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EDUCATION

2018	**Temple University, Philadelphia, PA** Ph.D.
2013	**Saint Joseph's University, Philadelphia, PA** M.S.
2006	**Emory University, Atlanta, GA** B.A.

ACADEMIC POSITIONS

2025-present	**Vanderbilt University, Nashville, TN** Assistant Professor, Department of Cell and Developmental Biology Vanderbilt-Ingram Cancer Center, Member, Cancer Cell Biology Research Program
2018-2024	**Yale University, New Haven, CT** Postdoctoral Associate; Advisor: Mark Lemmon
2013-2018	**Temple University, Philadelphia, PA** Graduate Researcher; Advisor: Weidong Yang
2011-2013	**Saint Joseph's University, Philadelphia, PA** Graduate Researcher; Advisor: Edwin Li

AWARDS AND HONORS

2025	Vanderbilt FIRST Faculty Scholar
2024	Protein Phosphorylation in Health and Disease FASEB Poster Prize
2023	Intersections Science (ISFS) Fellow
2023	MIT Biology Catalyst Fellow
2022	YBPA Star Leadership Award in DEI
2022	5th Annual Yale Postdoctoral Association Symposium Outstanding Poster Presentation Award
2022	Duke Next Generation Leader
2022	Capital High School Distinguished Alumni Award
2021	The NCI Pathway to Independence Award for Outstanding Early Stage Postdoctoral Researchers (K99/R00)
2021	Selected for the Janeway Society at Yale University School of Medicine
2018	Yale Cancer Biology Retreat Poster Prize, Sponsored by Biochemical Journal
2017	Award for Outstanding Research by a Graduate Student
2016	Thomas Punnett Memorial Scholarship
2011, 2012	Sigma Xi Student Research Award

PUBLICATIONS

1. Bauer, M.S.*, Zhang, J.Z.*, Wu, K.*, Lee, G.R.*†, Coventry, B.*†, **Silvestri, I.M.***, Klupt, K.A., Shi, J., Brent, R.I., Li, X., Moller, C., Roullier, N.*, Vafeados, D.K., Kalvet, I., Skotheim, R.K., Zhu, S., Motmaen, A., Herrmann, L.C., Sturmfels, P., Tischer, D., Altae-Tran, H., Juergens, D., Krishna, R., Ahern, W.,

Yim, J., Bera, A.K., Kang, A., Joyce, E., Lu, A., Stewart, L., DiMaio, F., **Mudumbi, K.C.** †, Baker, D. † (2026). *De novo* design of phosphotyrosine peptide binders. **bioRxiv** doi: https://doi.org/10.1101/2025.09.29.678898.
* Denotes co-corresponding author † Denotes co-corresponding author

2. **Mudumbi, K.C.**†, Burns, E.A., Schodt, D.J., Petrova, Z.O., Kiyatkin, A.B., Kim, L.W., Mangiacapre, E.M., Ortiz-Caraveo, I., Rivera Ortiz, H., Hu, C., Ashtekar, K.A., Lidke, K.A., Lidke, D.S.†, Lemmon, M.A.† (2024). Distinct interactions stabilize EGFR dimers and higher-order oligomers in cell membranes. **Cell Reports**, 43(1).
† Denotes co-corresponding author
3. Li, T., Stayrook, S., Tsutsui, Y., Zhang, J., Wang, Y., Li, H., Proffitt, A., Krimmer, S., Ahmed, M., Belliveau, O., Walker, I., **Mudumbi, K.C.**, Suzuki, Y., Lax, I., Alvarado, D., Lemmon, M., Schlessinger, J., Klein, D. (2021). Structural basis for ligand reception by anaplastic lymphoma kinase. **Nature**, 1-5.
4. **Mudumbi, K.C.**†, Czapiewski, R., Ruba, A., Junod, S.L., Li, Y., Luo, W., Ngo, C., Ospina, V., Schirmer, E.C.†, Yang, W.† (2020). Nucleoplasmic signals enhance membrane protein import via multiple channels of the nuclear pore. **Nature Communications,** 11(1), 1-14.
† Denotes co-corresponding author
5. Tingey, M.*, **Mudumbi, K.C.***, Schirmer, E.C., Yang, W. (2019). Casting a wider net: differentiating between inner nuclear envelope and outer nuclear envelope transmembrane proteins. **International Journal of Molecular Sciences**, 20(21), p.5248.
* Denotes equal contribution
6. **Mudumbi, K.C.**, Yang, W. (2017). Determination of membrane protein distribution on the nuclear envelope by single-point single-molecule FRAP. **Current Protocols in Cell Biology**, 76, 21.11.1-21.11.13. doi: 10.1002/cpcb.27.
7. **Mudumbi, K.C.**, Schirmer, E.C., Yang, W. (2016). Single-point single-molecule FRAP distinguishes inner and outer nuclear membrane protein distribution. **Nature Communications**, 7:12562.
8. **Mudumbi, K.C.**, and Yang, W. (2016). Probing protein distribution along the nuclear envelope *in vivo* by using single-molecule FRAP. **Methods in Molecular Biology** 1411, 113-122
9. **Mudumbi, K.C.**, Julius, A., Herrmann, J., & Li, E. (2013). The pathogenic A391E mutation in FGFR3 induces a structural change in the transmembrane domain dimer. **The Journal of Membrane Biology**, 246(6), 487-493.

