MICHAEL Z. LIN, PH.D. M.D. *Curriculum Vitae*

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EDUCATION

1994-2004	*M.D.*, University of California Los Angeles School of Medicine, Los Angeles, CA
1996-2002	*Ph.D.,* Harvard Medical School, Boston, MA, Biological and Biomedical Sciences
1990-1994	*B.A. summa cum laude,* Harvard University, Cambridge, MA, Biochemistry
1989-1990	*Early Action Honors Program,* University of California San Diego, San Diego, CA (concurrent with high school)

ACADEMIC POSITIONS

5/2009-present *Assistant–Associate Professor,* Stanford University, Departments of Neurobiology, Bioengineering, and, by courtesy, Chemical and Systems Biology. Also Member of Bio-X, the Sarafan Chem-H Institute, and the Wu-Tsai Neuroscience Institute. Research interests: Protein engineering for optical and chemical interrogation of biology, including single-chain photoswitchable and chemoswitchable proteins, genetically encoded sensors of membrane voltage, bioluminescent sensors of biochemical activities, and small-molecule inhibitors of viral proteases.

6/2004-4/2009 *Burroughs Wellcome Postdoctoral Fellow,* Laboratory of Prof. Roger Y. Tsien, HHMI and UCSD School of Medicine, Department of Pharmacology. Research interests: Protein engineering for imaging and controlling signaling in living neurons, including drug-controllable tags for labeling and control of newly synthesized proteins of interest, new green and red fluorescent proteins for in vivo imaging and biosensing, and improved channelrhodopsins for controlling neuronal excitability.

7/1996-6/2002 *PhD Student,* Laboratory of Prof. Michael E. Greenberg, Harvard Medical School, Departments of Microbiology and Neurobiology. Research interests: Mechanisms of signaling from extracellular stimuli to local morphological responses in neurons. Discovered Eph receptor signaling to Rho GTPases via Src-mediated activatin of ephexin. Developed novel knock-in and knock-out strategies for engineering mutant ephexin and BAD alleles in transgenic mice.

7/1994-6/1996 *MD-PhD student,* Laboratory of Prof. S. Larry Zipursky, UCLA School of Medicine, Department of Biological Chemistry and HHMI. Research interests: Mapped and identified cell cycle control genes in *Drosophila*.

9/1991-6/1994 *Undergraduate thesis student,* Laboratory of Prof. Fotis C. Kafatos, Harvard University, Department of Biology. Research interests: Identified P-element mutations in a screen for embryogenesis genes in *Drosophila*.

SELECTED AWARDS

2019	Roger Tsien Award for Excellence in Chemical Biology, World Molecular Imaging Society
2013	NIH Pioneer Award, 2013.
2013	Rising Star Award, Biomedical Engineering Society, Cellular and Molecular Bioengineering Group
2012	Damon Runyon-Rachleff Innovation Award.
2011	Rita Allen Foundation Scholar.
2007	Burroughs Wellcome Career Award for Medical Scientists.
2005	Jane Coffin Childs Memorial Research Fellowship.

PUBLICATIONS

Preprints and submission

1. Westberg M[†], Song D[†], Duong V, Fernandez D, Huang P-S, **Lin MZ**. Photoswitchable binders enable temporal dissection of endogenous protein function. *In review. Preprint at* https://doi.org/10.1101/2023.09.14.557687. [†]*Equal contributions.*

2. Taxidis J, Madruga B, Melin MD, **Lin MZ**, Golshani P. Voltage imaging reveals that hippocampal interneurons tune memory-encoding pyramidal sequences. *In revision. Preprint at* https://doi.org/10.1101/2023.04.25.538286.

3. Liao Z[†], Gonzalez KC[†], Li DM, Yang CM, Holder D, McClain NE, Zhang G, Evans SW, Chavarha M, **Lin MZ**, Losonczy A*, Negrean A*. Functional architecture of intracellular oscillations in hippocampal dendrites. *In revision. Preprint at* https://doi.org/10.1101/2024.02.12.579750. [†]*Equal contributions. *Co-corresponding authors.*

4. Zhang Y, Luan P, Qiao Q, He Y, Zatka-Haas P, Zhang G, **Lin MZ**, Lak A, Jing M, Mann E, Cragg S. An axonal brake on striatal dopmaine output by cholinergic neurons. *In revision. Preprint at* https://doi.org/10.1101/2024.02.17.580796.

