

FLORENTINE UWAMAHORO NOVOTNY RUTAGANIRA

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Education

2016 Ph.D. Chemistry & Chemical Biology, University of California-San Francisco

2010 B.S. Biochemistry & Molecular Biology, University of California-Davis

Research Training

Sept. 2017 – Present

Postdoctoral Research

“The Evolution of Tyrosine Kinase Signaling in the Animal Stem Lineage” with Prof. Nicole King. University of California-Berkeley

Sept. 2010 – Aug. 2017

Graduate Research & Interim Postdoctoral Research

“Pharmacologic Dissection of Kinases involved in Signal Transduction: From Basic Biology to Host-Pathogen Interactions” with Prof. Kevan M. Shokat. University of California-San Francisco

Jan. 2009 – June 2010

Undergraduate Research

“Studies in the Synthesis of Totarol Analogs for the Inhibition of FtsZ” with Prof. Jared T. Shaw. University of California-Davis

Sept. 2008 – Sept. 2009

“Computational Biology on the Use of Lifespan-Shortening Wolbachia to Control Dengue Fever” with CLIMB Program. University of California-Davis

Publications

- 16) A.O Hinton Jr, C.M. Termini, E.C. Spencer, **F.U.N. Rutaganira**, D. Chery, R. Roby, Z. Vue, A.D. Pack, L.J. Brady, E. Garza-Lopez, A.G. Marshall, S.C. Lewis, H.D. Shuler, B.L. Taylor, M.R. McReynolds, C.B. Palavicino-Maggio. “Patching the Leaks: Revitalizing and Reimagining the STEM Pipeline.” *Cell* **183**, 568–575 (2020).
- 15) X. Tan, P. Banerjee, E.A. Pham, **F.U.N. Rutaganira**, K. Basu, N. Bota-Rabassedas, H.F. Guo, C.L. Grzeskowiak, X. Liu, J. Yu, L. Shi, D.H. Peng, B.L. Rodriguez, J. Zhang, V. Zheng, D.Y. Duose, L.M. Solis, B. Mino, M.G. Raso, C. Behrens, I.I. Wistuba, K.L. Scott, M. Smith, K. Nguyen, G. Lam, I. Choong, A. Mazumdar, J.L. Hill, D.L. Gibbons, P.H. Brown, W.K. Russel, K. Shokat, C.J. Creighton, J.S. Glenn, J.M. Kurie. “PI4KIII β is a therapeutic target in chromosome 1q-amplified lung adenocarcinoma.” *Science Translational Medicine*, **2020**, 12: eaax3772. PMID: 31969487.
- 14) S. Hernández-Ortega, A. Sánchez-Botet, E. Quandt, N. Masip, L. Gasa, G. Verde, J. Jiménez, R.S. Levin, **F.U. Rutaganira**, A.L. Burlingame, D. Wolfgeher, M.P.C. Ribeiro, S.J. Kron, K.M. Shokat, J. Clotet, “Phosphoregulation of the oncogenic protein regulator of cytokinesis 1 (PRC1) by the atypical CDK16/CCNY complex.” *Experimental & Molecular Medicine*, **2019**, 51: 44. PMID: 30992425.
- 13) V.N. Bikoba, F. Pupin, W.V. Biasi, **F.U. Rutaganira**, E.J. Mitcham, “Use of Ethyl Formate Fumigation to Control Adult Bean Thrips in Navel Oranges.” *Journal of Economic Entomology*, **2019**, 112: 591-596. PMID: 30535105.
- 12) **F.U. Rutaganira**, J. Barks, M.S. Dhason, Q. Wang, M.S. Lopez, S. Long, J.B. Radke, N.G. Jones, A.R. Maddirala, J.W. Janetka, M. El Bakkouri, R. Hui, K.M. Shokat, L.D.

