Curriculum Vitae: Melike Lakadamyali

Associate Professor
Perelman School of Medicine, Department of Physiology
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Education

2001-2006	PhD in Physics, Harvard University, Cambridge, MA, USA (advisor: Prof. Xiaowei Zhuang)
1997- 2001	B.S. in Physics, University of Texas at Austin, USA (GPA 4.0/4.0) (advisors: Prof. Ken Shih and Prof. Josef Kas)

Positions

2020-current	Associate Professor of Physiology, University of Pennsylvania
2020-current	Associate Professor of Cell and Developmental Biology (secondary), University of Pennsylvania
2017-2020	Assistant Professor of Physiology, University of Pennsylvania
2017-2020	Assistant Professor of Cell and Developmental Biology (secondary), University of Pennsylvania
2015-2016	Senior Group Leader (equivalent to Associate Professor with tenure) ICFO-The Institute of Photonic Sciences, Barcelona, Spain
2010-2015	Junior Group Leader (equivalent to Assistant Professor) ICFO- The Institute of Photonic Sciences, Barcelona, Spain
2007-2010	Postdoctoral Fellow, Center for Brain Science, Harvard University, Cambridge, MA, USA (advisor: Prof. Jeff Lichtman)

Honors and Awards

2021	Scialog Fellow for Advancing Bioimaging, Research Corporation for Science Advancement
2019	Linda Pechenik Montague Investigator Award
2017	Profiled in “Author File”, Nature Methods
2017	Profiled in “Cell Scientist to Watch”, Journal of Cell Science
2016	HHMI International Scholars semi-finalist (withdrew to move to UPenn).
2016	Technical University of Munich-Institute for Advanced Study (TUM-IAS) Hans Fischer Fellow
2016	Finalist for La Vanguardia Newspaper, best research in Spain award
2016	Featured in “Voices of Biotech”, by Nature Biotechnology
2014	Ramon y Cajal Fellowship, Spanish Ministry of Education
2013	EMBO Young Investigator Award
2001	Dean’s Honored Graduate (GPA: 4.0/4.0), University of Texas at Austin, USA.

1997 Cyprus-America-Scholarship Program and Fulbright Commission scholar

Professional memberships

2001- Member of the American Biophysical Society
2015- Member of the American Society for Cell Biology
2020- Member of Faculty Opinions F1000
2020-2021 Elected Chair, Physics of Living Cells subgroup, Biophysical Society
2021- Standing Member, Cellular and Molecular Technologies Study Section, NIH

Organization of symposia and conference sessions:

2021 Chair, Physics of Living Cells subgroup symposium, Biophysical Society
2020 Co-organizer of Biophysical Society Thematic Meeting: Spatial Organization of Biological Functions, Bangalore, India (postponed due to COVID-19)
2020 Co-organizer of CellViewer Symposium, Seeing and Decoding Nuclear Function and Structure, Barcelona, Spain
2017 Co-organizer of "Advanced Microscopy for Quantitative Cell Biology" Sub-group session at ASCB/EMBO meeting, Philadelphia, PA
2016 Co-organizer of the ICREA symposium "BioNanoVision of cellular architecture: from the nucleus to the cell membrane"
2013 Co-organizer of the ICREA symposium "Visualizing signalling nanoplatforms at a higher spatiotemporal resolution", ICFO, Barcelona
2012 Organizer of the 1st European STORM Workshop at ICFO, Barcelona
2011 Co-chair of the "Imaging Cellular Structure across Scales" Working Group at the American Society for Cell Biology meeting, Denver, CO

Editorial board positions:

2019- Board of Reviewing Editors for eLife
2019- Ad-hoc editor for PNAS
2015- Editorial Board Member for Scientific Reports

Journal Reviewing: Ad-hoc reviewer for *Cell, Science, Nature, Nature Methods, Nature Biotechnology, Nature Communications, Nature Protocols, Elife, Journal of Cell Biology, PNAS, Journal of Cell Science, ACS Nano, Scientific Reports, PLoS Computational Biology, Biophysical Journal…*

Grant Reviewing: Standing member for *NIH Cellular and Molecular Technologies Study Section, NIH K99/R00 Career Transition Award Study Section, European Research Council (ERC), European Molecular Biology Organization (EMBO) Long and Short term fellowships, Human Frontiers Science Program, UK Medical Research Council (MRC), Netherlands Organization for Scientific Research (NOW)…*

Other Service:

2020- Founder and co-director of Physiology Department's Committee on Diversity and Inclusion, University of Pennsylvania

2019 Member of the faculty search committee, Physiology Department, University of Pennsylvania
2019- EMRL/Cryo-EM Core Facility, advisory committee member, University of Pennsylvania
2019 - CDB Microscopy Core Facility, advisory committee member, University of Pennsylvania
2019 - Biomedical Graduate Studies, Cell Physiology and Metabolism (CPM) Admissions committee co-director, University of Pennsylvania