Primary research articles

5. Ledesma HA, Ding J, Huang X, Chen Q, Wang S, **Lin MZ**, Wei W. Dendritic mGluR2 and perisomatic Kv3 signaling regulate dendritic computation of starburst amacrine cells. ***Nature Communications**, in press.*

6. Westberg W, Su Y, Zou X, Huang P, Rustagi A, Garhyan J, Patel PB, Fernandez D, Wu Y, Hao C, Lo, C-W, Karim M, Ning L, Beck A, Saenkham-Huntsinger P, Tat V, Drelich A, Peng B-H, Einav S, Tseng CK, Blish C, **Lin MZ**. An orally bioavailable SARS-CoV-2 main protease inhibitor exhibits improved affinity and reduced sensitivity to mutations. ***Science Transl Med**, in press. Preprints at* https://doi.org/10.1101/2020.09.15.275891 *and* https://doi.org/10.1101/2023.07.19.549739.

7. Milicevic KD, Zhu MH, Barbeau BL, Baser O, Erol ZY, Liu LX, **Lin MZ**, Antic SD. Imaging of Evoked Cortical Depolarizations Using Either ASAP2s, or chi-VSFP, or Di-4-Anepps, or Autofluorescence Optical Signals. ***J Integr Neurosci* 2023**, 22:160. https://doi.org/10.31083/j.jin2206160.

8. Sanchez-Aguilera A, Masmudi-Martín M, Navas-Olive A, Baena P, Hernández-Oliver C, Priego N, Cordón-Barris L, Alvaro-Espinosa L, García S, Martínez S, Lafarga M, RENACER, **Lin MZ**, Al-Shahrour F, Menendez de la Prida L, Valiente M. Machine learning identifies experimental brain metastasis subtypes based on their influence on neural circuits. ***Cancer Cell* 2023**, 41:1637. https://doi.org/10.1016/j.ccell.2023.07.010. PMID 37652007.

9. Evans SW, Shi D, Chavarha M, Plitt MH, Taxidis J, Madruga B, Fan JL, Hwang F-J, van Keulen SC, Suomivuori CM, Pang MM, Su S, Zhang G, Lee S, Jiang D, Pradhan L, Liu Y, Reese A, Negrean A, Losonczy A, Makinson CD, Wang S, Clandinin TR, Dror RO, Ding JB, Ji N, Golshani P, Giocomo LM, Bi G, **Lin MZ.** A positively tuned voltage indicator reveals electrical correlates of calcium activity in the brain. ***Nature Methods* 2023**, 20:1104. https://doi.org/10.1038/s41592-023-01913-z. PMID 37429962.

10. Wu Y, Walker JR, Ning L, Westberg M, Monje M, Kirkland TA, **Lin MZ***, Su Y*. Kinase-modulated bioluminescent indicators enable noninvasive imaging of drug activity in the brain. ***ACS Central Science* 2023**. https://doi.org/10.1021/acscentsci.3c00074. **Co-corresponding authors.*

11. Su Y[†], Walker JR[†], Hall M, Klein M, Wu X, Encell L, Casey K, Liu LX, Hong G, **Lin MZ***, Kirkland TA*. An optimized bioluminescent substrate for non-invasive anatomical and activity imaging in the brain. ***Nature Chemical Biology* 2023**. https://doi.org/10.1038/s41589-023-01265-x. [†]*Equal contributions. *Co-corresponding authors.*

12. Ryu H, Lee HN, Ju J, Park J-B, Oh E, **Lin MZ***, Seong J*. Combinatorial effects of RhoA and Cdc42 on the actin cytoskeleton revealed by photoswitchable GEFs. ***Sensors and Actuators B: Chemical* 2022**, 369:132316. https://doi.org/10.1016/j.snb.2022.132316. **Co-corresponding authors.*

13. Ju J, Ning L, Chun H, Zhou XX, Ryu H, Lee YW, Lee-Richerson AI, Jeong C, **Lin MZ***, Seong J*. Optical regulation of endogenous RhoA reveals switching of cellular responses by signal amplitude. ***Cell Reports* 2022**, 40:111080. https://doi.org/10.1016/j.celrep.2022.111080. PMID 35830815. **Co-corresponding authors.*

