

# Stanford

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## Florentine Rutaganira

Assistant Professor of Biochemistry and of Developmental Biology

### Bio

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#### BIO

Dr. Rutaganira uses choanoflagellates—the closest living single-celled relatives to animals—to study the origin of animal cell communication. Dr. Rutaganira applies chemical, genetic, and cell biological tools to probe choanoflagellate cell-cell communication, with implications for understanding not only animal cell signaling, but also the origin of multicellularity in animals.

#### ACADEMIC APPOINTMENTS

- Assistant Professor, Biochemistry
- Assistant Professor, Developmental Biology
- Member, Bio-X
- Faculty Fellow, Sarafan ChEM-H

#### HONORS AND AWARDS

- Hanna Gray Faculty Fellow, Howard Hughes Medical Institute
- Investigator, CZ Biohub

#### LINKS

- Lab Website: <https://www.funrscience.com>

### Teaching

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#### STANFORD ADVISEES

##### Doctoral Dissertation Reader (AC)

Cindy Sandoval Espinoza, Ali Wilkening

##### Doctoral Dissertation Advisor (AC)

Maria Nguyen, Jia Zheng Woo

### Publications

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#### PUBLICATIONS

- Juneteenth in STEMM and the barriers to equitable science. *Cell*

Mays, A., Byars-Winston, A., Hinton, A., Marshall, A. G., Kirabo, A., August, A., Marlin, B. J., Riggs, B., Tolbert, B., Wanjalla, C., Womack, C., Evans, C. S., Barnes, et al

2023; 186 (12): 2510-2517

- **Total Synthesis and Functional Evaluation of IORs, Sulfonolipid-based Inhibitors of Cell Differentiation in *Salpingoeca rosetta*.** *Angewandte Chemie (International ed. in English)*  
Raguž, L., Peng, C. C., Rutaganira, F. U., Krüger, T., Stanišić, A., Jautzus, T., Kries, H., Kniemeyer, O., Brakhage, A. A., King, N., Beemelmanns, C. 2022; 61 (41): e202209105
- **Identification and structure of an extracellular contractile injection system from the marine bacterium *Algoriphagus machipongonensis*.** *Nature microbiology*  
Xu, J., Ericson, C. F., Lien, Y. W., Rutaganira, F. U., Eisenstein, F., Feldmüller, M., King, N., Pilhofer, M. 2022; 7 (3): 397-410
- **Structural and Functional Analysis of Bacterial Sulfonosphingolipids and Rosette-Inducing Factor 2 (RIF-2) by Mass Spectrometry-Guided Isolation and Total Synthesis.** *Chemistry (Weinheim an der Bergstrasse, Germany)*  
Leichnitz, D., Peng, C. C., Raguž, L., Rutaganira, F. U., Jautzus, T., Regestein, L., King, N., Beemelmanns, C. 2022; 28 (8): e202103883
- **Using virtual interviewing to create a more accessible hybrid academic job market.** *Cell*  
Termini, C. M., Rutaganira, F. U., Palavicino-Maggio, C. B., Spriggs, C. C., Evans, C. S., McReynolds, M. R. 2021; 184 (26): 6217-6221
- **Mentoring during Uncertain Times.** *Trends in biochemical sciences*  
Termini, C. M., McReynolds, M. R., Rutaganira, F. U., Roby, R. S., Hinton, A. O., Carter, C. S., Huang, S. C., Vue, Z., Martinez, D., Shuler, H. D., Taylor, B. L. 2021; 46 (5): 345-348
- **Patching the Leaks: Revitalizing and Reimagining the STEM Pipeline.** *Cell*  
Hinton, A. O., Termini, C. M., Spencer, E. C., Rutaganira, F. U., Chery, D., Roby, R., Vue, Z., Pack, A. D., Brady, L. J., Garza-Lopez, E., Marshall, A. G., Lewis, S. C., Shuler, et al 2020; 183 (3): 568-575
- **PI4KIII# is a therapeutic target in chromosome 1q-amplified lung adenocarcinoma.** *Science translational medicine*  
Tan, X. n., Banerjee, P. n., Pham, E. A., Rutaganira, F. U., Basu, K. n., Bota-Rabassedas, N. n., Guo, H. F., Grzeskowiak, C. L., Liu, X. n., Yu, J. n., Shi, L. n., Peng, D. H., Rodriguez, et al 2020; 12 (527)
- **Phosphoregulation of the oncogenic protein regulator of cytokinesis 1 (PRC1) by the atypical CDK16/CCNY complex.** *Experimental & molecular medicine*  
Hernández-Ortega, S., Sánchez-Botet, A., Quandt, E., Masip, N., Gasa, L., Verde, G., Jiménez, J., Levin, R. S., Rutaganira, F. U., Burlingame, A. L., Wolfgeher, D., Ribeiro, M. P., Kron, et al 2019; 51 (4): 1-17
- **Inhibition of Calcium Dependent Protein Kinase 1 (CDPK1) by Pyrazolopyrimidine Analogs Decreases Establishment and Reoccurrence of Central Nervous System Disease by *Toxoplasma gondii*.** *Journal of medicinal chemistry*  
Rutaganira, F. U., Barks, J., Dhason, M. S., Wang, Q., Lopez, M. S., Long, S., Radke, J. B., Jones, N. G., Maddirala, A. R., Janetka, J. W., El Bakkouri, M., Hui, R., Shokat, et al 2017; 60 (24): 9976-9989
- **Long-term oral kinetin does not protect against #synuclein-induced neurodegeneration in rodent models of Parkinson's disease.** *Neurochemistry international*  
Orr, A. L., Rutaganira, F. U., de Roulet, D., Huang, E. J., Hertz, N. T., Shokat, K. M., Nakamura, K. 2017; 109: 106-116
- **Endosomal Phosphatidylinositol 3-Kinase Is Essential for Canonical GPCR Signaling.** *Molecular pharmacology*  
Uchida, Y., Rutaganira, F. U., Jullié, D., Shokat, K. M., von Zastrow, M. 2017; 91 (1): 65-73
- **Multistep Compositional Remodeling of Supported Lipid Membranes by Interfacially Active Phosphatidylinositol Kinases** *ANALYTICAL CHEMISTRY*  
Tabaei, S. R., Guo, F., Rutaganira, F. U., Vafaci, S., Choong, I., Shokat, K. M., Glenn, J. S., Cho, N. 2016; 88 (10): 5042-5045
- **Design and Structural Characterization of Potent and Selective Inhibitors of Phosphatidylinositol 4 Kinase III beta** *JOURNAL OF MEDICINAL CHEMISTRY*  
Rutaganira, F. U., Fowler, M. L., McPhail, J. A., Gelman, M. A., Nguyen, K., Xiong, A., Doman, G. L., Tayshanjian, B., Glenn, J. S., Shokat, K. M., Burke, J. E.