Teaching experience

2019-current CAMB 709, Quantitative Image Analysis for Biologists, University of Pennsylvania, co-director
2019 BIOM600, Keynote Lecture
2019 CAMB 608, Regulation of Eukaryotic Gene Transcription, Guest Faculty
2019 CHEM 558, Biomolecular Spectroscopy and Microscopy, Guest Lecturer
2018 CAMB 605 Graduate Seminar Course, CPM Rotating Faculty
2018 CAMB 709, Quantitative Imaging and Analysis for Biologists Course, Guest Lecturer
2018 CAMB 691, Advanced Topics in Cell Biology and Physiology 1, Guest Lecturer
2017 CAMB 709, Quantitative Imaging and Analysis for Biologists Course, Guest Lecturer
2017 CAMB 605 Graduate Seminar Course, CPM Rotating Faculty
2014 Faculty at the 6th Bangalore Microscopy Course, Bangalore, India
2013 Polytechnic University of Catalunya (UPC), Master in Photonics program, Spain
2010 Faculty at the EMBO Practical Course, Microscopy, Modeling and Biophysical Methods, EMBL, Heidelberg, Germany
2001-2002 Teaching Assistant, Department of Physics, Harvard University
1997 -2001 Undergraduate Tutor, University of Texas at Austin

Patents

Cosma, Lakadamyali, Manzo, Ricci, "Method for detecting cell pluripotency", Patent n. 14/482,586; USA

Lakadamyali, Cella-Zanacchi, Manzo, Derr, "Method for quantifying protein copy number", Patent n. EP17382394.9

Lakadamyali, Gomez-Garcia, Garcia-Parajo, "Method for multi-color imaging using frequency-modulated illumination", Patent n. EP119859

Publications from independent career

Original articles

1. "Super resolution microscopy reveals how elongating RNA polymerase II and nascent RNA interact with nucleosome clutches." A. Castells-Garcia, I. Ed-Daoui, E González-

Almela, C. Vicario, J. Ottestrom, **M. Lakadamyali**, M.V. Neguembor, M.P. Cosma, ***Nucleic Acids Res*** 50: 175-190, Jan 2022.

2. "Chemo-Mechanical Cues Modulate Nano-Scale Chromatin Organization in Healthy and Diseased Connective Tissue Cells", Su-Jin Heo, Shreyasi Thakur, Xingyu Chen, Claudia Loebel, Boao Xia, Rowena McBeath, Jason A. Burdick, Vivek B. Shenoy, Robert L. Mauck, **Melike Lakadamyali,** BioRxiv preprint (https://doi.org/10.1101/2021.04.27.441596), 2021.
3. "Transcription-mediated supercoiling regulates genome folding and loop formation", Maria Victoria Neguembor, Laura Martin, Álvaro Castells-García, Pablo Aurelio Gómez-García, Chiara Vicario, Davide Carnevali, Jumana AlHaj Abed, Alba Granados, Ruben Sebastian-Perez, Francesco Sottile, Jérôme Solon, Chao-ting Wu, **Melike Lakadamyali*** and Maria Pia Cosma* (*equal contribution): ***Molecular Cell*** 81(15): 3065-3081, Aug 2021
4. "A protocol to quantify chromatin compaction with confocal and super-resolution microscopy in cultured cells", L. Martin, C. Vicario, A. Castells-García, **M. Lakadamyali**, M.V. Neguembor, M.P. Cosma, ***STAR Protoc*** 2: 100865, Sep 2021. PMCID: PMC8488755
5. "Efficient hemogenic endothelial cell specification by RUNX1 is dependent on baseline chromatin accessibility of RUNX1-regulated TGFβ target genes", E.D. Howell, A.D. Yzaguirre, P. Gao, R. Lis, B. He, **M. Lakadamyali**, S. Rafii, K. Tan, N.A. Speck, ***Genes Dev*** 35: 1475-1489, Nov 2021. PMCID: PMC8559682
6. "Microtubule dynamics influence the retrograde biased motility of kinesin-4 motor teams in neuronal dendrites", E.M. Masucci, P.K. Relich, **M. Lakadamyali**, E.M. Ostap, E.F. Holzbaur, ***Mol Biol Cell*** Oct 2021. PMID: 34705476
7. "Tau forms oligomeric complexes on microtubules that are distinct from pathological oligomers", M.T. Gyparaki, A. Arab, E.M. Sorokina, A.N. Santiago-Ruiz, C.H. Bohrer, J. Xiao, **M. Lakadamyali**, ***PNAS*** 118 (19) e2021461118 (2021)
8. "ORP1L regulates dynein clustering on endolysosomal membranes in response to cholesterol levels", S. Thakur, E.M. Sorokina, P.K. Relich, **M. Lakadamyali**, *BiorXiv preprint:* doi: 10.1101/2020.08.28.273037 (2020)
9. "Cega: a Single Particle Tracking Algorithm to Identify Moving Particles in a Noisy System", E.M. Masucci, P.K. Relich, M. Ostap, E.L.F. Holzbaur, **M. Lakadamyali**, under review in *MBoC*, *BiorXiv preprint*, doi: 10.1101/2020.12.24.424334 (2020), in press in ***MBoC*** (2021)
10. "A pairwise distance distribution correction (DDC) algorithm to eliminate blinking-caused artifacts in super-resolution microscopy" C.H. Bohrer, X. Yang, S. Thakur, X. Weng, B. Tenner, R. McQuillen, B. Ross, M. Wooten, X. Chen, J. Zhang, E. Roberts, **M. Lakadamyali**, and J. Xiao, *BiorXiv preprint,* 2020, doi: 10.1101/76805, in press in ***Nature Methods*** (2021)
11. "Mesoscale modeling and single molecule tracking reveal remodeling of clutch folding and dynamics in stem cell differentiation" P. A. Gomez-Garcia, S. Portillo-Ledesma, M. V. Neguembor, M. Pesaresi, W. Oweis, T. Rohrlich, S. Wieser, E. Meshorer, T. Schlick, M. P. Cosma *, **M. Lakadamyali** *, ***Cell Reports***, doi: 10.1016/j.celrep.2020.108614 (2021)
12. "Distinct properties and functions of CTCF revealed by a rapidly inducible degron system", J. Luan, G. Xiang, P.A. Gomez-Garcia, J.M. Tome, Z. Zhang, M.W. Vermunt, H. Zhang, A. Huang, C.A. Keller, B.M. Giardine, Y. Zhang, Y. Lan, J.T. Lis, **M. Lakadamyali**, R.C. Hardison, and G.A. Blobel, ***Cell Reports***, doi: 10.1016/j.celrep.2021.10878 (2021)

