

FIRST PERSON

First person – Tyler Allen

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. Tyler Allen is first author on 'Circulating tumor cells exit circulation while maintaining multicellularity, augmenting metastatic potential', published in JCS. Tyler conducted the research described in this article while a graduate student at the College of Veterinary Medicine NC State University, in the lab of Dr Ke Cheng. He is now a postdoc at the Cancer Institute, Duke University, co-advised by Dr Steven Patierno and Dr Jennifer Freedman, where he is interested in the genetic components which contribute to cancer's ability to spread (metastasize) throughout the body.

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

The project identified that, when spreading to different parts of the body, tumor cells can exit the circulation in a unique manner as groups or clusters, enhancing their ability to form new tumors.

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

The biggest challenge was isolating the specific blood vessel cells that were interacting with the tumor cells during this process. To address this, we used a system in which the blood vessels could be photoactivated by UV light to mark and isolate specific blood cells that were involved with the tumor cells exiting the vessels.

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

One of the biggest moments for me was when I realized that tumor cell clusters not only used a previously unknown method to exit blood vessels, but that this was one of the major contributors to their increased ability to form new tumors.

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

This journal has such an outstanding track record for publishing papers that push the boundaries of our knowledge in the cell biology field. This project establishes a new paradigm in the cell biology and cancer biology fields, so we knew it would be a perfect fit for Journal of Cell Science.

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

My undergraduate mentor Dr Jonathan Horowitz was the first person to introduce me to cancer biology research and also served on my dissertation committee. He has been very instrumental in my progression as a person and scientist. The way I critically think about science and how I ask questions has been greatly shaped by his guidance. Additionally, my dissertation advisor, Dr Ke Cheng,



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has been another mentor who has helped shape how I approach science. He is one of the most ambitious people I know, and his motivation to always push myself is something that has heavily influenced my career.

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 been interested in science since I was a child, but I remember distinctly in middle school we did an experiment where we looked at our own cheek cells under a microscope. I was enthralled by what I saw – it was like discovering an entirely new world just by looking at my own cells microscopically. To this day, I still enjoy looking at cells under the microscope and learning about all the amazing things they can do.

"I was enthralled by what I saw – it was like discovering an entirely new world just by looking at my own cells microscopically."

Who are your role models in science? Why?

One of my main role models would be Dr Hildrus Poindexter, MD, PhD. He was a bacteriologist and pioneer in the field of understanding tropical diseases. When I was an undergraduate, I read his autobiography and related to a lot of his journey growing up and working as a black scientist in the mid-1900s. In his autobiography, he details some of the struggles and prejudice he faced during the time, and I remember thinking if he could push through those obstacles back then, I have no excuse not to push through any challenges I face now in science.

What's next for you?

I am currently working as a postdoc at Duke University's Cancer Institute. I am working to further increase the understanding of how cancer spreads throughout the body and ways we can treat and/or prevent this in cancer patients.

Tyler Allen's contact details: Duke Cancer Institute, 905 South Lasalle Street, GSRB1 Durham, NC 27710, USA.

E-mail: tyler@tylerallen.com

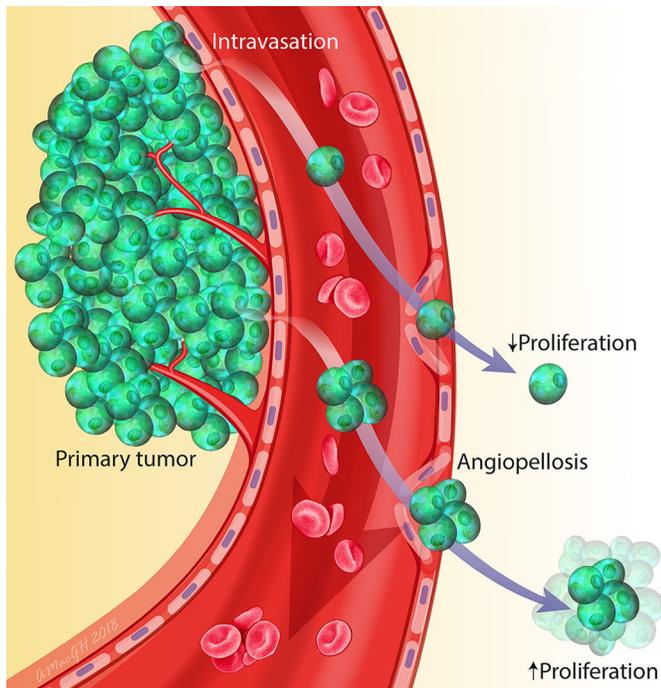


Illustration of the *Cancer Exodus Hypothesis*. Tumor cells exiting circulation through angiopeliosis show an increased ability to proliferate at distant sites as clusters versus their single-cell counterparts.

“Learning to adapt to change and keep pushing forward is one of the most valuable skills a young scientist can acquire, and will allow you to not only have a successfully career, but a fulfilling one.”

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

I enjoy creating music. In my free time I enjoy writing and producing music.

What piece of advice you would give to someone at the start of a career in science?

It is okay to fail, and it is okay to change directions or interests. Most paths in science are not linear and there is beauty in learning to appreciate every failure and change in direction. One of the most interesting aspects about biology or science is the wide variety of variance it contains; as a result, things will not always go how you expect. Learning to adapt to change and keep pushing forward is one of the most valuable skills a young scientist can acquire, and will allow you to not only have a successful career, but a fulfilling one.

Reference

Allen, T. A., Asad, D., Amu, E., Hensley, M. T., Cores, J., Vandergriff, A., Tang, J., Dinh, P.-U., Shen, D., Qiao, L. et al. (2019). Circulating tumor cells exit circulation while maintaining multicellularity, augmenting metastatic potential. *J. Cell Sci.* **132**, Jcs231563. doi:10.1242/jcs.231563