INVITED TALKS

2026	Department of Biology, Saint Joseph's University, Philadelphia, Pennsylvania. "Right on time: Understanding the kinetics of EGFR signaling."
2025	Stem & Progenitor Cell Interest Group, Vanderbilt University, Nashville, Tennessee. "Timing matters: Understanding the kinetics of RTK signaling."
2025	Epithelial Biology Center, Vanderbilt University, Nashville, Tennessee. "Timing matters: Understanding the kinetics of EGFR signaling."
2025	FASEB, Protein Phosphorylation, Scottsdale, Arizona. "The V659E transmembrane mutation in ErbB2 causes misfolding and mislocalization of the receptor."
2025	ESI Front Range Summit, University of Colorado Boulder, Boulder, Colorado. "Kinetic studies of EGFR signaling to understand downstream cellular outcomes."
2024	Departments of Biochemistry and Cell and Developmental Biology, Vanderbilt University, Nashville, Tennessee. "Signaling kinetics specify downstream cellular outcomes."
2024	Tri-Institutional Professional Development Seminar Series, Vanderbilt University, Meharry University, Fisk University, Nashville, Tennessee. "Moving beyond snapshots: understanding the dynamics that define careers and cell signaling."
2024	Department of Hematology and Medical Oncology, Emory University, Atlanta, Georgia. "Signaling kinetics specify downstream cellular outcomes."
2024	Department of Biochemistry and Biophysics, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina. "Signaling kinetics specify downstream cellular outcomes."

2023 Yale BBS e-Lecture Series, Yale University, New Haven, Connecticut. “Understanding signaling kinetics one molecule at a time.”

2023 Intersections Science Fellows Symposium, Virtual. “Probing the kinetics of EGFR signaling: Why timing is important.”

2023 MIT Biology Catalyst Symposium, Massachusetts Institute of Technology, Cambridge, Massachusetts. “Probing the kinetics of EGFR signaling: Why timing is important.”

2023 NIH Listening Sessions on the Postdoc Training System – Compensation and benefits (including childcare and dependent care), Virtual.

2023 GPCR Invited Postdoctoral Seminar Series, Vanderbilt University, Nashville Tennessee. “Probing the kinetics of EGFR signaling: Why timing is important.”

2022 FASEB, The Protein Kinases and Phosphorylation Conference: Mechanisms to Therapeutics, Nova Scotia, Canada. “Understanding EGFR interactions in live cells using single-molecule microscopy.”

2022 Duke Next Generation Leaders, Duke University, Durham, North Carolina. “Understanding EGFR interactions in live cells using single-molecule microscopy.”

2021 NIH Light Microscopy Interest Group seminar series, NIH, Bethesda, Maryland. “Understanding EGFR dimerization and phosphorylation using single-molecule microscopy.”

2020 Guest Lecturer – Bio 470: Biotechnology Techniques, Bay Path University, Longmeadow, Massachusetts. “Introduction to single-molecule microscopy techniques.”

2019 Guest Lecturer – Bio 550: Research Techniques, Saint Joseph’s University, Philadelphia, Pennsylvania. “Fundamentals of single-molecule microscopy.”