13. "Shear forces induce ICAM-1 nanoclustering on endothelial cells that impact on T-cell migration", I.K. Piechocka, S. Keary, A. Sosa-Costa, L. Lau, N. Mohan, J. Stanisavljevic, K.J.E. Borgman, **M. Lakadamyali**, C. Manzo, M.F. Garcia-Parajo, ***Biophys J*** 120: 2644-2656, Jun 2021.
14. "Two-Parameter Mobility Assessments Discriminate Diverse Regulatory Factor Behaviors in Chromatin", J. Lerner, P.A. Gomez-Garcia, R. McCarthy, Z. Liu, **M. Lakadamyali**, K.S. Zaret, ***Molecular Cell***, doi: 10.1016/j.molcel.2020.05.036, (2020)
15. "Nucleosome clutches are regulated by chromatin internal parameters", S. Portillo-Ledesma, L/H. Tsao, M. Wagley, **M. Lakadamyali**, M.P. Cosma, T. Schlick, ***J Mol Biol,*** doi: 10.1016/j.jmb.2020.11.001 (2020)
16. "Nuclear softening expedites interstitial cell migration in fibrous networks and dense connective tissues". S. Heo, K. H. Song, S. Thakur, L. M. Miller, X. Cao, A. P. Peredo, B. N. Seiber, F. Qu, T. P. Driscoll, V. B. Shenoy, **M. Lakadamyali**, J. A. Burdick, R. L. Mauck, ***Science Advances***, Vol.6, no.25, eaax5083 (2020)
17. "H3K9me2 orchestrates inheritance of spatial positioning of peripheral heterochromatin through mitosis", A. Poleshko, C. L. Smith, S. C. Nguyen, P. Sivaramakrishnan, J. I. Murray, **M. Lakadamyali**, E. F. Joyce, R. Jain, J. A. Epstein, ***Elife***, doi: 10.7554/eLife.49278 (2019)
18. "Super-resolution microscopy reveals how histone tail acetylation affects DNA compaction within nucleosomes in vivo", J. Otterstrom, A.C. Garcia, C. Vicario, P.A. Gomez-Garcia, M.P. Cosma, **M. Lakadamyali**, ***Nucleic Acids Research***, doi: 10.1093/nar/gkz593 (2019)
19. "Quantifying protein copy number in super-resolution using an imaging invariant calibration", F.C. Zanacchi, C. Manzo, R. Magrassi, N.D. Derr, **M. Lakadamyali,** ***Biophysical Journal*****, 116**, 2195-2203 (2019)
20. "Detyrosinated microtubules spatially constrain lysosomes facilitating lysosome-autophagosome fusion" N. Mohan, I. V. Verdeny, A. S. Alvarez, E. Sorokina, **M. Lakadamyali,** ***Journal of Cell Biology*****, 218,** 632-643 (2018)
21. "Excitation-multiplexed multicolor super-resolution imaging with fm-STORM and fm-DNA-Paint" P.A. Gómez-García, E.T. Garbacik, M.F. Garcia-Parajo, **M. Lakadamyali,** ***PNAS*****, 115,** 12991-12996 (2018)
22. "Reticular adhesions: A new class of adhesion complex that mediates cell-matrix attachment during mitosis", J. G. Lock, M. C Jones, J. A Askari, X. Gong, A. Oddone, H. Olofsson, S. Goransson, **M. Lakadamyali**, M. J. Humphries, S. Stromblad, ***Nature Cell Biology*****, 20,** 1290 (2018)
23. "Anti-NMDA receptor encephalitis antibodies lead to a subunit specific nanoscale redistribution of NMDA receptors", L. Ladépêche, J. Planagumà, S. Thakur, I. Suárez, M. Hara J. Borbely, A. Sandoval, L. Laparra-Cuervo, J. Dalmau and **M. Lakadamyali, 23** (13), 3759-3768, ***Cell Reports*** (2018) (**cover page illustration**)
24. "Active and inactive β1 integrins segregate into distinct nanoclusters in focal adhesions", M. Spiess, P. Hernandez-Varas, A. Oddone, H. Olofsson, H. Blom, D. Waithe, J. Lock, **M. Lakadamyali**, S. Strömblad, ***Journal of Cell Biology***, **217**, 1929-1940 (2018)
25. "Silver Atomic Quantum Clusters of Three Atoms for Cancer Therapy: Targetting Chromatin Compaction to Increase the Therapeutic Index of Chemotherapy", V. Porto, E. Borrajo, D. Buceta, C. Carneiro, S. Huseyinova, B. Dominquez, K. J. Borgman, **M. Lakdamyali**, M.F. Garcia-Parajo, J. Neissa, T. Carcia-Caballero, G. Barone, M. C. Blanco, N. Busto, B. Garcia, J. M. Leal, J. Blanco, J. Rivas, M. A. Lopez-Quintela, F. Dominquez, ***Advanced Materials.*** **30**, 1801317 (2018)

