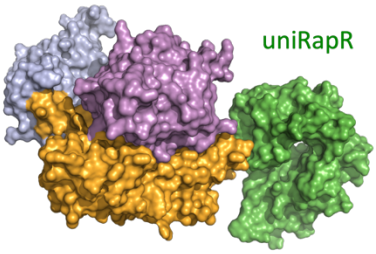
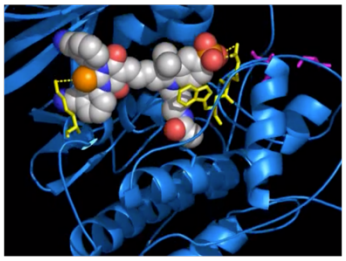
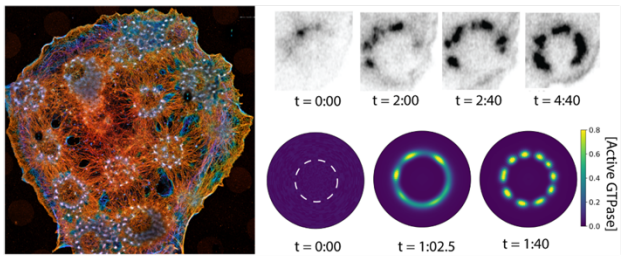
POSTDOCTORAL AND STAFF RESEARCH POSITIONS in the HAHN LAB
UNIVERSITY OF NORTH CAROLINA at CHAPEL HILL



Engineered allosteric control
Visualizing/controlling molecules in living cells



Small molecules report
protein activity *in vivo.*



Modeling phagocytosis based on
biosensors and optogenetics

Do you lie awake wondering about dynamic cell structures/ circuits? Would you like to develop proteins or small molecules that reveal new facets of cell and tissue function through microscopy? Hahn lab has openings for postdocs and staff members:

- Develop new molecular imaging tools that can reveal the conformational changes of individual molecules in living cells. Apply them to explore the dynamics of podosomes, adhesion complexes, and actin networks. This could include development or application of novel microscopes combining super-resolution and atomic force imaging with the Richard Superfine lab at UNC. See Cell, *184(22): 5670-5685*, 2021. PMC8556369. Superfine lab: https://aps.unc.edu/faculty-member/superfine-richard/.

- Examine how signaling circuits are controlled by spatio-temporal dynamics in vivo. These studies will be based on novel biosensors and optogenetics/chemogenetics, so will focus on protein engineering and on imaging. We will illuminate complex, nonlinear regulatory circuits by combining novel molecular imaging with computational approaches developed by our collaborator Gaudenz Danuser. See Nature Chem. Biol., *16(8): 826,* 2020. PMC7388658, and Science*. 354(6318):* 1441, 2016. PMC5362825. Danuser lab: https://www.utsouthwestern.edu/labs/danuser/.

- Harness organic synthesis to develop novel biosensors. This will include extension of our existing environment-sensing dyes, development of sensors based on small molecules, and methods to label proteins inside live cells. This project can provide a platform for chemists to extend their knowledge of organic chemistry, working in protein engineering and microscopy. See J. Am. Chem. Soc. *141(18):7275,* 2019. PMC6572722, Science, *305:1615*, 2004, and J. Am. Chem. Soc., *125: 4132-4145,* 2003.

- We seek staff members to develop and maintain microscopes that work in conjunction with the molecules described above, and to apply molecular imaging tools. Experience with cutting edge microscopy, application of biosensors / chemogenetics / optogenetics, or coding / image analysis would be helpful. Positions at the BS or PhD level are available.

The University of North Carolina is a multidimensional research and clinical center with over $510 million in federal funding, making us the 11th largest research university in the United States. Our Pharmacology department was ranked #2 in the world for "Best Global Universities for Pharmacology & Toxicology", and we are proud of the Nobel prizes awarded to our faculty in 2007 and 2015.

For more information, please visit http://hahnlab.com. If you are interested in any of these positions, please send a CV and cover letter to khahn@med.unc.edu.