

CURRICULUM VITAE

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A. EDUCATION AND RESEARCH

7/2017- Associate Professor of Biology (with tenure), Brandeis University, Waltham, MA
2010-2017 Assistant Professor of Biology, Brandeis University, Waltham, MA
2003-2010 Postdoctoral Fellow/Associate, Massachusetts Institute of Technology
"Membrane traffic and synaptic architecture"
Advisor: J. Troy Littleton
1997-2002 Ph.D., Molecular and Cell Biology, University of California, Berkeley
"Actin cytoskeleton dynamics at the *S. cerevisiae* cell cortex"
Advisor: David G. Drubin
1993-1997 B.Sc. Biology, and B.Sc. Chemical Engineering
Massachusetts Institute of Technology
"Deregulation of isoleucine biosynthesis in *C. glutamicum*"
Research advisor: Anthony Sinskey

B. HONORS AND AWARDS

2018 Landis Award for Outstanding Mentorship, NINDS
2013-2017 Pew Scholar Award
2012-2017 NIH Director's New Innovator Award
2012-2014 Basil O'Connor Scholar Award, March of Dimes
2008-2013 K99/R00, NIH Pathway to Independence Award, NINDS
2006-2008 Charles King Trust of the Medical Foundation Postdoctoral Fellow
2003-2006 Damon Runyon Cancer Research Foundation Postdoctoral Fellow
1997-2002 Howard Hughes Medical Institute Predoctoral Fellow
1997 Phi Beta Kappa, MIT
Whitehead Prize, MIT - outstanding promise for biology research career
Wei Award, MIT - research at the interface of life science and engineering
2002, 2006 US patents - 6,451,564, and 6,987,017 "Methods for producing L-isoleucine"

C. PUBLICATIONS

Manuscripts under review

Del Signore SJ, Mitzner MG, Silveira AM, Fai TG, **Rodal AA**. Quantitative mapping of synaptic periaxial zone architecture and organization. *BioRxiv* doi: 10.1101/2022.06.16.496425

Ermanoska B, Asselbergh B, Erfurth ML, Bervoets A, Leitão-Gonçalves R, Ooms T, Sun L, Atkinson D, Ydens E, Hosseinibarkooie S, Thomas FP, Mitev V, Tournev I, Wirth B, Yang XL, Verstreken P, Timmerman V, Godenschwege T, **Rodal AA**, Goode BL, Jordanova A. Tyrosyl-tRNA synthetase has a non-canonical function in actin bundling.

Elam L, Quiñones-Frías MC, Zhang Y, **Rodal AA**, Fai TG. Diffusion on dynamical networks with applications to cell biology. <https://arxiv.org/pdf/2207.07682.pdf>

Published

Bi GQ, Rodal AA. Editorial overview: Cellular neuroscience. *Curr Opin Neurobiol.* 2022 Aug 26;76:102625. doi: 10.1016/j.conb.2022.102625.

Tan W, Zhang Q, Quiñones-Frías MC, Hsu A, Zhang Y, **Rodal AA**; Hong P; Luo H; Xu B. Enzyme Responsive Peptide Thioesters for Targeting Golgi Apparatus. *J Am Chem Soc.* 2022. 144(15):6709-6713.

Quiñones-Frías MC, **Rodal AA**. Recycle before taking out the trash: ATG-9 exo-endocytosis links neuronal activity to autophagosome biogenesis. *Neuron.* 2022; 110(5):735-737.

Blanchette CR*, Scalera AL*, Harris KP, Zhao Z, Dresselhaus EC, Koles K, Yeh A, Apiki JK, Stewart BA, **Rodal AA**. Local regulation of extracellular vesicle traffic by the synaptic endocytic machinery. (*co-first authors) *J Cell Biol.* 2022; 221(5):e202112094.

Del Signore SJ, Kelley CF, Messelaar EM, Lemos T, Marchan MF, Ermanoska B, Mund M, Kaksonen M, **Rodal AA**. An autoinhibitory clamp of actin assembly constrains and directs synaptic endocytosis. *elife.* 2021 Jul 29;10:e69597.

Walsh RB, Dresselhaus EC, Becalska AN, Zunitch MJ, Blanchette CR, Scalera AL, Lemos T, Lee SM, Apiki J, Wang S, Isaac B, Yeh A, Koles K, **Rodal AA**. Opposing functions for retromer and Rab11 in extracellular vesicle cargo traffic at synapses. *J Cell Biol.* 2021; 220 (8): e202012034.

Herzog JJ, Xu W, Deshpande M, Rahman R, Suib H, **Rodal AA**, Rosbash M, Paradis S. TDP-43 dysfunction restricts dendritic complexity by inhibiting CREB activation and altering gene expression. *Proc Natl Acad Sci U S A.* 2020; 117(21):11760-11769.