26. "(Po)STAC (Polycistronic SunTAg modified CRISPR) enables live-cell and fixed cell super-resolution imaging of multiple genes", M. Victoria Neguembor , R, Sebastian-Perez , F, Aulicinio , P. Gomez-Garcia , M. Pia Cosma, **M. Lakadamyali, *Nucleic Acids Research*, 46**, e30 (2017)
27. I. Verdeny-Vilanova, F. Wehnekamp, N. Mohan, A. Sandoval Álvarez, J.S. Borbely, J.J. Otterstrom, D.C. Lamb, **M. Lakadamyali,** "3D motion of vesicles along microtubules helps them to circumvent obstacles in cells" **J Cell Sci.** (2017) Jun 1;130(11):1904-1916. doi: 10.1242/jcs.201178. PMID: 28420672
28. "Eph-ephrin signaling modulated by polymerization and condensation of receptors.", S. Ojosnegros, F. Cutrale, D. Rodríguez, J.J. Otterstrom, C.L. Chiu, V. Hortigüela, C. Tarantino, A. Seriola, S. Mieruszynski, E. Martínez, **M. Lakadamyali**, A. Raya, S.E. Fraser, ***PNAS***, **114**(50):13188-13193 (2017)
29. **"**Myc regulates chromatin decompaction and nuclear architecture during B cell activation**"** K-R Kieffer-Kwon, K. Nimura, S.S.P. Rao, J. Xu, S. Jung, A. Pekowska, M. Dose, E. Stevens, E. Mathe, P. Dong, S-C. Huang, M.A. Ricci, L. Baranello, Y. Zheng, F.T. Ardori, W. Resch, D. Stavreva, S. Nelson, M. McAndrew, A. Casellas, E. Finn, C. Gregory, B.G. St. Hilaire, S.M. Johnson, W. Dubois, M.P. Cosma, E. Batchelor, D. Levens, R.D. Phair, T. Misteli, L. Tessarollo, G. Hager, **M. Lakadamyali**, Z. Liu, M. Floer, H. Shroff, E.L. Aiden, R. Casellas, ***Molecular Cell***, **67**, 566-578 (2017)
30. "DNA Origami: Versatile super-resolution calibration standard for quantifying protein copy number" F. Cella Zanacchi, C. Manzo, A. Sandoval Alvarez, N, Derr, **M. Lakadamyali**, ***Nature Methods,* 14,** 789 (2017)
31. "3D Motion of Vesicles Along Microtubules Helps Them to Circumvent Obstacles in Cells", I. V. Vilanova, F. Wehnekamp, N. Mohan, A. S. Alvarez, J. S. Borbely, J. Otterstrom, D. Lamb, **M. Lakadamyali**, ***Journal of Cell Science,* 130**, 1904-1916 (2017)
32. **"**Functional characterization of LRRC8 proteins reveals gating determinants of volume-regulated anion channels", H. Gaitán-Peñas, A. Gradogna, L. Laparra-Cuervo, C. Solsona, V. Fernández-Dueñas, A. Barrallo-Gimeno, F. Ciruela, **M. Lakadamyali**, M. Pusch, R. Estévez, ***Biophysical Journal*, 111**, 1429-1443 (2016)
33. **"**Functionalized and nanostructured surfaces with tailored wettability determine Inuenza A infectivity" I. Mannelli, R. Reigada, I. Suarez, D. Janner, A. Carrilero, P. Mazumder, F. Sagues, V. Pruneri, **M. Lakadamyali**, ***ACS Applied Materials and Interfaces,* 8,** 15058-15066 (2016)
34. **"**The actin cytoskeleton modulates the activation of iNKT cells by segregating CD1d nanoclusters on antigen-presenting cells" J.A.T. Pina, C. Manzo, M. Salio, M.C. Aichinger, A. Oddone, **M. Lakadamyali**, D. Shepherd, G. S. Besra, V. Cerundolo, M.F.G. Parajo, ***PNAS***, **113**, E772-E781 (2016)
35. "Chromatin fibers are formed by heterogeneous groups of nucleosomes in vivo", M. A. Ricci, C. Manzo, M. Garcia-Parajo, **M. Lakadamyali**†, M. P. Cosma†, (†co-senior authors), ***Cell,* 160**, 1145-1158 (2015)
36. "Human N-Methyl-D-aspartate receptor antibodies alter memory and behavior in mice", Jesús Planagumà , Frank Leypoldt MD Francesco Mannara Javier Gutiérrez-Cuesta, Elena Martín-García, Esther Aguilar, Maarten J. Titulaer, Ankit Jain, Rita Balice-Gordon, **Melike Lakadamyali**, Francesc Grau, Rafael Maldonado, and Josep Dalmau, ***Brain*, 138**, 94-109 (2015) (**cover page illustration**)
37. "A Microfluidic Platform for Correlative Live-Cell and Super-Resolution Microscopy", J. Tam, G. Cordier, Š. Bálint, J. S. Borbely, A. S. Álvarez, **M. Lakadamyali**, ***PLoS One*, 9**, e115512 (2014)