2018 Yale West Campus Imaging Core Lecture Series, Yale University, West Haven, Connecticut. “TIRF and PALM/STORM imaging techniques.”

2018 Signal Transduction Meeting, Yale University, New Haven, Connecticut. “Kinetics of EGFR activation and signaling.”

2017 Northeast Nuclear Envelope Meeting, Yale University, New Haven, Connecticut. “Nucleoplasmic domains of membrane proteins determine the nuclear translocation routes and rates.”

2017 Humboldt Colloquium, Washington D.C. “Super-resolution study of nuclear envelope transmembrane protein transport in live cells.”

2016 American Society for Cell Biology, San Francisco, California. “Super-resolution study of nuclear envelope transmembrane protein transport in live cells.”

2016 Molecular and Cell Biology & Biophysics Evening, Temple University, Philadelphia, Pennsylvania. “Single-point FRAP distinguishes inner and outer nuclear membrane protein distribution.”

PRESENTATIONS (TALKS/POSTERS)

Talks

2024 **K.C. Mudumbi**, A. Hamidzadeh, A.K. Kiyatkin, L.W. Kim, M.A. Lemmon. Kinetic studies of EGFR and Ras clustering and downstream ERK activation. Protein Phosphorylation in Health and Disease FASEB. (Flash talk/poster)

2022 **K.C. Mudumbi,** D.J. Schodt, I. Ortiz-Caraveo, E.A. Burns, Z.O. Petrova, A.B. Kiyatkin, L.W. Kim, E.M Mangiacapre, K.A. Lidke, D.S. Lidke, M.A. Lemmon. Understanding EGFR interactions in live cells using single-molecule microscopy. Yale Pharmacology Departmental Retreat (Talk/poster).

2020 **K.C. Mudumbi,** M.A. Lemmon. Dissecting EGFR signaling using smFRET. All Points West (Virtual symposium – COVID-19).

2019 **K.C. Mudumbi,** M.A. Lemmon. Dissecting EGFR signaling using smFRET. Yale Cancer Biology Retreat (Talk/poster).

2019 **K.C. Mudumbi,** M.A. Lemmon. Dissecting EGFR signaling using smFRET. Yale Pharmacology Departmental Retreat (Talk/poster).

2018 **K.C. Mudumbi,** M. Lemmon. Kinetics of EGFR activation and signaling. Yale Cancer Biology Retreat (Talk/poster).

Posters

2024 **K.C. Mudumbi,** A. Hamidzadeh, A.K. Kiyatkin, L.W. Kim, M.A. Lemmon. Kinetic studies of EGFR and Ras Clustering and downstream ERK activation. Epidermal growth factor receptor after 40 years. The Royal Society.

2023 **K.C. Mudumbi,** E.A. Burns, Z.O. Petrova, A.B. Kiyatkin, L.W. Kim, E.K. Mangiacapre, I. Ortiz-Caraveo, H.R. Ortiz, C. Hu, K.D. Ashtekar, K.A. Lidke, D.S. Lidke, M.A. Lemmon. Distinct interactions stabilize EGFR dimers and higher-order oligomers in cell membranes. ASCB.

2023 **K.C. Mudumbi,** E.A. Burns, Z.O. Petrova, A.B. Kiyatkin, L.W. Kim, E.K. Mangiacapre, I. Ortiz-Caraveo, H.R. Ortiz, C. Hu, K.D. Ashtekar, K.A. Lidke, D.S. Lidke, M.A. Lemmon. Deciphering interactions that stabilize EGFR dimers and higher-order oligomers in live cells. Protein Phosphorylation FASEB.

2023 **K.C. Mudumbi,** A. Hamidzadeh, AB. Kiyatkin, L.W. Kim, M.A. Lemmon. Are the kinetics of EGFR clustering and ERK signaling connected? 6th Annual Yale Postdoctoral Association Symposium.

2023 **K.C. Mudumbi,** D.J. Schodt, I. Ortiz-Caraveo, E.A. Burns, Z.O. Petrova, A.B. Kiyatkin, L.W. Kim, E.M Mangiacapre, K.A. Lidke, D.S. Lidke, M.A. Lemmon. Systematic analysis of EGFR dimerization and interactions in live cells using single-molecule microscopy. Yale Cancer Biology Institute Retreat.

