

FIRST PERSON

First person – Vibha Singh

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. Vibha Singh is the first author on 'Cell-matrix adhesion controls Golgi organization and function through Arf1 activation in anchorage-dependent cells', published in Journal of Cell Science. Vibha is a PhD student in the lab of Nagaraj Balasubramanian at the Indian Institute of Science Education and Research, Pune, India, investigating cell adhesion-mediated cellular processes and membrane trafficking pathways.

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

Cells are the building blocks of our body that stick to each other as well as to the matrix they secrete. This is what holds cells together and lets them function normally. Cells are divided into distinct compartments that communicate with each other and exchange information to support cell function. One such vital cellular compartment is the processing center of the cell, the Golgi. Changes in the shape, size or organization of the Golgi can affect the communication network of the cell. In this study, we have identified how integrins, cell-surface proteins that cells use to bind the secreted matrix, affect how the Golgi is organized and functions. Our findings reveal that changes in the way cells stick could affect how the Golgi compartment controls normal cell function, which could, in turn, be a cause of disease.

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

The most challenging part of this project was probably to believe the observation that something as basic as cell adhesion can affect Golgi organization so dramatically. We spent quite some time performing and analyzing these experiments and marking the Golgi with different resident proteins to be absolutely sure that this regulation is, indeed, for real.

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

Every successful and failed experiment in this project was a 'eureka' moment in some sense, as it helped to solve a small part of the big puzzle. One of them was seeing a fibronectin-coated bead attached to a suspended cell rescuing Golgi organization as seen in a re-adherent cell. This observation, coupled with results from specific inhibition of β 1-integrin, helped to confirm our central hypothesis for the project.

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Vibha Singh

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

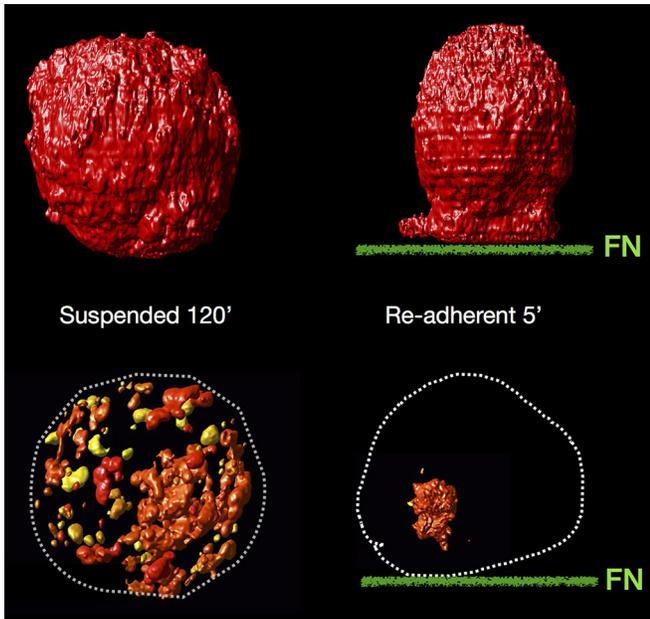
I have always found articles in Journal of Cell Science fun to read and think it has a very wide and diverse base of readers. By sharing our findings in Journal of Cell Science we are hopeful that the visibility it brings will allow this observation to reach a wider audience.

Have you had any significant mentors who have helped you beyond supervision in the lab?

My PhD advisor, Dr Nagaraj Balasubramanian, helped immensely throughout the project and also taught me how to troubleshoot a problem. In addition, I have been fortunate to have Dr Thomas Pucadyil and Dr Richa Rikhy as my thesis committee members. They have helped significantly in shaping the project with their valuable timely suggestions and were very encouraging and appreciative of the work.

What's the most important piece of advice you would give first-year PhD students?

I would advise first-year PhD students to invest time in systematic and exhaustive literature reading as this will be very helpful when addressing the hypothesis in subsequent years. Additionally, I would encourage students to treat their PhD



3D reconstructed surface-rendered images of WT-MEF cells suspended (left) and re-adherent on fibronectin (FN; right), labeled with cell-surface GM1 (top) and the trans-Golgi marker GalTase (bottom).

project as ‘work’, while also taking time to ensure they have a healthy work–life balance.

What changes do you think could improve the professional lives of early-career scientists?

I think early-career scientists need easier access to grants and funds so that they can take risks to pursue their ideas and hypotheses. Also, longer postdoc contracts would be helpful to allow researchers more time to finish and publish the project they are working on.

What’s next for you?

I will shortly be joining Dr Christophe Lamaze’s lab at Institut Curie Paris as a postdoctoral researcher.

Reference

Singh, V., Erady, C. and Balasubramanian, N. (2018). Cell-matrix adhesion controls Golgi organization and function through Arf1 activation in anchorage-dependent cells. *J. Cell Sci.* **131**, jcs215855.