38. "Cross-talk free multicolor STORM imaging using a single fluorophore", J. Tam, G. Cordier, Š. Bálint, J. S. Borbely, A. S. Álvarez, **M. Lakadamyali**, ***PLoS One***, **9**(7): e101772 (2014)
39. "Single molecule evaluation of fluorescent protein photoactivation efficiency using an *in vivo* nanotemplate", N. Durisic, L. L. Cuervo, A. S. Álvarez, J.Borbely, **M. Lakadamyali**, ***Nature Methods***, **11**, 156-162 (2014)
40. "Correlative live-cell and superresolution microscopy reveals cargo transport dynamics at microtubule intersections", Š. Bálint, I. V. Verdeny, A. S. Álvarez, **M. Lakadamyali**, ***PNAS***, **110**, 3375-3380 (2013) (**cover page illustration**)
41. "GraspJ: An open source, real-time analysis package for super-resolution imaging", N. Brede, **M. Lakadamyali**, ***Optical Nanoscopy***, **1**:11 (2012)
42. "Stoichiometry of the human glycine receptor revealed by direct subunit counting", N. Durisic, A.G. Godin, C.M. Wever, C. D. Heyes, **M. Lakadamyali**[†*], J. A. Dent[†], ([†]co-senior authors, [*]corresponding author), ***Journal of Neuroscience***, **32**(37), 12915-12920 (2012)