14. Ning L[†], Geng Y[†], Lovett-Barron M, Niu X, Deng M, Wang L, Ataie N, Sens A, Ng H-L, Chen S, Deisseroth K, **Lin MZ***, Chu J*. A bright, nontoxic, and non-aggregating red fluorescent protein for long-term labeling of fine structures in neurons. ***Frontiers in Cell and Developmental Biology* 2022**, 10:893468. https://doi.org/10.3389/fcell.2022.893468. PMID 35846353. [†]*Equal contributions. *Co-corresponding authors.*

15. Labanieh L, Majzner RG, Klysz D, Sotillo E, Fisher CJ, Vilches-Moure JG, Pacheco KZ, Malipatlolla M, Xu P, Hui JH, Murty T, Theruvath Johanna, Mehta Nishant, Hunter SA, Weber EW, Heitzeneder S, Parker KR, Satpathy AT, Chang HY, **Lin MZ**, Cochran JR, Mackall CL. Enhanced safety and efficacy of protease-regulated CAR-T cell receptors. ***Cell*** **2022**, 185:1. https://doi.org/10.1016/j.cell.2022.03.041. PMID 35483375.

16. Kim BB, Wu H, Hao YA, Pan M, Chavarha M, Westberg M, St-Pierre F, Wu JC, **Lin MZ**. A red fluorescent protein with improved monomericity enables ratiometric voltage imaging with ASAP3. ***Scientific Reports*** **2022**, 12:3678. https://doi.org/10.1038/s41598-022-07313-1. PMID 35256624.

17. Ruijgrok PV[†], Ghosh RP[†], Zemsky S, Nakamura M, Gong R, Ning L, Chen R, Vachharajani VT, Chu AE, Anand N, Eguchi RR, Huang P-S, **Lin MZ**, Alushin GM, Liphardt MR, Bryant Z. Optical control of fast and processive engineered myosins in vitro and in living cells. ***Nature Chemical Biology*** **2020**, 17:540. https://doi.org/10.1038/s41589-021-00740-7. PMID 33603247. [†]*Equal contributions.*

18. Li B, Chavarha M, Kobayashi Y, Yoshinaga S, Nakajima K, **Lin M**, Inoue T. Two-photon voltage imaging of spontaneous activity from multiple neurons reveals network activity in brain tissue. ***iScience*** **2020**, 23:101363**.** http://doi.org/10.1016/j.isci.2020.101363. PMID 32717641.

19. Su Y, Walker JR, Park Y, Smith TP, Liu LX, Hall MP, Labanieh L, Hurst R, Wang DC, Encell LP, Kim N, Zhang F, Kay MA, Casey K, Majzner RG, Cochran J, Mackall C, Kirkland TA, **Lin MZ**. Novel NanoLuc substrates enable bright two-population bioluminescence imaging in animals. ***Nature Methods*** **2020**. http://doi.org/10.1038/s41592-020-0889-6. PMID 32661427.

20. Wu J, Liang Y, Chen S, Hsu C, Chavarha M, Evans SW, Shi D, **Lin MZ**, Tsia KK, Ji N. Kilohertz *in vivo* imaging of neural activity. ***Nature Methods*** **2020**, 17:287. http://doi.org/10.1038/s41592-020-0762-7. PMID 32123392.

21. Villette V[†], Chavarha C[†], Dimov IK, Bradley J, Pradhan L, Mathieu B, Evans SW, Chamberland S, Shi D, Yang R, Kim BB, Ayon A, Jalil A, St-Pierre F, Schnitzer MJ, Bi G, Toth K, Ding J, Dieudonné S, **Lin MZ.** Ultrafast two-photon imaging of a high-gain voltage indicator in awake behaving mice. ***Cell*** **2019**, 179:1590. http://doi.org/10.1016/j.cell.2019.11.004. PMID 31835034. [†]*Equal contributions.*

22. Yang Y, Geng Y, Ning N, Kim HJ, Jeon NL, Lau A, Chen L, **Lin MZ**. mTOR pathway inhibition restores PSD95 induction in neurons lacking Fragile X mental retardation protein. ***Proceedings of the National Academy of Sciences*** **2019**, 11:12007. http://doi.org/10.1073/pnas.1812056116. PMID 31118285.