- Sibley, "Inhibition of Calcium Dependent Protein Kinase 1 (CDPK1) by Prazolopyrimidine Analogs Decreases Establishment and Reoccurrence of Central Nervous System Disease by *Toxoplasma gondii*." *Journal of Medicinal Chemistry*, **2017**, 60: 9976-9989. PMID: 28933846.
- 11) A. Orr, **F.U. Rutaganira**, D. de Roulet, E.J. Huang, N.T. Hertz, K.M. Shokat, K. Nakamura, "Long-term oral kinetin does not protect against α -synuclein-induced neurodegeneration in rodent models of Parkinson's disease." *Neurochemistry International*, **2017**, 109: 106-116. PMID: 28434973.
 - 10) Y. Uchida, **F.U. Rutaganira**, D. Jullie, K.M. Shokat, M. von Zastrow, "Endosomal phosphatidylinositol 3-kinase is essential for canonical GPCR signaling." *Molecular Pharmacology*, **2016**, 91:65-73. PMID: 27821547.
 - 9) S. Tabaei, F. Guo, **F.U. Rutaganira**, I. Choong, K. Shokat, J. Glenn, N-J. Cho, "Multi-Step Compositional Remodeling of Supported Lipid Membranes by Interfacially Active Phosphatidylinositol Kinases." *Analytical Chemistry*, **2016**, 10: 5042-5045. PMID 27118725.
 - 8) **F.U. Rutaganira***, M.L. Fowler*, J.A. McPhail, G.L. Doman, B. Tavshanjian, K.M. Shokat, J.E. Burke, "Design and Structural Characterization of Potent and Selective Inhibitors of Phosphatidylinositol 4 Kinase III β ." *Journal of Medicinal Chemistry*, **2016**, 59: 1830-1839. PMID: 26885694.
 - 7) M.L. Fowler, J.A. McPhail, G.R. Masson, **F.U. Rutaganira**, K.M. Shokat, R.L. Williams, J.E. Burke, "Using Hydrogen Deuterium Exchange Mass Spectrometry To Engineer Optimized Constructs for Crystallization of Protein Complexes: Case Study of PI4KIII β in Complex with Rab11." *Protein Science*, **2016**, 25: 826-839. PMID: 26756197.
 - 6) T.B. Kuhlenschmidt, **F.U. Rutaganira**, S. Long, K. Tang, K.M. Shokat, Kuhlenschmidt M.S., D.L. Sibley, "Inhibition of Calcium-Dependent Protein Kinase 1 (CDPK1) in vitro by Pyrazolopyrimidine Derivatives Does not Correlate with Sensitivity of *Cryptosporidium Parvum* growth in Cell Culture." *Antimicrobial Agents and Chemotherapy*, **2015**, 60: 570-579. PMID: 26552986.
 - 5) B.N. Manz, Y.X. Tan, A.H. Courtney, **F. Rutaganira**, E. Palmer, K.M. Shokat, A. Weiss, "Small Molecule Inhibition of Csk Alters Affinity Recognition by T Cells." *Elife*, **2015**, 4: e08088. PMID: 26302204.
 - 4) J.E. Burke, A.J. Inglis, O. Perisic, G.R. Masson, S.H. McLaughlin, **F. Rutaganira**, K.M. Shokat, R.L. Williams, "Structures of PI4KIII β Complexes Reveal a Mechanism for Simultaneous Recruitment of Rab11 and its Effectors." *Science*, **2014**, 344: 1035-1038. PMID: 24876499.
 - 3) S. Li, D.R. Tietz, **F.U. Rutaganira**, P.M. Kells, Y. Anzai, F. Kato, T.C. Pochapsky, D.H. Sherman, L.M. Podust. "Substrate Recognition by the Multifunctional Cytochrome P450 MycG in Mycinamicin Hydroxylation and Epoxidation Reactions." *J. Biol. Chem.*, **2012**, 287: 37880-37890. PMID: 22952225.
 - 2) C. Chen, M. Kudo, **F. Rutaganira**, H. Takano, C. Lee, A. Atakilit, K. S. Robinett, T. Uede, P. Woldters, K. M. Shokat, X. Huang, D. Sheppard. "Integrin α 9 β 1 in Airway Smooth Muscle Regulates A Novel Brake on Exaggerated Murine and Human Airway Narrowing." *J. Clin. Invest.*, **2012**, 122: 2916-2927. PMID: 22772469.
 - 1) J. G. Schraiber, A. N. Kaczmarczyk, R. Kwok, M. Park, R. Silverstein, **F. U. Rutaganira**, T. Aggarwal, M. A. Schwemmer, C. L. Hom, R. K. Grosberg, S. J. Schreiber. "Constraints on the Use of Lifespan-Shortening *Wolbachia* to Control Dengue Fever." *J. Theor. Biol.*, **2012**, 297: 26-32. PMID: 22192469.

Honors and Awards

2017 – Present Howard Hughes Medical Institute (HHMI) Hanna H. Gray Fellowship

2014 – 2015	UC San Francisco Discovery Research Fellow
2012 – 2015	NSF Graduate Research Fellowship
2014	UC San Francisco Chancellor's Diversity Award – Dr. MLK Jr. Award (Trainee Category)
2010 – 2012	UC San Francisco NIGMS IMSD Fellowship
2010	UC Davis Citation for Outstanding Performance in Biochemistry & Molecular Biology
2010	UC Davis Chancellor's Award for Excellence in Undergraduate Research (Honorable Mention)
2010	UC Davis President's Undergraduate Fellowship (Spring/Summer 2010)
2009	UC Davis College of Biological Sciences Dean's List (Spring Quarter)
2008	UC Davis College of Biological Sciences Dean's List (Winter Quarter)
2006	UC Davis College of Biological Sciences Dean's List (Fall Quarter)