Reviews

43. "Technological advances in super-resolution microscopy to study cellular processes", Charles Bond, Adriana N. Santiago-Ruiz, Qing Tang, **Melike Lakadamyali**, ***Molecular Cell***, February 2022, PMID: 35063099
44. "Single nucleosome tracking to study chromatin plasticity", **M. Lakadamyali**, ***Current Opinion in Cell Biology*** 74: 23-28, February 2022.
45. "Visualizing the genome in high resolution challenges our textbook understanding" **M. Lakadamyali**, M.P. Cosma, invited perspective, ***Nature Methods,*** **17**, 371-379 (2020)
46. **"**Super resolution imaging of chromatin in pluripotency, differentiation, and reprogramming.**"** M. A. Ricci, M. P. Cosma, **M. Lakadamyali**, ***Current Opinion in Genetics and Development***, **46**, 186-193 (2017)
47. "Advanced microscopy methods for visualizing chromatin structure", **M. Lakadamyali**, M. Pia Cosma, ***FEBS Letters***, doi: 10.1016/j.febslet.2015.04.012 (2015)
48. "Quantitative super-resolution microscopy: pitfalls and strategies for image analysis", N. Durisic, L. L. Cuervo, **M. Lakadamyali**, ***Current Opinion in Chemical Biology***, **20**, 22-28 (2014)
49. "Navigating the cell: how motors overcome roadblocks and traffic jams to efficiently transport cargo", **M. Lakadamyali**, ***Physical Chem Chem Physics***, **16**, 5907-5916 (2014)
50. "Super-resolution imaging with stochastic single molecule localization: concepts, technical developments, and biological applications", A. Oddone, I. V. Verdeny, J. Tam, **M. Lakadamyali**, ***Microscopy Research and Technique***, **77**, 502-509 (2014)
51. "Super-resolution microscopy: going live and going fast", **M. Lakadamyali**, ***ChemPhysChem***, **15**, 630-636 (2013)
52. "Meeting Report-Visualizing signaling nanoplatforms at a higher spatiotemporal resolution", A. Cambi, **M. Lakadamyali**, D. Lidke, M.F. Garcia-Parajo, ***J. Cell Sci.***, **126**, 3817-3821(2013)
53. "High resolution imaging of neuronal connectivity", **M. Lakadamyali**, invited review, ***Journal of Microscopy***, **248**(2), 111-116 (2012) (**cover page illustration**)
54. "Imaging cellular structure across scales with correlated light, super-resolution and electron microscopy", J. A. G. Briggs, **M. Lakadamyali**, invited short summary, ***Mol Biol Cell.***, **23**(6):979-80 (2012)

Book Chapters

55. "Correlative live-cell and super-resolution microscopy and its biological applications", M. Lakadamyali, Super resolution imaging in biomedicine, Chapter 14, CRC Press
56. "Super-resolution imaging with single-molecule localization", A. Oddone, I.V. Vilanova, J. Tam, S. Balint, **M. Lakadamyali**, Cell Membrane Nanodomains: From Biochemistry to Nanoscopy, Chapter 17, CRC Press, (2014)

Features

57. "Author File", ***Nature Methods*** (2017)
58. "Cell Scientist to Watch", ***Journal of Cell Science,*** **130**, 1689-1690 (2017)
59. "Voices of biotech" ***Nature Biotechnology***, **34**, 270-275 (2016)

Publications prior to starting independent career

60. "3D multicolor super-resolution imaging offers improved accuracy in neuron tracing", **M. Lakadamyali**, H. Babcock, M. Bates, X. Zhuang, J. Lichtman, ***PLoS One***, **7**(1):e30826 (2012)
61. "Single-virus tracking in live cells", M.J. Rust, **M. Lakadamyali**, B. Brandenburg, X. Zhuang, ***Cold Spring Harbor Protocols***, doi:10.1101/pdb.top065623 (2011)
62. "Single particle virus tracking", M.J. Rust, **M. Lakadamyali**, B. Brandenburg, X. Zhuang, ***Cold Spring Harbor Protocols***, doi:10.1101/pdb.prot065631 (2011)

Partial List of Selected invited talks 2011-2020

2020

- Quantitative Bioimaging (QBI) Society Meeting, Oxford, UK (invited speaker), January 2020
- Rockefeller University (invited speaker), January 2020
- University of Wisconsin Madison, Biochemistry Colloquium (invited speaker), February 2020
- Memorial Sloan Kettering Cancer Center, Cell Biology Research Seminar Series (invited speaker), March 2020, rescheduled as a virtual seminar due to COVID-19
- Chromatin Modeling: Integrating Mathematics, Physics, and Computation for Advances in Biology and Medicine (invited speaker), Vienna, Austria, March 2020, rescheduled due to COVID-19
- Interdisciplinary Winter School (invited speaker), Aussois, France, March 2020, cancelled due to COVID-19
- Fluorescence Markers for Advanced Microscopy: from photophysics to biology (invited speaker), Les Houches, France, March 2020, cancelled due to COVID-19
- National Institutes of Health, NIEHS, seminar series (invited speaker), April 2020, rescheduled due to COVID-19
- Gordon Research Seminar, Chromatin Structure and Function (invited career development panel member), June 2020, canceled due to COVID-19
- McGill University Physics Department Colloquium (invited speaker), virtual seminar, September 2020

2019

- Quantitative Methods in Understanding Cellular Transport Workshop, Tulane University, Louisiana, USA (invited speaker), February 2019
- Ohio State University, Ohio, USA, (invited seminar), March 2019
- ACS Meeting, Florida, USA (invited speaker), April 2019
- OSA Meeting, Arizona, USA (invited speaker), April 2019