23. Chung HK, Zou X, Bajar BT, Brand BR, Huo Y, Alcudia JF, Ferrell JE, **Lin MZ**. Rewiring aberrant cancer signaling to therapeutic effector release with a synthetic two-component system. ***Science*** **2019***,* 364:eaat6982. http://doi.org/10.1126/science.aat6982. PMID 31048459.

24. Oh Y, Park Y, Cho, JH, Wu H, Paulk NK, Liu LX, Kim N, Kay MA, Wu JC, **Lin MZ.** An orange calcium-modulated bioluminescent indicator for non-invasive activity imaging. ***Nature Chemical Biology*** **2019**, 15:433. http://doi.org/10.1038/s41589-019-0256-z. PMID 30936501.

25. Daigle TL, Madisen L, Hage TA, Valley MT, Knoblich U, Larsen RS, Takeno MM, Huang L, Gu H, Larsen R, Mills M, Bosma-Moody A, Siverts LA, Walker M, Graybuck LT, Yao Z, Fong O, Nguyen TN, Garren E, Lenz GH, Chavarha M, Pendergraft J, Harrington J, Hirokawa KE, Harris JA, Nicovich PR, McGraw MJ, Ollerenshaw DR, Smith KA, Baker CA, Ting JT, Sunkin SM, Lecoq J, **Lin MZ**, Boyden ES, Murphy GJ, da Costa NM, Waters J, Li L, Tasic B, Zeng H. A suite of transgenic driver and reporter mouse lines with enhanced brain-cell-type targeting and functionality. ***Cell*** **2018,** 174:465. http://doi.org/10.1016/j.cell.2018.06/035. PMID 30007418.

26. Jacobs CL, Badiee RK, **Lin MZ.** StaPLs: versatile genetically encoded modules for engineering drug-inducible proteins. ***Nature Methods*** **2018**, 15:523. http://doi.org/10.1038/s41592-018-0041-z. PMID 29967496.

27. Xu F, Shi DQ, Lau PM, **Lin MZ***, Bi GQ*. Excitation wavelength optimization improves photostability of ASAP-family GEVIs. ***Molecular Brain*** **2018**, 11:32. http://doi.org/10.1186/s13041-018-0374-7. PMID 29866136. **Co-corresponding authors.*

28. Zhou XX, Zou X, Chung HK, Gao Y, Liu Y, Qi LS, **Lin MZ.** A single-chain photoswitchable CRISPR-Cas9 architecture for inducible gene editing and transcription. ***ACS Chemical Biology*** **2017,** 13:443. http://doi.org/10.1021/acschembio.7b00603. PMID 28938067.

29. Ting D, Hope J, Ong Q, Lou H, Kim N, McCarthy C, Acero V, **Lin MZ***, Cui B*. Understanding CRY2 interactions for optical control of intracellular signaling. ***Nature Communications*** **2017,** 8:547. http://doi.org/10.1038/s41467-017-00648-8. PMID 28916751. *Co-corresponding authors.

30. Chamberland S, Yang HH, Pan M, Evans SW, Chavarha M, Yang Y, Salesse C, Wu H, Wu JC, Clandinin TR†, Toth K†, **Lin MZ**, St-Pierre F†. Fast two-photon imaging of subcellular voltage dynamics in neuronal tissue with genetically encoded indicators. ***eLife*** **2017,** 6:e25690. http://doi.org/10.7554/eLife.25690. PMID 28749338. †*Co-corresponding authors.*

31. Zhou XX, Fan L, Zhou P, Shen K, **Lin MZ**. Optical control of cell signaling by single-chain photoswitchable kinases. ***Science*** **2017**, 355:836. http://doi.org/10.1126/science.aah3604. PMID 28232577.

32. Laviv T†, Kim BB†, Chu J, **Lin MZ***, Yasuda R*. Simultaneous dual-color fluorescence lifetime imaging with novel red-shifted fluorophores. ***Nature Methods*** **2016**, 13:989. http://doi.org/10.1038/nmeth.4046. PMID 27798609. †*Equal contributions.* **Co-corresponding authors.*

33. Bajar BT†, Lam AJ†, Badiee R, Oh YH, Chu J, Zhou XX, Kim N, Kim BB, Chung M, Yabonovitch AL, Cruz BF, Kulalert K, Tao JJ, Meyer T, Su XD, **Lin MZ**. Fluorescent indicators for simultaneous reporting of all four cell cycle phases. ***Nature Methods*** **2016**, 13:993. http://doi.org/10.1038/nmeth.4045. PMID 27798610. †*Equal contributions.*

34. Marshall JD, Li JZ, Gong Y, St-Pierre F, **Lin MZ**, Schnitzer MJ. Cell-type specific optical recording of membrane voltage dynamics in freely moving mice. ***Cell*** **2016**, 167:1650. http://doi.org/10.1016/j.cell.2016.11.021. PMID 27912066.

