

## FIRST PERSON

# First person – Alex Generous

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. Alex Generous is first author on 'Trans-endocytosis elicited by nectins transfers cytoplasmic cargo, including infectious material, between cells', published in JCS. Alex is a PhD student in the lab of Roberto Cattaneo at the Mayo Clinic Graduate School of Biomedical Sciences, Rochester, MN, investigating the adherens junction and how they can be used as novel infectious disease spread mechanisms.

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

Your body is held together by a number of adhesive connections between cells, sort of like a very strong version of Velcro. I studied one particular type of connection, the nectins that serve as part of the adherens junction. One half of the connection is made by nectin-1, the other on an opposing cell is made by nectin-4. Nectin-1 will pull nectin-4 into it, along with material from the nectin-4-expressing cell. We characterized the time the process takes and the amount of material that could be transferred. In addition, we showed that the genome of a virus can be moved and remain functional after transfer. This may be an explanation for how this virus, measles, occasionally gains access to neurons.

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

The project was interdisciplinary, requiring coordination and expertise from a large group of individuals. I spearheaded the project, working with various collaborators from across the country. I had to learn to communicate and coordinate with a number of different people, each with their own unique personality. Now I feel confident that I could effectively speak with any of them, and will be able to use what I have learned to collaborate with other researchers in the future.

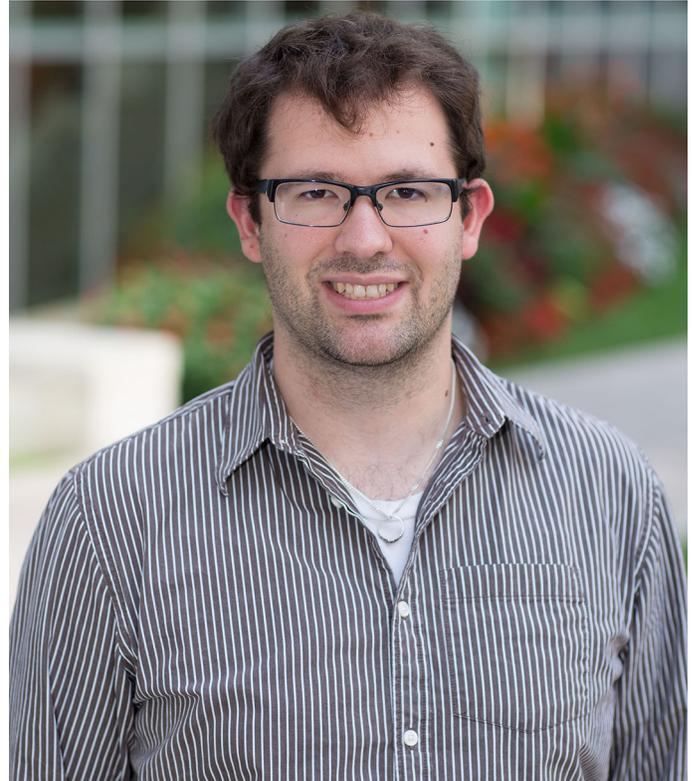
### When doing the research, did you have a particular result or 'eureka' moment that has stuck with you?

When the first neuronal culture experiment results were revealed. We predicted that nectin-4, but not the other measles virus receptor, would allow for transfer into neurons. The results matched well with what we expected. This result implied that the process we discovered and characterized may be relevant to a human disease. Emotionally, it was vindication that I had been doing something important with my time as a scientist.

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

Journal of Cell Science is globally well-regarded by our collaborators, especially the review process. More importantly, JCS is known for hosting multi-disciplinary research. Infectious disease and cell biology are intrinsically linked and JCS has a history of highlighting that concept. Our research was a natural fit.

Alex Generous's contact details: Mayo Clinic Graduate School of Biomedical Sciences 200 1st St SW, Rochester, MN 55905, USA.  
E-mail: [generous.alex@mayo.edu](mailto:generous.alex@mayo.edu)



Alex Generous

### 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?

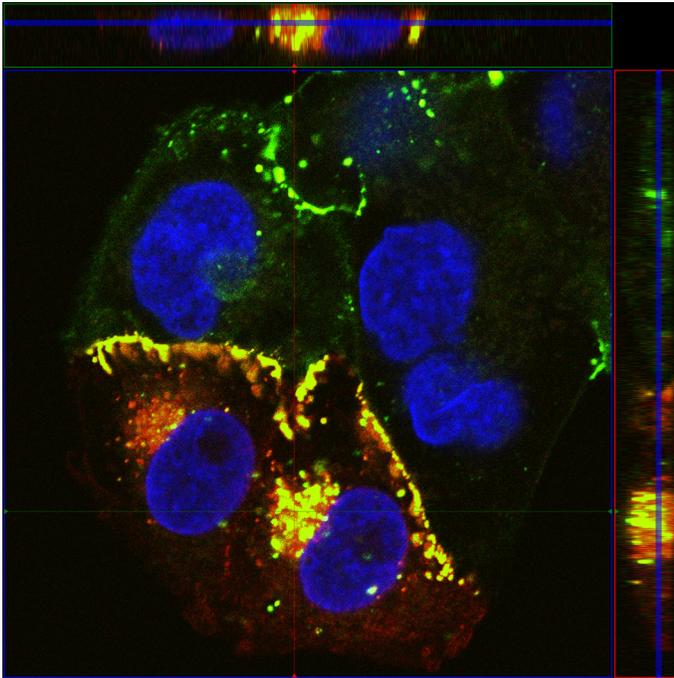
My interest in science started young; when I was nine years old I read a book about Earth, outer space and the planets. Ever since then I have had a fascination with how things work. Throughout secondary and post-secondary education I excelled in didactic coursework in the sciences. Eventually, I participated in the Summer Undergraduate Research Fellowship at Mayo Clinic Graduate School of Biomedical Sciences, which led me to pursue my thesis work there – of which this paper is a major component. Now I am looking to make the next career step.

### What's next for you?

Hopefully I will be defending my thesis within a few months. I intend to leave academia to pursue a career I will find more personally fulfilling. I applaud those who commit their lives to research, but it is not for me. Instead, I have developed my skills and talents in the science writing and communication fields. I am currently in the process of procuring post-defense employment as a science communicator.

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

I enjoy tabletop board games, card games and role playing games as my main hobby. I also enjoy television, movies, and listen to an enormous number of podcasts – I am currently working my way through Jennifer Briney's Congressional Dish.



Confocal microscopy image of the cellular localization of nectin-1 (red)-nectin-4 (green) complexes. The z-dimension is shown on both the top and right-side bars. Nuclei are stained with DAPI (blue).

#### What is the last book you have read?

“The Oldest Stories in the World”, a reconstruction of a number of the first recorded stories from human history. I am fascinated by how many of the tropes in our modern stories date to at least the beginnings of recorded history.

#### Reference

Generous, A. R., Harrison, O. J., Troyanovsky, R. B., Mateo, M., Navaratnarajah, C. K., Donohue, R. C., Pfaller, C. K., Alekhina, O., Sergeeva, A. P. and Indra, I. *et al.* (2019). *Trans*-endocytosis elicited by nectins transfers cytoplasmic cargo, including infectious material, between cells. *J. Cell Sci.* **132**, jcs235507. doi:10.1242/jcs.235507