

FIRST PERSON

First person – Swati Priya

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. Swati Priya is first author on 'CDX2 inducible microRNAs sustain colon cancer by targeting multiple DNA damage response pathways factors', published in JCS. Swati is a Postdoctoral fellow in the lab of Dr Sagar Sengupta at National Institute of Immunology, New Delhi, India, working on identifying the role of microRNAs (miRs) in different types of cancer, such as colon cancer, rectal cancer and B cell lymphoma, and the regulation of miRs by Bloom helicase.

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

We have found a signature of six miRNAs that can be used as a prognostic biomarker for colon cancer. We have shown that these miRs are upregulated in the cancerous tissues of colon cancer patients. We have deciphered how these signature miRs are regulated by a common transcription factor, CDX2, which is in turn highly expressed in colon cancer tissue. These miRs target a number of genes involved in the DNA damage repair pathway, leading to genome instability and consequent progression toward cancer. We validated our findings *in silico* by analyzing the TCGA database and also experimentally in cancerous tissues obtained from patients.

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

Logistically, it is difficult to work with six miRs. However, when we thought of validating our miR signature in patient samples, ethical clearance took almost 8–9 months. We worked on 54 pairs of tissue samples of colon cancer. We got these samples within a span of 2 years. Therefore, it took a considerable time to wind up this project.

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

Yes, when the signature miRs were found to be highly expressed in the tissue samples of colon cancer patients from India. This validated our result from the TCGA database. Furthermore, as the high tumorigenic and invasive potential of CDX2 in SCID and Nude mice models were very clear from our results, I was very enthusiastic. In the literature, the role of CDX2 is more pronounced as a tumor repressor, and little was known about the oncogenic role of CDX2.

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

JCS is one of the most respected journals in the field of Biological Science. Incidentally, from our lab, we have published five papers in JCS to date (including the present one).



Swati Priya

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

Dr Sagar Sengupta's guidance has been most significant. Apart from that, Dr Arnab Mukhopadhyay also helped in designing some experiments. I am grateful to both of them.

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?

Since childhood, I had an inclination toward science, especially biology, and always scored the highest marks in that subject. In fact, in my school leaving examinations, the marks I had obtained in biology were the highest in India. Furthermore, graduation and post-graduation in science enabled me to learn a lot and become even more enthusiastic about biology. Since going into research, I have discovered my love of asking questions, doing research with the questions in mind and finding answers.

Who are your role models in science? Why?

Dr Sagar Sengupta of course. I have learnt a lot from him. He is a very meticulous person who tries to give the best training to his students.

What's next for you?

I hope to stay in academia. I would love to teach and carry out research in an independent lab in the future.

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

I have learnt oil painting, and I am very good at it. But somehow, I could not dedicate enough time for this and it was left

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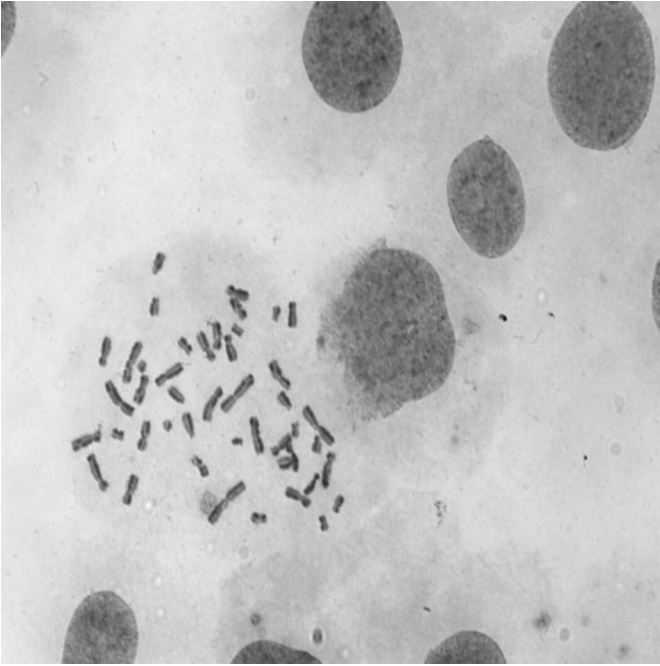


Image of sister chromatid exchange in cells from a Bloom syndrome patient.

behind. At one point in time, in fact, I had wanted to make it my career.

Reference

Priya, S., Kaur, E., Kulshrestha, S., Pandit, A., Gross, I., Kumar, N., Agarwal, H., Khan, A., Shyam, R., Bhagat, P. et al. (2021). CDX2 inducible microRNAs sustain colon cancer by targeting multiple DNA damage response pathways factors. *J. Cell Sci.* **134**, jcs258601. doi:10.1242/jcs.258601