35. **Lin MZ***, Schnitzer MJ*. Genetically encoded indicators of neuronal activity. ***Nature Neuroscience*** **2016**, 19:1142. http://doi.org/10.1038/nn.4359. PMID 27571193. PMCID **Co-corresponding authors.*

36. Yang HH†, St-Pierre F†, Sun X, Ding X, **Lin MZ,** Clandinin TR. Subcellular imaging of voltage and calcium signals reveals neural processing *in vivo*. ***Cell*** **2016***,* 166:1. http://doi.org/10.1016/j.cell.2016.05.031. PMID 27264607. †*Equal contributions.*

37. Chu J, Oh YH, Sens A, Ataie N, Dana H, Macklin J, Laviv T, Welf ES, Dean KM, Zhang F, Kim BB, Tang CT, Hu M, Baird MA, Davidson MW, Fioka F, Kay M, Fiolka R, Yasuda R, Kim DS, Ng H-L, **Lin MZ**. A bright cyan-excitable orange fluorescent protein facilitates dual-emission microscopy and enhances bioluminescence imaging *in vivo*. ***Nature Biotechnology*** **2016***,* 34:760. http://doi.org/10.1038/nbt.3550. PMID 27240196.

38. Welf ES, Driscoll MK, Dean KM, Schafer C, Chu C, Davidson MW, **Lin MZ**, Danuser G, Fiolka R. Quantitative multiscale cell imaging in controlled 3D microenvironments. ***Developmental Cell*** **2016,** 36:462. http://doi.org/10.1016/j.devcel.2016.01.022. PMID 26906741.

39. Bajar BT, Wang ES, Lam AJ, Kim BB, Jacobs CL, Howe ES, Davidson MW, **Lin MZ***, Chu J*. Improving brightness and photostability of green and red fluorescent proteins for live cell imaging and FRET reporting. ***Scientific Reports*** **2016**, 6:20889. http://doi.org/10.1038/srep20889. PMID 26879144. (Featured in Research Highlights, *Nature Methods* 13:290.) **Co-corresponding authors.*

40. Yan D, Weisshaar M, Lamb K, Chung HK, **Lin MZ,** Plemper RK. Replication-competent influenza virus and respiratory syncytial virus luciferase reporter strains engineered for co-infections identify antiviral compounds in combination screens. ***Biochemistry*** **2015***,* 54:5589. http://doi.org/10.1021/acs.biochem.5b00623. PMID 26307636.

41. Chung HK, Jacobs CL, Huo Y, Yang J, Krumm SA, Plemper RK, Tsien RY, **Lin MZ.** Tunable and reversible drug control of protein production via a self-excising degron. ***Nature Chemical Biology*** **2015***,* 11:713-720. http://doi.org/10.1038/nchembio.1869. PMID 26214256.

42. St-Pierre F, Marshall JD, Yang Y, Gong Y, Schnitzer MJ, **Lin MZ**. High-fidelity optical reporting of neuronal electrical activity with an ultrafast fluorescent voltage sensor. ***Nature Neuroscience*** **2014**, 17:884. http://doi.org/10.1038/nn.3709. PMID 24755780.

43. Chu J, Haynes RD, Corbel SY, Li P, Gonzalez-Gonzalez E, Burg JS, Ataie NJ, Lam AJ, Cranfill PJ, Baird MA, Davidson MW, Ng H-L, Garcia, KC, Contag CH, Shen K, Blau HM, **Lin MZ**. Non-invasive intravital

imaging of cellular differentiation with a bright red-excitable fluorescent protein. ***Nature Methods*** **2014**, 11:572. http://doi.org/10.1038/nmeth.2888. PMID 24633408.

44. Seong J, Tajik A, Sun J, Guan JL, Humphries MJ, Craig SE, Shekaran A, García AJ, Lu S, **Lin MZ**, Wang N, Wang Y. Distinct biophysical mechanisms of focal adhesion kinase mechanoactivation by different extracellular matrix proteins. ***PNAS*** **2013**, 110:19372. PMID 24222685.