Blanchette CR, **Rodal AA**. Mechanisms for biogenesis and release of neuronal extracellular vesicles. *Curr. Opin. Neurobiology* 2020; 63:104-110

Ye H, Ojelade S, Li-Kroeger D, Zuo Z, Wang L, Li Y, Gu JYJ, Tepass U, **Rodal AA**, Bellen HJ, Shulman JM. Retromer subunit, VPS29, regulates synaptic transmission and is required for endolysosomal function in the aging brain. *elife* 2020; 9:e51977.

Nguyen DN, Redman RL, Horiya S, Bailey JK, Xu B, Stanfield RL, Temme JS, LaBranche CC, Wang S, **Rodal AA**, Montefiori DC, Wilson IA, Krauss IJ. The Impact of Sustained Immunization Regimens on the Antibody Response to Oligomannose Glycans. *ACS Chem Biol.* 2020;15(3):789-798

Zuraw-Weston S, Wood DA, Torres IK, Lee Y, Wang L, Jiang Z, Lázaro GR, Wang S, **Rodal AA**, Hagan MF, Rotello VM, Dinsmore, AD. Nanoparticles Binding to Lipid Membranes: from Vesicle-Based Gels to Vesicle Inversion and Destruction. *Nanoscale.* 2019; 11(39):18464-18474

Wang S, Zhao Z, **Rodal AA**. Higher order assembly of Sorting Nexin 16 controls tubulation and distribution of neuronal endosomes. *J Cell Biol.* 2019, 218(8):2600-2618

Del Signore SJ, **Rodal AA**. The enemy of my enemy: PTEN and PLCXD collude to fight endosomal PtdIns(4,5)P₂. *J Cell Biol.* 2019; 218(7):2082-2083

Feng Z, Wang H, Wang S, Zhang Q, Zhang X, **Rodal A**, Xu B. Enzymatic Assemblies Disrupt Membrane and Target Endoplasmic Reticulum (ER) for Selective Cancer Cell Death. *J Am Chem Soc.* 2018, 140(30):9566-9573

Wang H, Feng Z, Del Signore SJ, **Rodal AA**, Xu B. Active probes for imaging membrane dynamics of live cells with high spatial and temporal resolution over extended time scales and areas. *J Am Chem Soc.* 2018, 140(10):3505-3509

Zhou J, Du X, Berciu C, Del Signore SJ, Chen X, Yamagata N, **Rodal AA**, Nicastro D, Xu B. Cellular uptake of a taurine-modified, ester bond-decorated D-peptide derivative via dynamin-based endocytosis and macropinocytosis. *Mol Ther.* 2018 , 26(2):648-658

Wang H, Shi J, Feng Z, Zhou R, Wang S, **Rodal AA**, Xu B. An in-situ dynamic continuum of supramolecular phosphoglycopeptides enables formation of 3D cell spheroids. *Angew Chem Int Ed Engl.* 2017; 56(51):16297-16301.

- Herzog JJ*, Deshpande M*, Shapiro L, **Rodal AA**, Paradis S. TDP-43 misexpression causes defects in dendritic growth. (*co-first authors). *Sci Rep*. 2017, 7(1):15656
- Del Signore SJ*, Biber SA*, Lehmann KS, Eskin TL, Heimler SR, Rosenfeld BH, Sweeney S, **Rodal AA**. dOCRL maintains immune cell quiescence by regulating endosomal traffic (*co-first authors) *PLOS Genetics* 2017, 13(10):e1007052.
- Del Signore SJ, **Rodal AA**. The membrane strikes back: Synaptic functions of Skywalker require phosphoinositide binding. *Nat Struct Mol Biol*. 2016, 23(11):956-957
- Deshpande M, **Rodal AA**. Beyond the SNARE – Munc18-1 chaperones α -synuclein. *J Cell Biol*. 2016, 214(6):641-3
- Deshpande M*, Feiger Z*, Shilton AK, Luo CC, Silverman E, **Rodal AA**. Role of endosomal traffic of BMP receptors in synaptic growth defects in a *Drosophila* ALS model. (*co-first authors) *Mol Biol Cell*. 2016, 27(19):2898-910
- Stanishneva-Konovalova T*, Kelley CF*, Messelaar EM, Wasserman SA, Sokolova OS[†], **Rodal AA**[†]. Coordinated autoinhibition of F-BAR domain membrane binding and WASp activation by Nervous Wreck (*co-first authors; [†]co-corresponding authors) *PNAS* 2016, 113(38):E5552-61
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- Deshpande M, **Rodal AA**. The crossroads of synaptic growth signaling, membrane traffic, and neurological disease: Insights from *Drosophila*. *Traffic* 2016,17(2):87-101
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