

FIRST PERSON

First person – Shruti Patrick

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. Shruti Patrick is first author on 'YAP1-mediated regulation of mitochondrial dynamics in IDH1 mutant gliomas', published in JCS. Shruti is a PhD student in the lab of Ellora Sen at National Brain Research Centre, Haryana, India, investigating the differential roles of potential therapeutic targets in the context of IDH1 wild-type and IDH1 mutant gliomas.

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

Like many types of cancer, a number of mutations in various genes are implicated in giving rise to glioma, a type of tumour that occurs in the central nervous system. Among them, mutation in the isocitrate dehydrogenase 1 (*IDH1*) gene is very common. This mutation is considered an important clinical marker for prognosis because patients with gliomas bearing this mutation tend to survive longer than those in which gliomas have the unmutated or wild-type *IDH1*. Our study explores the role of a protein called YAP1 in *IDH1* wild-type and *IDH1* mutant gliomas. We found that *IDH1* mutant glioma cells have diminished levels of YAP1. This leads to a decrease in the levels of certain proteins that are important for maintaining the normal state of mitochondria. This in turn affects the mitochondria in these cells, causing them to be more fragmented, and leading to an increase in reactive oxygen species (ROS) levels, which can be damaging to the cells. Another protein, TERT, plays a protective role against increased ROS. But reduced YAP1 also causes a decrease in TERT levels in *IDH1* mutant cells. This reduces the protection offered by TERT, thereby making these cells more prone to damage caused by high ROS levels. Upon manipulating *IDH1* wild-type cells so that they express reduced levels of YAP1, effects similar to those in *IDH1* mutant cells are observed. Our study shows that YAP1 affects the susceptibility of glioma cells to ROS, and thus could be an important target for therapeutics against glioma.

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

Not only is Journal of Cell Science a reputed journal in the field of cell biology, it is also one that we have found ourselves constantly consulting during the course of our work. We thought it to be a great fit for our paper.

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 believe every child has an inherent curiosity and ability to question things. I was fortunate enough to have wonderful parents and teachers who nurtured these qualities. I have been enthralled by science ever since my first science lessons as a child. Watching forensic science documentaries on TV perhaps added to this fascination! Later on as an undergraduate and master's student,



Shruti Patrick

I developed a keen interest in cell and molecular biology, and found myself drawn towards research. Again, I have a number of great teachers to thank for that. A brief two-month period as a summer research fellow in Prof. Dorairajan Balasubramanian's lab (L. V. Prasad Eye Institute, Hyderabad, India), and the mentorship of Dr Venkata Pulla Rao Vendra made me absolutely certain of wanting to pursue a career in research. After getting into NBRC as a PhD student, joining Dr Ellora Sen's lab felt only natural. Since then, under her able guidance, it has been a delightful scientific journey.

What's next for you?

As of now, I am working on a few other projects. I am also focused on completing my PhD, after which I would like to continue my career in research, preferably in the field of cancer or cell biology.

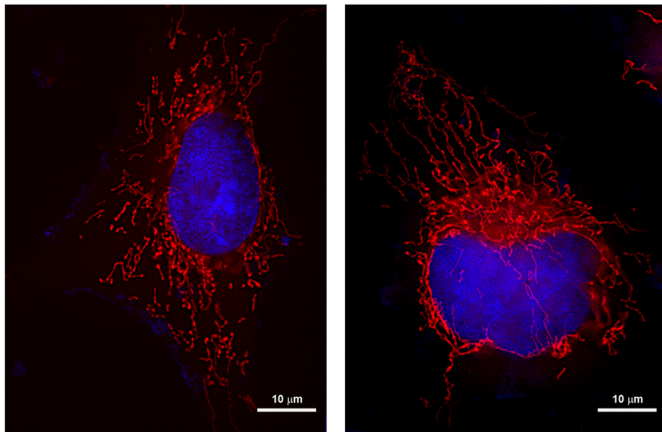
Tell us something interesting about yourself that wouldn't be on your CV

I love reading and enjoy watching stand-up comedy.

What would be your advice to students who are just getting started with their PhD?

Research usually involves several setbacks before one succeeds, be it an experiment or getting one's work published. Dealing well with failures is an important quality for any PhD student. So (at the risk of

Shruti Patrick's contact details: National Brain Research Centre, NH-8, Nainwal Mode, Manesar 122052 Haryana, India.
E-mail: shruti.patrick@gmail.com



IDH1 R132H

YAP1 overexpression in IDH1 R132H

DAPI (nucleus)
MitoTracker (mitochondria)

IDH1 R132H cells show mitochondrial fragmentation which is rescued by overexpression of YAP1.

sounding clichéd) push the fear of failure out of your mind. If you fail, take some time to absorb it, reset and restart.

Never compare your journey with anyone. Your journey is unique, as is everyone else's.

Do not hesitate to ask for help when you need it.

Looking back, it is the things you did not do that you will regret. So take a break, take that trip with your friends, spend time your family, and don't forget to have fun.

How would you, as a researcher, like to help society?

A career in scientific research is still relatively unconventional in most parts of my country. This unfortunately means that a huge amount of potential remains untapped, and representation of people in science is highly skewed. I would like to encourage school and college students, particularly girls, and especially those from less privileged communities to pursue careers in science.

Reference

Patrick, S., Gowda, P., Lathoria, K., Suri, V. and Sen, E. (2021). YAP1-mediated regulation of mitochondrial dynamics in IDH1 mutant gliomas. *J. Cell Sci.* **134**, jcs259188. doi:10.1242/jcs.259188