45. Miranda JG, Weaver AL, Qin Y, Park JG, Stoddard CI, **Lin MZ**, Palmer AE. New alternately colored FRET sensors for simultaneous monitoring of Zn2+ in multiple cellular locations. ***PLoS One*** **2012**, 7:e49371. PMID 23173058.

46. Zhou XX, Chung HK, Lam AJ, **Lin MZ.** Optical control of protein activity by fluorescent protein domains. ***Science*** **2012**, 338:810. PMID 23139335.

47. Butko MT, Yang J, Geng Y, Kim HJ, Jeon NL, Shu X, Mackey MR, Ellisman MH, Tsien RY, **Lin MZ.** Fluorescent and photo-oxidizing TimeSTAMP tags track protein fates in light and electron microscopy. ***Nature Neuroscience*** **2012**, 15:1742. PMID 23103964.

48. Lam A, St-Pierre F, Gong Y, Marshall JD, Cranfill PJ, Baird MA, McKeown MR, Wiedenmann Jörg, Davidson MW, Schnitzer MJ, Tsien RY, **Lin MZ.** Improving FRET dynamic range with bright green and red fluorescent proteins. ***Nature Methods*** **2012**, 9:1005. http://doi.org/10.1038/nmeth.2171. PMID 22961245.

49. De Jaco A, **Lin MZ**, Dubi N, Comoletti D, Miller M, Camp S, Ellisman M, Bukto MT, Tsien RY, Taylor P. Neuroligin trafficking deficiencies arising from mutations in the alpha/beta-hydrolase fold protein family. ***Journal of Biological Chemistry*** **2010**, 285:28674. PMID 20615874.

50. **Lin MZ,** McKeown MR, Ng HL, Aguilera TA, Shaner NC, Campbell RE, Adams SR, Gross LA, Ma W, Alber T, Tsien RY. Autofluorescent proteins with excitation in the optical window for intravital imaging in mammals. ***Chemistry and Biology*** **2009**, 16:1169. PMID19942140.

51. Shu X, Royant A, **Lin MZ**, Aguilera TA, Lev-Ram V, Steinbach PA, Tsien RY. Mammalian expression of infrared fluorescent proteins engineered from a bacterial phytochrome. ***Science*** **2009**, 324:804. Erratum 326:1482. PMID 19423828.

52. Lin JY, **Lin MZ,** Steinbach P, Tsien RY. Characterization of engineered channelrhodopsin variants with improved properties and kinetics. ***Biophysical Journal*** **2009**, 96:1803-14. PMID 19254539.

53. **Lin MZ**, Glenn JS, Tsien RY. A drug-controllable tag for visualizing newly synthesized proteins in cells and whole animals. ***Proceedings of the National Academy of Sciences*** **2008**, 105:7744. (Cover article, featured in "A time stamp for proteins" *Nature Method*s. 5:662.) PMID 18511556.

54. Shaner NC, **Lin MZ,** McKeown MR, Steinbach PA, Hazelwood KL, Davidson MW, Tsien RY. Improving the photostability of bright monomeric orange and red fluorescent proteins. ***Nature Methods*** **2008**, 5:545. PMID 18454154.

55. Cowan CW, Shao YR, Sahin M, Shamah SM, **Lin MZ**, Greer PL, Gao S, Griffith EC, Brugge JS, Greenberg ME. Vav family GEFs link activated Ephs to endocytosis and axon guidance. ***Neuron*** **2005**, 46:205. PMID 15848800.

56. Sahin M*, Greer PL*, **Lin MZ***, Poucher H, Eberhart J, Schmidt S, Wright TM, Shamah SM, O'Connell S, Cowan CW, Hu L, Goldberg JL, Debant A, Corfas G, Krull CE, Greenberg ME. Eph-dependent tyrosine phosphorylation of ephexin1 modulates growth cone collapse. ***Neuron*** **2005**, 46:191. *Equal authorship. (Featured in "New Exchanges in Eph-Dependent Growth Cone Dynamics" *Neuron.* 46:141.) PMID 15848799.

57. **Lin MZ**, Teitell M, Schiller G. The evolution of antibodies into versatile tumor targeting agents. ***Clinical Cancer Research*** **2005**, 11:129. PMID 15671537.

