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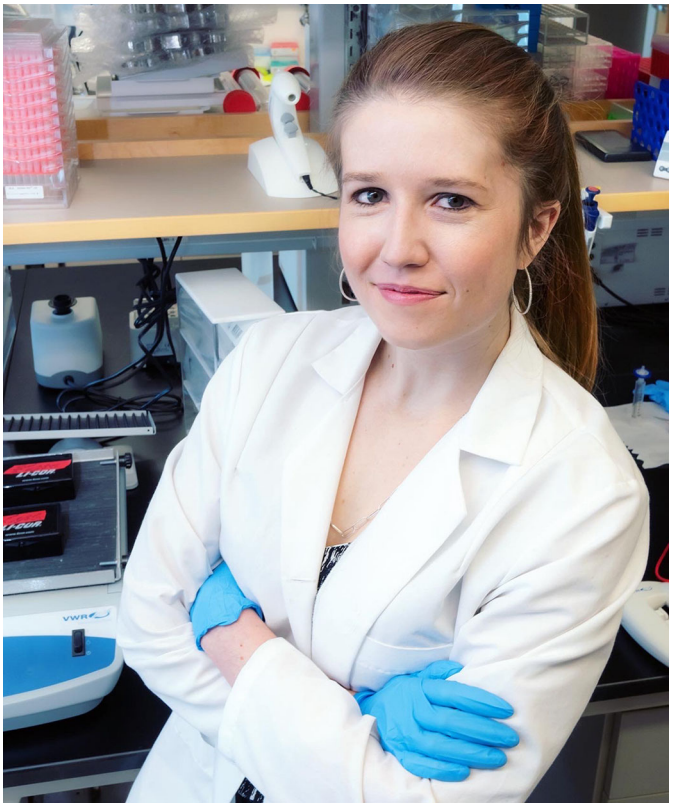
FIRST PERSON

First person – Madison Rogers

First Person is a series of interviews with the first authors of a selection of papers published in Journal of Cell Science, helping researchers promote themselves alongside their papers. Madison Rogers is first author on 'PDGFR dimer-specific activation, trafficking and downstream signaling dynamics', published in JCS. Madison is a PhD student in the lab of Dr Katherine A. Fantauzzo at University of Colorado Anschutz Medical Campus, Aurora, CO, USA, where she is broadly interested in cell signaling and how biological specificity is defined downstream of receptor tyrosine kinases.



Madison Rogers

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

Here, we revealed differences in the timing and extent of dimerization, activation and intracellular trafficking between two structurally similar transmembrane receptor tyrosine kinase homodimers, which led to changes in downstream intracellular signaling and cellular activity.

Were there any specific challenges associated with this project? If so, how did you overcome them?

Generating the stable cell lines used for this study initially proved difficult because we had to screen a lot of clones, and the clones with proper integration of both sequences often had rare bimolecular fluorescence complementation (BiFC) events. We implemented several adaptations to our protocol, such as subcloning and using a starvation medium without PDGF ligands, to increase the frequency of BiFC events.

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

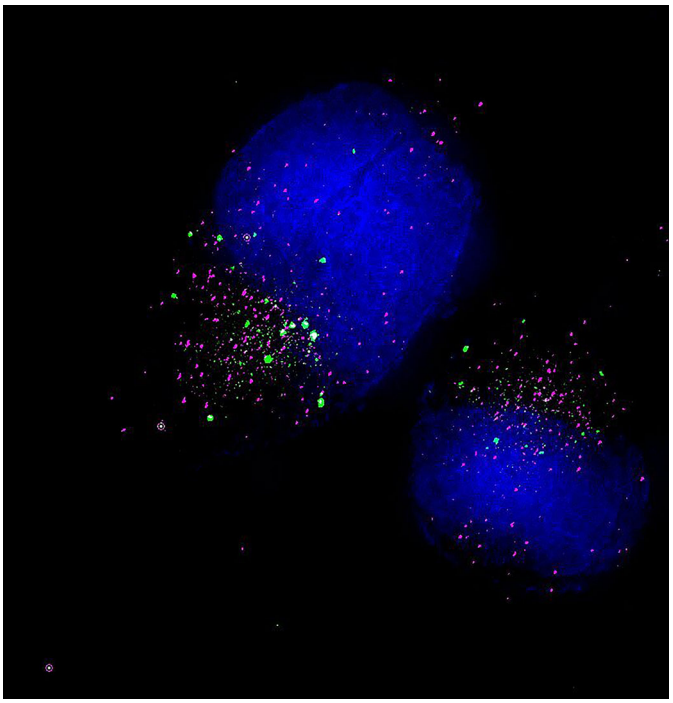
Some of our initial results had demonstrated that PDGFRα homodimers were internalized into the cell more quickly than PDGFRβ homodimers. Interestingly, inhibition of clathrin-mediated endocytosis revealed a particular requirement for rapid internalization and trafficking of PDGFRα homodimers in the propagation of downstream signaling, providing evidence for the importance of cellular trafficking in PDGFR dimer-specific responses.

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

Our research is broadly applicable to investigators studying the mechanisms by which receptor tyrosine kinases differentially propagate downstream signaling, along with the resulting cellular outputs.

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

My mentor, Dr Katherine Fantauzzo, has supervised me in the lab but has also been an excellent mentor in my professional



Colocalization of Venus and PDGFRα as assessed by immunofluorescence analysis of the PDGFRα-V1/PDGFRα-V2 HCC15 cell line. Venus is in green, PDGFRα is in magenta, and nuclei are stained with DAPI (blue).

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development by increasing my exposure to investigators in the field and helping me to hone my scientific communication skills.

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 have long been involved with an organization that raises funds and awareness for people with disabilities called the Ability Experience. These interactions initiated my interest in developmental disorders, which ultimately led to a passion for uncovering the molecular mechanisms by which cell signaling pathways are disrupted in various disease states.

Who are your role models in science? Why?

I find the work of Dr Mark Lemmon (Yale University) particularly interesting, as his group uses both structural and biochemical approaches to probe the mechanisms of RTK signaling.

What's next for you?

I am planning on pursuing a career in medical writing, as I have developed a love of science writing and communicating complex scientific ideas to diverse audiences.

Tell us something interesting about yourself that wouldn't be on your CV

I am an avid traveler and love learning about how religions influenced the history and architecture of each new place I travel.

Reference

Rogers, M. A., Campaña, M. B., Long, R. and Fantauzzo, K. A. (2022). PDGFR dimer-specific activation, trafficking and downstream signaling dynamics. *J. Cell Sci.* **135**, jcs259686. doi:10.1242/jcs.259686