

FIRST PERSON

First person – Aryeh Babkoff

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. Aryeh Babkoff is first author on 'A direct interaction between survivin and myosin II is required for cytokinesis', published in JCS. Aryeh is a MD/PhD candidate in the lab of Prof. Shoshana Ravid at The Institute of Medical Research Israel-Canada, The Hebrew University-Hadassah Medical School, Jerusalem, Israel, investigating the regulation of the actomyosin contractile ring during mitosis.

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

Cell division is necessary for proper growth and development of many organisms. It is a highly regulated process. Deregulation of cell division has been linked to many diseases, most famously cancer. The final stage of cell division is cytokinesis, during which the cytoplasm of a single eukaryotic cell divides into two daughter cells. Cytokinesis is regulated by the formation of the contractile ring, which is composed of two proteins called actin and myosin. Survivin is a protein that plays many roles in cell division including cytokinesis. Nevertheless, the exact role of survivin in cell division is not fully known. We found that survivin interacts with myosin, thereby regulating the formation of the contractile ring. Disruption of the survivin–myosin interaction leads to defects in cell division. Thus, understanding the molecular mechanisms of cell division should yield valuable information on the development of diseases associated with cell division defects. This knowledge may pave the way for the development of new drugs to treat diseases associated with defects in cell division.

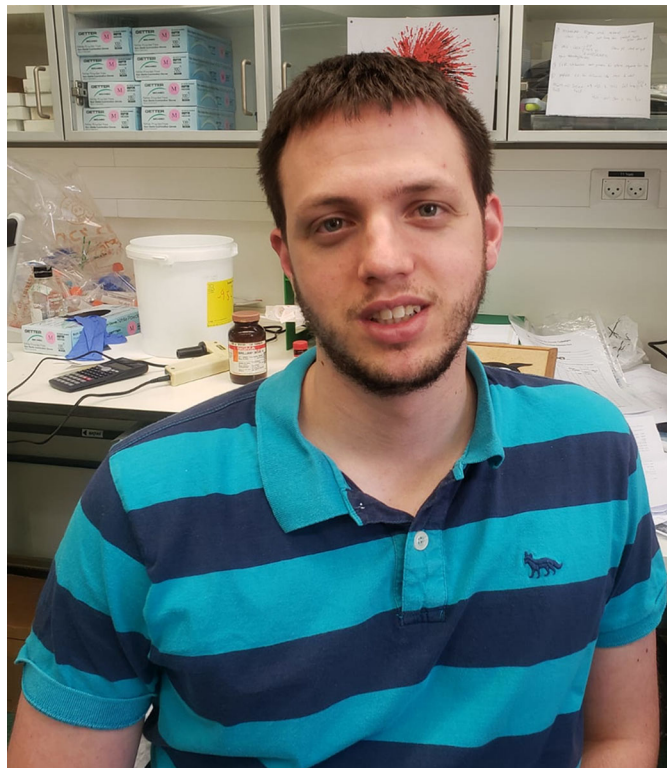
Were there any specific challenges associated with this project? If so, how did you overcome them?

I had many challenges. The two main challenges were: 1) this was my first project and the first time I had worked in a lab. In fact, I had never held a pipette before. 2) There were several experiments that had never been performed in my lab or the surrounding labs. These experiments required a very specific imaging protocol, and in fact, the people who helped me with the live-imaging thought that my conditions would not work. Therefore, I had to repeat the live-imaging many times until I was able to obtain the data I needed.

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

Yes, the first co-immunoprecipitation that worked. We were facing a lot of difficulties in these experiments. In fact, it took almost a year



Aryeh Babkoff

to succeed. The first time I finished the analysis of the western blot, I ran into my mentor's office screaming with joy, "It worked!"

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

Journal of Cell Science is an excellent journal that is highly respected among cell biologists. Therefore, I hope that by publishing in this journal, it will be read by many cell biologists. In addition, we knew that the reviewing process would be fair.