58. Zhang X, Boles RG, Law SK, Lin M. Ocular findings in geleophysic dysplasia. ***Journal of the American Association for Pediatric Ophthalmology and Strabismus*** 2004, 8:198. PMID 15088061.

59. Datta SR, Ranger AM, **Lin MZ**, Sturgill JF, Ma YC, Cowan CW, Dikkes P, Korsmeyer SJ, Greenberg ME. Survival factor-mediated BAD phosphorylation raises the mitochondrial threshold for apoptosis. ***Developmental Cell*** **2002**, 3:631. PMID 12431371.

60. Watson FL, Heerssen HM, Bhattacharyya A, Klesse L, **Lin MZ**, Segal RA. Neurotrophins use the Erk5 pathway to mediate a retrograde survival response. ***Nature Neuroscience*** **2001**, 4:981. Erratum 5:1017. PMID 11544482.

61. Shamah SM*, **Lin MZ***, Goldberg JL, Estrach S, Sahin M, Hu L, Bazalakova M, Neve RL, Corfas G, Debant A, Greenberg ME. EphA receptors regulate growth cone dynamics through the novel guanine nucleotide exchange factor ephexin. ***Cell*** **2001**, 105:233. *Equal authorship. PMID 11336673.

62. Sun Y, Nadal-Vicens M, Misono S, **Lin MZ**, Zubiaga A, Hua X, Fan G, Greenberg ME. Neurogenin promotes neurogenesis and inhibits glial differentiation by independent mechanisms. ***Cell*** **2001**, 104:365. PMID 11239394.

63. Dalva MB, Takasu MA, **Lin MZ**, Shamah SM, Hu L, Gale NW, Greenberg ME. EphB receptors interact with NMDA receptors and regulate excitatory synapse formation. ***Cell*** **2000**, 103:945. PMID 11136979.

64. Brunet A, Bonni A, Zigmond MJ, **Lin MZ**, Juo P, Hu LS, Anderson MJ, Arden KC, Blenis J, Greenberg ME. Akt promotes cell survival by phosphorylating and inhibiting a Forkhead transcription factor. ***Cell*** **1999**, 96:857. PMID 10102273.

65. Watson FL, Heerssen HM, Moheban DB, **Lin MZ**, Sauvageot CM, Bhattacharyya A, Pomeroy SL, Segal RA. Rapid nuclear responses to target-derived neurotrophins require retrograde transport of ligand-receptor complex. ***Journal of Neuroscience*** **1999**, 19:7889. PMID 10479691.

66. Dong X, Tsuda L, Zavitz KH, **Lin M**, Li S, Carthew RW, Zipursky SL. ebi regulates epidermal growth factor receptor signaling pathways in Drosophila. ***Genes & Development*** **1999**, 13:954. PMID 10215623..

67. Dong X, Zavitz KH, Thomas BJ, **Lin M,** Campbell S, Zipursky SL. Control of G1 in the developing *Drosophila* eye: *rca1* regulates Cyclin A. ***Genes & Development*** **1997**, 11:94. PMID 9000053.

Other publications

68. Bajar BT, Guan X, Lam A, **Lin MZ**, Yasuda R, Laviv T, Chu J. FRET imaging of Rho GTPase activity with red fluorescent protein-based FRET pairs (protocol). ***Methods Mol Biol*** **2022**, 2438:31. http://doi.org/10.1007/978-1-0716-2035-9_2. PMID 35147933.

69. Bajar BT, **Lin MZ**. Simultaneous detection of four cell cycle phases with live fluorescence imaging (protocol). ***Methods Mol Biol*** **2022**, 2274:25. http://doi.org/10.1007/978-1-0716-1258-3_3. PMID 34050459.

70. Liu S, Su Y, **Lin MZ**, Ronald JA. Brightening up biology: Advances in luciferases systems for *in vivo* imaging (review). ***ACS Chemical Biology*** **2021**, 16:2707. http://doi.org/10.1021/acschembio.1c00549. PMID 34780699.

71. Moreaux LC, Yatsenko D, Sacher WD, Choi J, Lee C, Kubat NJ, Cotton RJ, Boyden ES, **Lin MZ**, Tian L, Tolias AS, Poon JKS, Shepard KL, Roukes ML. Integrated neurophotonics: Toward dense volumetric interrogation of brain circuit activity at depth and in real time (review). ***Neuron*** **2020**, 108:66. http://doi.org/10.1016/j.neuron.2020.09.043. PMID 33058767.

