

FIRST PERSON

First person – Keith Eidell

First Person is a series of interviews with the first authors of a selection of papers published in Journal of Cell Science, helping early-career researchers promote themselves alongside their papers. Keith Eidell is first author on 'LFA-1 and kindlin-3 enable the collaborative transport of SLP-76 microclusters by myosin and dynein motors', published in JCS. Keith is currently a postdoctoral associate in the lab of Michael Hemann at MIT at the Koch Institute investigating cytoskeletal control of immune cell activation.

How would you explain the main findings of your paper in lay terms?

My research aims to study how cells of the immune system become activated as well as how they regulate their activation state. The importance of this research lends itself to a better understanding of how to modulate immune cell activation for the purposes of fighting infections and clearing the human body of foreign pathogens, as well as for killing cancer cells. In particular, I am taking a molecular and cellular approach to study the activation processes that occur within immune cells.

I identified in my research how lymphocyte antigenic receptors can activate additional cell surface receptors that play pivotal roles in cytoskeletal organization at the immunological synapse of a T cell. In turn, cytoskeletal organization and function facilitates cellular effector functions. My research helped identify pathways of how antigenic receptors can mediate the activation of additional receptors through intracellular signaling pathways that facilitate and control immune cell activation.

When doing the research, did you have a particular result or 'eureka' moment that has stuck with you?

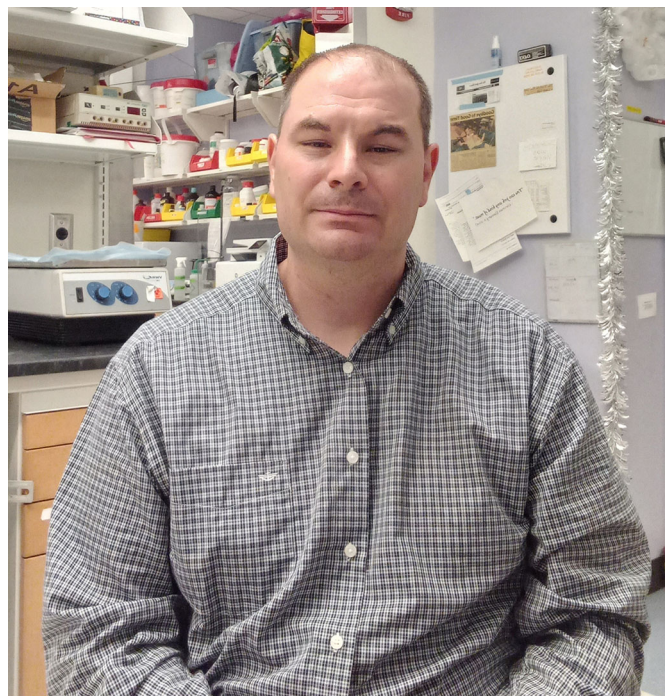
The eureka moment I had was when I identified a functional difference between two highly conserved integrins (VLA-4 and LFA-1) in a T cell at the immune synapse concerning signaling microcluster movement.

Why did you choose Journal of Cell Science for your paper?

I chose Journal of Cell Science because of the focus on and the interest the journal has in molecular and cellular biology. Particularly, the journal publishes quite a number of papers that utilize cellular microscopy methods. My research involved quite a lot of cellular microscopy and molecular biology to visualize dynamic intricate cellular structures in real time.

Have you had any significant mentors who have helped you beyond supervision in the lab? How was their guidance special?

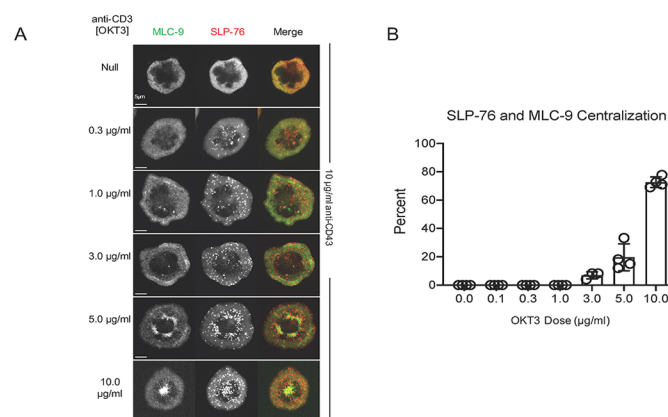
My PhD thesis committee was very instrumental in mentoring me during my time as a PhD student. My three committee members were good at guiding me and keeping me focused on my research as well as towards the goal of publishing.



Keith Eidell

What motivated you to pursue a career in science, and what have been the most interesting moments on the path that led you to where you are now?

I always had a strong interest in biology, particularly in molecular and scientific imaging techniques. Further, I also really enjoy the aspect of discovery and research and gaining a better understanding of mechanistic processes.



Images of Jurkat J14.SY-cytoskeletal reporter cells. The Jurkat J14.SY-cytoskeletal reporter cells (expressing SLP-76-YFP and MLC-9 fluorescently tagged with mCerulean) were plated onto stimulatory glass wells coated with the indicated doses of anti-CD3 (OKT3), followed by fixation and imaging by confocal microscopy. Anti-CD43 (10.0 $\mu\text{g ml}^{-1}$) was included in all wells to promote cell adhesion. (A) Representative images from three (3.0 $\mu\text{g ml}^{-1}$ OKT3) or four (all other doses) replicates. (B) Quantification of A, the mean \pm s.e.m. is depicted at each dose.

What's next for you?

I currently have transitioned to a postdoctoral position at MIT at the Koch Institute studying CAR-T cell killing of cancer cells.

Reference

Eidell, K. P., Lovy, A., Sylvain, N. R., Scangarello, F. A., Muendlein, H. I., Ophir, M. J., Nguyen, K., Seminario, M.-C. and Bunnell, S. C. (2021). LFA-1 and kindlin-3 enable the collaborative transport of SLP-76 microclusters by myosin and dynein motors. *J. Cell Sci.* **134**, jcs258602. doi:10.1242/jcs.258602