2022 **K.C. Mudumbi,** D.J. Schodt, I. Ortiz-Caraveo, E.A. Burns, Z.O. Petrova, A.B. Kiyatkin, L.W. Kim, E.M Mangiacapre, K.A. Lidke, D.S. Lidke, M.A. Lemmon. Understanding EGFR interactions in live cells using single-molecule microscopy. Uncovering Physical Principles of Life with Single Molecule Approaches GRS/GRC.

2019 **K.C. Mudumbi,** M.A. Lemmon. Dissecting EGFR signaling using smFRET. “Seeing is Believing,” Heidelberg Germany.

2017 **K.C. Mudumbi,** R. Czapiewski, W. Luo, C. Ngo, V. Ospina, E.C. Schirmer, W. Yang. Nucleoplasmic domains of membrane proteins determine the nuclear translocation routes and rates. Northeast Nuclear Envelope Meeting.

2017 **K.C. Mudumbi,** E.C. Schirmer, W. Yang. Super-resolution study of nuclear envelope transmembrane protein transport in live cells. Humboldt Colloquium.

2016 **K.C. Mudumbi,** E.C. Schirmer, W. Yang. Single-molecule three-dimensional mapping of transmembrane protein transport into the nucleus. American Society for Cell Biology Annual Meeting.

2016 **K.C. Mudumbi,** J. Ma, E.C. Schirmer, W. Yang. Single-point FRAP distinguishes inner and outer nuclear membrane protein distribution. Biophysical Society Annual Meeting.

2015 **K.C. Mudumbi,** W. Yang. The location and distribution of transmembrane proteins along the nuclear envelope determined by super-resolution microscopy. Biophysical Society Annual Meeting.

2014 **K.C. Mudumbi,** W. Yang. Probing transmembrane protein distribution along the nuclear envelope using super-resolution microscopy. American Society for Cell Biology Annual Meeting.

2014 **K.C. Mudumbi,** W. Yang. Single-molecule study of transmembrane protein transport. Biophysical Society Annual Meeting.

2013 **K.C. Mudumbi,** E. Li. The role of SmXXXSm motifs in wild-type and Ala391Glu FGFR3 transmembrane domain dimerization. Biophysical Society Annual Meeting.

2013 **K.C. Mudumbi,** M. Muretta, C. Moll, J. Collins and E. Li. Dimerization measurements of three pathogenic FGFR3 TMD mutants using the ToxR assay. Biophysical Society Annual Meeting.

2012 **K.C. Mudumbi,** E. Li, B. Eichman. Structural studies of the FGFR3 dimer. American Society for Cell Biology Annual Meeting.

2012 J. King, E. Li, **K.C. Mudumbi.** The role of the CQC motif in the dimerization of MUC1. American Society for Cell Biology Annual Meeting.

2012 **K.C. Mudumbi**, E. Li. The role of two SmXXXSm motifs in the dimerization of the FGFR3 transmembrane domain. Regional Biopysical Society Meeting.
2012 **K.C. Mudumbi**, E. Li. The role of two SmXXXSm motifs in the dimerization of the FGFR3 transmembrane domain. Biophysical Society Annual Meeting.
2012 **K.C. Mudumbi**, E. Li. The role of two SmXXXSm motifs in the dimerization of the FGFR3 transmembrane domain. Sigma Xi Student Research Symposium.
2001 Kishor, P.B. Kavi, V. Patel, R.K. Hite, K.A. Smith, M. Bowman, C.F. Culpepper, **K.C. Mudumbi**, D. Guidot, R. Polavarapu. Genechip microarray analyses to study chronic alcoholism-induced lung inflammation. National Symposium on Changing Horizons in Genetics-Human Welfare.
2001 Kishor, P.B. Kavi, K.R.S.S Rao, M. Bowman, V. Patel, R.K Hite, K.A. Smith, C.F. Culpepper, **K.C. Mudumbi**, D. Guidot, A.A. Nanji, R. Polavarapu. Modulation of cytokines and major histocompatibility complex (MHC) molecules in pulmonary tissue of ethanol fed rats. National Symposium on Changing Horizons in Genetics-Human Welfare.
2001 Bowman, M., V. Patel, R. Hite, K. Smith, C. Culpepper, **K. Mudumbi**, D. Guidot, and R. Polavarapu. GeneChip microarray analyses to study chronic alcoholism-induced lung inflammation. Experimental Biology Meeting.