72. Seong J, **Lin MZ**. Optobiochemistry: Genetically encoded control of protein activity by light (review). ***Annual Review of Biochemistry*** **2021**. https://doi.org/10.1146/annurev-biochem-072420-112431. PMID 33781076.

73. Chung HK, **Lin MZ**. On the cutting edge: protease-based methods for sensing and controlling cell biology (review). ***Nature Methods*** **2020**, 17:852. http://doi.org/10.1038/s41592-020-0891-z. PMID 32661424.

74. **Lin MZ**. An axonal blueprint: Generating neuronal polarity with light-inducible proteins (comment). ***Cell Chemical Biology*** **2019**, 26:1634. http://doi.org/10.1016/j.chembiol.2019.12.003. PMID 31951578.

75. Rodriguez EA, Campbell RE, Lin JY, **Lin MZ**, Miyawaki A, Palmer AE, Shu X, Zhang J, Tsien RY**.** The growing and glowing toolbox of fluorescent and photoactive proteins (review). ***Trends in Biochemical Sciences*** **2016**, 42:111. http://doi.org/10.1016/j.tibs.2016.09.010. PMID 27814948.

76. Ng H-L, **Lin MZ**. Wavelength tuning in far-red fluorescent proteins: insights from structural biology (review). ***Current Opinion in Structural Biology*** **2016**, 39:124. http://doi.org/10.1016/j.sbi.2016.07.010. PMID 27468111.

77. Bajar BT, Wang ES, Zhang S, **Lin MZ**, Chu J. A guide to fluorescent protein FRET pairs (review). ***Sensors*** **2016**, 16:1488. http://doi.org/10.3390/s16091488. PMID 27649177.

78. Zhou XX, Pan M, **Lin MZ**. Investigating neuronal development and function with engineered light-controllable proteins (review). ***Frontiers in Molecular Neuroscience*** **2015**, 8:37. http://doi.org/10.3389/fnmol.2015.00037. PMID 26257603.

79. St-Pierre F, Chavarha M, **Lin MZ**. Designs and sensing mechanisms of genetically encoded fluorescent voltage indicators (review). ***Current Opinion in Chemical Biology*** **2015**, 27:31. http://doi.org/10.1016/j.cbpa.2015.05.003. PMID 26079047.

80. Fan LZ, **Lin MZ**. Optical control of biological processes by light-switchable proteins (review). ***WIREs Developmental Biology*** **2015**, 4:545. http://doi.org/10.1002/wdev.188. PMID 25858669.

81. Chu J, Xing Y, **Lin MZ**. Far-red and near-infrared fluorescent proteins (book chapter). In Day RN, Davidson MW (Eds.). ***The Fluorescent Protein Revolution*** **2014**, 157. Boca Raton, Florida: CRC Press.

82. Kim B, **Lin MZ**. Optobiology: optical control of biological processes via protein engineering (review). ***Biochemical Society Transactions*** **2013**, 41:1183. PMID 24059506.

83. Zhou XX, **Lin MZ**. Photoswitchable fluorescent proteins: Ten years of colorful chemistry and exciting applications (review). ***Current Opinion in Chemical Biology*** **2013**, 17:682. PMID 23876529. PMCID PMC3771498.

84. **Lin MZ**. Beyond the rainbow: New fluorescent proteins brighten the infrared scene (comment). ***Nature Methods*** **2011**, 8:726. PMID 21878918.

85. Knopfel T, **Lin MZ**, Levskaya A, Tian L, Lin JY, Boyden ES. Toward the second generation of optogenetic tools (review). ***Journal of Neuroscience*** **2010**, 30:14998. PMID 21068304.

86. **Lin MZ**, Tsien RY. TimeSTAMP tagging of newly synthesized proteins (protocol). ***Current Protocols in Protein Science*** **2010**, Chapter 26:Unit 26.5. PMID 20155731.

87. **Lin MZ**, Wang L. Selective labeling of proteins with chemical probes in living cells (review). ***Physiology*** **2008**, 23:131. PMID 18556466.

88. **Lin MZ**, Greenberg ME. Orchestral maneuvers in the axon: Trio and the control of axon guidance (comment). ***Cell*** **2000**, 101:239. PMID 10847678.