- Frontiers in Imaging Science II, Janelia Research Campus, Virginia, USA (invited speaker), May 2019
- International Society for Stem Cell Research Conference, LA, USA (invited speaker), June 2019
- Biophysical Society Thematic Meeting: Revisiting the Central Dogma, Lima, Peru (invited speaker), July 2019
- Chromatin and Epigenetic Regulation of Transcription Summer Symposium, Penn State University, USA (invited speaker), July 2019
- Seeing is Believing Meeting, EMBL, Heidelberg, Germany (invited speaker), October 2019
- Utah University, Center for Cell and Genome Science seminar series, Utah, USA (invited speaker), November 2019
- Princeton University, Biophysics Seminar Series (invited speaker), November 2019

2018

- MPI-CBG Seminar, Dresden, Germany (invited speaker)
- Biophysical Society Annual Meeting, San Francisco, California, USA (invited speaker)
- FASEB, Machines on Genes Meeting, Snowmass, Colorado, USA (invited speaker)
- Single Molecule Localization Microscopy Meeting, Berlin, Germany (invited speaker)
- NHLBI, Bethesda, USA, invited speaker
- Janelia Probe Fest meeting, Ashburn, VA, USA, invited speaker
- American Society for Cell Biology (ASCB) Meeting, San Diego, CA, invited speaker

2017

- University of Vermont, Seminar at the Department of Molecular Physiology and Biophysics (invited speaker)
- Johns Hopkins University, Seminar at the Department of Biology (invited speaker)
- Biophysical Society Thematic Meeting: Single Cell Biophysics: Measurement, Modualtion and Modelling, Taiwan (invited speaker)

2016

- 6th Single Molecule Localization Microscopy Meeting, Lausanne, Switzerland (invited speaker)
- Gordon Research Conference (GRC), Hong Kong, China (invited speaker)
- Microtubules: From Atoms to Complex Systems Symposium, Heidelberg, Germany (invited speaker)
- Biophysical Society Meeting, Los Angeles, USA (invited speaker)
- Penn Muscle Institute, seminar, University of Pennsylvania, Philadelphia, US (invited speaker)
- France BioImaging Advanced Training workshop, Montpellier, France (invited speaker)

2015

- ASCB Meeting, San Diego, California (invited talk)
- Seeing is Believing: Imaging the Processes of Life symposium, Heidelberg, Germany (invited talk)
- EMBO Current Methods in Cell Biology Course, Heidelberg, Germany (invited talk)
- SPIE Meeting, California, San Diego (invited talk)
- Friedrich Miescher Institute, Basel, Switzerland (invited talk)
- British Neuroscience Association (BNA), Festival of Neuroscience (invited talk)
- Lancent Neurology Meeting, Barcelona, Spain (invited talk)
- Gurdon Institute Seminar, Cambridge, UK (invited talk)

2014

- A Systems-Level View of Cytoskeletal Function, EMBO Workshop, Stockholm, Sweden (invited talk)
- 6th Bangalore Microscopy Course, Bangalore, India (invited faculty)
- 4th Single Molecule Localization Microscopy Meeting, London, UK (invited talk)
- 9th International Weber Symposium, Kauai, Hawaii (invited talk)
- Navigating the Cell: How Motors Function *in vivo*, The Company of Biologists Workshop, London, UK (invited talk)
- Biophysical Society Meeting, San Francisco, USA (invited talk)

2013

- Imperial College, London, UK (invited talk)
- Frontiers in Neurophotonics Symposium, Bordeaux, France, (invited talk)
- Single Molecule Localization Microscopy Symposium, Frankfurt, Germany (invited talk)
- Cold Spring Harbor (CSH) Asia Meeting, New Advances in Imaging of Live Cells and Organisms, Suzhou, China (contributed talk)
- 10th NIBB-EMBL Symposium, Quantitative Bioimaging, Okazaki, Japan (invited talk)

2012

- EMBL Advanced Course, Advanced Imaging Techniques, Heidelberg, Germany (invited talk)
- European Microscopy Congress, Manchester, UK (invited talk)
- Swiss Single Molecule Localization Microscopy Symposium, Lausanne, Switzerland (invited talk)

2011

- American Society for Cell Biology Meeting, Denver, CO, USA (session co-chair)
- TEDxBarcelona Science, Barcelona, Spain (http://www.youtube.com/watch?v=pz1TDXKSTHc) (invited talk)
- Neural Circuit Development and Plasticity: Progress Made and Promises Ahead, Academy Colloquium, Amsterdam, Netherlands (invited talk)
- Seeing is believing: Imaging the processes of life Symposium, Heidelberg, Germany (invited talk

Funding

Active:

1. **R01 GM 133842-01** (Lakadamyali, PI) 07/01/19-06/30/23 4.6 CM
NIH-NIGMS $1,460,250
"Calibration nanotemplates as universal standards for determining protein copy number in super-resolution microscopy"
This proposal aims to develop methods and tools for quantifying the stoichiometry of proteins in cells with nanoscale spatial resolution

2. **R01 GM 133842-02S1** Equipment Supplement $218,356
NIH-NIGMS

3. **RM1 GM 136511** (Ostap, Holzbaur, Dominquez, Lakadamyali, MPI) 04/20-03/25 3.6 CM
NIH-NIGMS $5,207,170
"Integrative mechanisms of organelle dynamics from the atomic to the cellular level"

This proposal aims to study the mechanisms that regulate mitochondrial transport and positioning from atomistic to cellular level

4. **U01DA052715** (Cremins, Joyce, Lakadamyali, Raj, MPI) 07/20 – 06/25 0.6 CM
NIH-NIDA $649,933
"Single-cell dissection of chromatin architecture mechanisms connecting pathologic instability and transcriptional silencing"
This proposal aims to study chromatin spatial remodeling in repeat expansion disorders at the single cell level.