FUNDING

2021-present **The NCI Pathway to Independence Award for Outstanding Early Stage Postdoctoral Researchers (K99/R00)**
PI: Krishna C. Mudumbi - $943,234
2020 **American Cancer Society Postdoctoral Fellowship**
PI: Krishna C. Mudumbi – Funded under “Pay-If” due to COVID-19 – $175,500 – Declined

PROFESSIONAL SERVICE AND AFFILIATIONS

Leadership Role
2025 ASCB Minisymposium – Chair
2021-2022 Yale Postdoctoral Association – Chair
2021-2022 Yale Black Postdoc Association – Vice Chair
2020-2024 Yale Child Care Consultative Committee – Executive Board
2020-2021 Yale Postdoc Association – Co-coordinator of the Advocacy Committee
2013-2015 Fundraising chair for Biology Graduate Student Society (BGSS)

Member Role
2021-present Early Career Reviewer in Structural Biology and Molecular Biophysics for eLife
2021-2024 Yale Pharmacology Department Diversity, Equity, and Inclusion Committee
2020-2024 Yale Black Postdoc Association – Member
2020-2024 Yale West Campus Microscopy Core Advisory Committee
2020, 2021 Intersections Science Fellows Symposium – Selection and Program Committees
2018-2024 Yale Postdoc Association – West Campus Liaison
2018-2020 Yale Postdoc Association – Networking and Community Building Committee member
2012-present Biophysical Society
2012-present American Society for Cell Biology
2012-2018 Membrane Structure and Assembly Subgroup of the Biophysical Society
2013-2018 BGSS at Temple University – Member

TEACHING ACTIVITIES

2024 Vanderbilt University, Nashville, TN
Lecturer: “Biological interfaces: organizing centers for diverse cell functions.”

2015-2017 Temple University, Philadelphia, PA
Guest Lecturer: Bio 4344: Research Techniques in Biochemistry. “A theoretical understanding of super-resolution microscopy.”

2013-2016 Temple University, Philadelphia, PA
Teaching Assistant: Responsible for lecturing and running an introduction to biology lab for biology majors and an advanced upper level biochemistry lab for senior biochemistry majors.

2013 Saint Joseph’s University, Philadelphia, PA
Adjunct Lecturer: Responsible for lecturing and running an introductory genetics lab and graduate seminar course (journal club).

2011-2012 Saint Joseph’s University, Philadelphia, PA
Teaching Assistant: Responsible for helping students with laboratory procedures, grading papers, and pre-lab set up.

2011-2012 Club-Z In-Home Tutoring Services, Philadelphia, PA
Tutor: Responsible for teaching in the areas of biology, math, chemistry, and physics, and SAT preparation.

STUDENTS MENTORED

Graduate students

2025-present Isabella Silvestri, Vanderbilt University
2025-present Brandon Goldstein, Vanderbilt University

Research Associates

2025-present Hunter Lischwe Mueller, Vanderbilt University
2025-present Adriana Esposito, Vanderbilt University

Thesis Committee

2025-present Dominic Schiano, Kuriyan Lab, Vanderbilt University

Undergraduate students

2025-present Lauren Son, Vanderbilt University
2025-present Khaw Ti Ning, Vanderbilt University
2025-present Elynor Fix, Vanderbilt University

Pre-faculty position

2020-2024 Lucy W. Kim, undergraduate student. Yale University
2021-2024 Emma M. Mangiacapre, undergraduate student. Yale University
2023 Shawn Lin, graduate student. Yale University
2019 Dayralee Torres Figueroa, undergraduate student. University of Puerto Rico
2017 Alexandra Smith, M.S. graduate student. Temple University
2016-2018 Christina Ngo, undergraduate student. Temple University
2016-2018 Valentina Ospina, undergraduate student. Temple University
2014-2018 Samuel L. Junod, undergraduate student. Temple University
2014-2015 Megan Wagner, undergraduate student. Temple University

OUTREACH

2018-2024 STEM enrichment Hanmer Elementary School, Wethersfield, CT
2017-2024 Skype A Scientist
2021-2022 Yale PATHS mentor
2014-2015 iPraxis science fair mentor, Philadelphia, PA
2011-2012 SeaPerch Regional Robotics Competition Judge, Philadelphia, PA