Presentations

- 10) "Kinase chemical genetics in the closest living relatives of animals" F.U.N. Rutaganira. Walter and Eliza Hall Institute of Medical Research – ACRF Chemical Biology Division. November 19, 2020. *Invited Special Seminar*.
- 9) "Kinase chemical genetics in the closest living relatives of animals" F.U.N. Rutaganira*, N. King. ACS Virtual Postdoc Symposium. November 19, 2020.
- 8) "The evolution of phosphotyrosine signaling in the animal stem lineage" F.U.N. Rutaganira. University of Richmond Biology Department Seminar. November 9, 2020.
- 7) "Choanoflagellates and phosphotyrosine signaling origins" F.U.N. Rutaganira. UC Berkeley Molecular and Cell Biology – Genetics, Genomics & Development Division, October 22-23, 2020.
- 6) "Kinase chemical genetics in the closest living relatives of animals" F.U.N. Rutaganira*, N. King. American Chemical Society Fall 2020 Virtual Meeting & Expo: On Demand Graduate Student & Postdoctoral Fellow Symposium, August 17-20, 2020. #ChemistsLive DBC (BIOL) Division, September 24, 2020.
- 5) "Kinase chemical genetics in the closest living relatives of animals" F.U.N. Rutaganira. Dr. Samuel M. Nabrit Conference for Early Career Scholars (Brown University), August 3-5, 2020. *Invited Research Talk*.
- 4) "Dissecting the Roles of Tyrosine Kinases in the Animal Stem Lineage" F.U.N. Rutaganira*, N. King. UC Berkeley Molecular Cell Biology Joint Retreat, January 7-9, 2018. *Postdoctoral Poster Award*.
- 3) "Development of PI4KIII B and PIP5K1A Inhibitors as Broad-Spectrum Antivirals." F.U. Rutaganira*, K. Nguyen, M. Elazar, F. Guo, A. Xiong, M. Gelman, M. Smith, J. Burke, R. Williams, J. Glenn, K. Shokat. Gordon Bioorganic Chemistry Research Conference, June 7-12, 2015. *Carl Storm Underrepresented Minority (CSURM) Fellowship recipient*.
- 2) "Synthesis of Heterocyclic Totarol Analogs for Inhibition of FtsZ." F.U. Rutaganira*, M.B. Kim, J.T. Shaw. Presented at American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim Convention Center, Anaheim, CA, April 24-28, 2010. *Thematic Poster Award in Chemical Biology*
- 1) "Synthesis of Heterocyclic Totarol Analogs for Inhibition of FtsZ." F.U. Rutaganira*, M.B. Kim, J.T. Shaw. Presented at Annual Biomedical Research Conference for Minority Students, Phoenix Convention Center, Phoenix, AZ, November 4-7, 2009. *Poster Award in Chemical Sciences*

Outreach

2020	Interview with Black Winning Blog (https://www.blackwinning.org/post/dr-florentine-rutaganira-postdoctoral-researcher-berkeley)
2020	Interview with Carry The One Radio (UCSF, UCB) for Women in Science Series (https://carrytheoneradio.com/episodes/wis-4)
2020	UC Berkeley Postdoctoral Association Board Member
2018 – 2020	UC Berkeley iMCB (inclusive MCB+) Postdoctoral Liaison
2014 – 2016	UCSF Scientists for Diversity Graduate Student Campus Organization Co-founder and serving president from 2014-2015
2011 – 2015	UCSF Summer Research Training Program Graduate Student Advisor: Mentored over 30 students in professional development aspects of the summer internship (weekly meetings, writing and oral presentation skills, applying to graduate school)
2012 – 2014	Inside UCSF Graduate Division Student Panelist
2014	UCSF School of Medicine Dean's Leadership Retreat Graduate Student Panelist
2012 – 2015	UCSF Graduate Division Recruiter at Undergraduate Minority Research Conferences
2013 – 2014	Facilitated City College San Francisco (CCSF) Lab Tours at UCSF and Graduate Student Panels
2013 – 2014	Bay Area Science Festival Volunteer
2014 – 2015	UCSF Associated Students of the Graduate Division (ASGD) Treasurer
2013 – 2016	UCSF Associated Students of the Graduate Division (ASGD) Chemistry & Chemical Biology Program Representative
2012 – 2016	UCSF Research In Progress Seminar (RIPS) series committee member
2012	UC Berkeley SMASH Graduate Student Speaker

References

- 1) Dr. Nicole King – nking@berkeley.edu
- 2) Dr. Kevan Shokat – Kevan.Shokat@ucsf.edu