5. **NSF-EFRI CEE** (Castro, PI, Lakadamyali Co-I) 09/19 – 08/23 0.42 CM
NSF $418,821
"DNA origami tools to engineer chromatin structure and function in live cells"
This proposal aims to develop tools based on DNA nanotechnology to visualize and engineer chromatin states in live cells.

6. **Linda Pechenik Montague Investigator Award** (Lakadamyali, PI) 02/19-02/20
University of Pennsylvania, PSOM $100,000
This award was created by philanthropist Linda Pechenik Montague to support the work of the most promising mid-career research faculty at the Perelman School of Medicine. The award will help fund studies of chromatin structure/function relationship using super-resolution imaging.

7. **2R01 DK 058044-19** (Blobel PI and Lakadamyali Co-I) 07/20-06/25 0.6 CM
NIH-NIDDK $234,408
"Epigenetic regulation of hematopoietic gene expression"
This proposal aims to study the role of epigenetic factors in regulating gene expression/silencing in hematopoietic cells. We will specifically contribute to using single molecule tracking to determine the mobility of transcription factors and architectural proteins.

8. **ADCC Pilot Award** (Lakadamyali, PI) 07/20-06/21 0.6CM
Institute on Aging, University of Pennsylvania $50,000
"Super-resolution imaging of pathological tau aggregation"
This project aims to visualize early pathological tau aggregates in cells using super-resolution microscopy and determine their impact on neuronal health.

9. **NSF Center for Engineering Mechanobiology (CEMB) Pilot Grant** (Lakadamyali, PI) 04/18 – 08/21
$117,500
"Role of nuclear lamins and lamin associated proteins in organizing chromatin structure at the nanoscale level"

Pending:
1. **Chan Zuckerberg Initiative** (Lakadamyali, PI) 01/21 – 12/21 0.6 CM
Opensource software for super-resolution image analysis $97,423

The goal of this grant is to support open source software projects that are essential to biomedical research, supporting software maintenance, growth and development and community engagement.

2. **R01AR079224** (Lakadamyali, Heo, Mauck, MPI) 04/21 – 03/26 2.04 CM
NIH/NIAMS $2,847,313
"Preserving chromatin nanostructure to enhance chondrocyte therapeutic potential for cartilage repair".
We will study chromatin mis-folding and transcriptional mis-regulation at single cell level in in vitro expanded chondrocytes to determine the mechanisms of chondrocyte phenotype loss.

Completed:

1. **FP7 Marie Curie Re-integration Grant** (Lakadamyali, PI) 03/11-02/15
€100,000
"Correlative Super Resolution and Real-Time Imaging of Herpes"

2. **FP7 Systems Microscopy Network of Excellence** (Stromblad, PI, Lakadamyali Co-I) 01/13-12/15

€200,000
"Systems microscopy – a key enabling methodology for next-generation systems biology"

3. **Spanish Ministry of Education Plan Nacional** (Lakadamyali, PI) 01/13-30/16

€156,000
"Motor protein and cargo interactions during transport probed by correlated super-resolution nanoscopy"

4. **European Research Council (ERC) Starting Grant** (Lakadamyali, PI) 01/13-31/17
€1,396,200
"On the move: motor-cargo and motor-microtubule interactions studied with quantitative, high spatio-temporal resolution microscopy in vivo"

5. **EMBO-Young Investigator Grant** (Lakadamyali, PI) 01/14-01/17
€45,000
"Imaging Life's Processes"

6. **Spanish Ministry of Education Plan Nacional** (Lakadamyali, PI) 02/16-01/18
€180,000
"Super-resolution imaging of macromolecular complexes"

7. **Horizon2020 Future and Emerging Technologies (FET-Open)** (Cosma, PI, Lakadamyali Co-I) 01/16 – 31/19
€778,313
"A cell viewer: super-resolution systems microscopy to assess pluripotency and differentiation of stem cells at single cell level.

8. **Epigenetics Institute Pilot Grant** (Joyce, PI, Lakadamyali, Co-I) 04/18 – 03/20
$30,000
"Inheritance of Lamin-associated domains and their role in maintaining cellular identity"