6 Faculty Recruitment Committees including junior and senior searches
2018-2019 Chair Dean’s Excellence Faculty Search Committee (Biochemistry)
2019-2020 Chair Dean’s Excellence Faculty Search Committee (Biochemistry)
2011-2016 Kamen Prize Selection Committee
2020-2022 Chair Space Committee
2020-2021 Research Ramp-Up Safety Department Task Force
2020-2021 Biochemistry Degree Department Task Force

2022-2022 5-year administrative review committee for Dean of Physical Sciences
2022-2024 Academic Senate Privilege and Tenure Committee
2023-2023 MSO Search Committee (Chemistry and Biochemistry)
2024-2024 Contracts and Grants Manager Search Committee (Chemistry and Biochemistry)
2023-2025 Section Chair Biochemistry and Biophysics
2023-2023 Physical Sciences faculty lead for the joint Research Communications initiative
2025-present Chair, Department of Biochemistry and Molecular Biophysics

Teaching

2012-2025 Chemistry 168 Drug Design and Synthesis (Undergraduate, recent enrollment >200 students)
2012-2021 Chemistry 116/216 Chemical Biology (Undergraduate/Graduate, recent enrollment ~50 students)