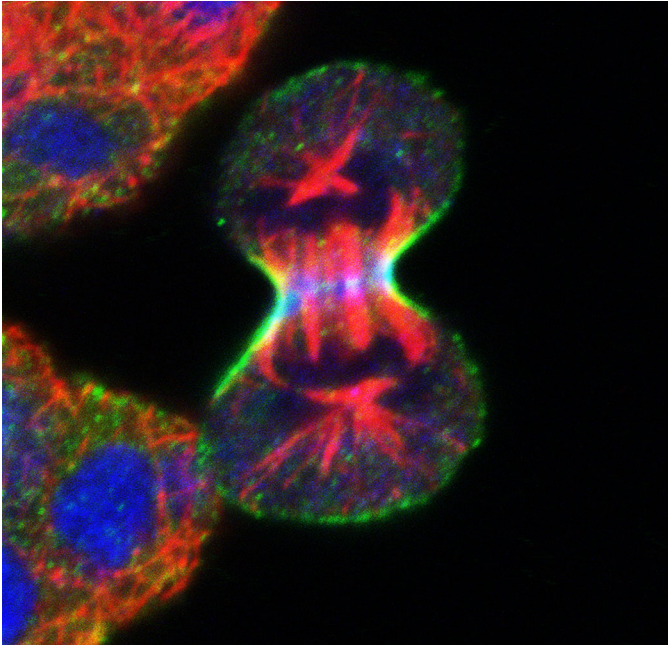
Have you had any significant mentors who have helped you beyond supervision in the lab? How was their guidance special?

Prof. Shoshana Ravid helped me in many aspects, some unrelated to science. She has always been there when I needed help, and I know that her door is always open. The instructors in the microscopy unit in our faculty also helped me a lot. We spent hours together trying to figure out how to get better images, and discussing ways to analyse the data. Additionally, they would call and update me on any new feature or microscope that could help my experiments.

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 grew up in a community with many scientists. In fact, many of my friends' parents are famous scientists. My friends and I used to go to events that introduce science to the community. I was very excited when I saw new phenomena and loved to hear the explanations.

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A confocal microscopy image of a human cervical cancer cell (HeLa) immunostained for non-muscle myosin (green), survivin (blue) and tubulin (red) during early telophase.

In general, I enjoy asking biological questions and thinking of how one can prove or disprove things.

Who are your role models in science? Why?

My grandfather, Prof. Harvey Babkoff is one of my role models. He is a professor in psychology and doesn't have a broad

background in physics, chemistry or biology. Nevertheless, he always tries to fully understand other concepts, in science and otherwise. He frequently asks for an explanation when he doesn't understand something, and he even asks people to repeat and explain things that are new to him, even if they are significantly younger than him. This is an important trait if you want to continue to grow and develop. Another person is my supervisor, Prof. Shoshana Ravid. I have yet to see someone as excited as she is when there are surprising results. The first thing she asks me every morning (besides questions of how am I doing) are questions about the experiment that was done the day before. Sometimes she even texts me in the evening because she is so curious and excited about the experiment. Another thing that really inspires me is her ability to manage so many things at the same time. She has many other positions in our faculty. Nevertheless, I never felt like these obligations came at the expense of guiding me.

What's next for you?

I am part of a MD/PhD program and I wish to combine the two important fields – science and medicine. In the future, I plan to establish my own lab and focus on modeling diseases.

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

I am a big music fan. I listen to podcasts, read articles and watch videos that deal with music. I like breaking down a song, trying to understand the lyrics and thinking about what the artist was trying to say. I can spend hours listening to and dissecting music.

Reference

Babkoff, A., Cohen-Kfir, E., Aharon, H., Ronen, D., Rosenberg, M., Wiener, R. and Ravid, S. (2019). A direct interaction between survivin and myosin II is required for cytokinesis. *J. Cell Sci.* **132**, 233130. doi:10.1242/jcs.233130