2016; 59 (5): 1830-1839

- **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*

Kuhlenschmidt, T. B., Rutaganira, F. U., Long, S., Tang, K., Shokat, K. M., Kuhlenschmidt, M. S., Sibley, L. D.

2016; 60 (1): 570-9

- **Small molecule inhibition of Csk alters affinity recognition by T cells.** *eLife*

Manz, B. N., Tan, Y. X., Courtney, A. H., Rutaganira, F., Palmer, E., Shokat, K. M., Weiss, A.

2015; 4

- **Substrate recognition by the multifunctional cytochrome P450 MycG in mycinamicin hydroxylation and epoxidation reactions.** *The Journal of biological chemistry*

Li, S., Tietz, D. R., Rutaganira, F. U., Kells, P. M., Anzai, Y., Kato, F., Pochapsky, T. C., Sherman, D. H., Podust, L. M.

2012; 287 (45): 37880-90

- **Integrin #9#1 in airway smooth muscle suppresses exaggerated airway narrowing.** *The Journal of clinical investigation*

Chen, C., Kudo, M., Rutaganira, F., Takano, H., Lee, C., Atakilit, A., Robinett, K. S., Uede, T., Wolters, P. J., Shokat, K. M., Huang, X., Sheppard, D.

2012; 122 (8): 2916-27

- **Constraints on the use of lifespan-shortening Wolbachia to control dengue fever.** *Journal of theoretical biology*

Schraiber, J. G., Kaczmarczyk, A. N., Kwok, R., Park, M., Silverstein, R., Rutaganira, F. U., Aggarwal, T., Schwemmer, M. A., Hom, C. L., Grosberg, R. K., Schreiber, S. J.

2012; 297: 26-32