

## FIRST PERSON

# First person – Francesca Nardi

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. Francesca Nardi is the first author on 'PEDF regulates plasticity of a novel lipid-MTOC axis in prostate cancer-associated fibroblasts', published in Journal of Cell Science. Francesca is a research associate in the lab of Susan Crawford at NorthShore University Research Institute, Chicago, USA, investigating the molecular mechanisms underlying tumorigenesis and identifying potential therapeutic targets.

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

Maintaining a tumour-free environment at the cellular level requires precise regulation of lipid metabolism and cellular structures that control the cell cycle. If prostate cancer develops, crosstalk exists between tumour cells and benign neighbouring cells. We studied the adaptations made by the benign cells to facilitate tumour growth. One of these changes includes reducing the expression of proteins that regulate lipid metabolism. We discovered that restoration of one of these proteins, PEDF, in these benign cells normalizes lipid metabolism and cell cycle mediators, suggesting that PEDF has the potential – as a therapeutic target – to suppress tumour growth.

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

Cancer-associated fibroblasts are known to be highly heterogeneous in their phenotypes. Some demonstrate a more stimulatory response to tumour progression in the tumour microenvironment, while others have a limited ability to promote tumour growth. To better represent this biological heterogeneity, we performed all of the analyses in three primary, early-passage number, cancer-associated fibroblast cell lines derived from three different patient samples.

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

An important 'eureka' moment during the development of this study was when – after having observed much higher amplification of pericentrin in prostate cancer-associated fibroblasts – we performed immunofluorescence studies using BODIPY to stain lipid droplets and found that the pericentrin colocalised with lipid droplets. This result was a very important turning point, suggesting that lipid droplets play a more direct role in centrosomal MTOC and non-centrosomal MTOC biology, and microtubule remodelling than previously thought.

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

We chose Journal of Cell Science owing to its high-profile position in the broad field of cell biology and its history of publications highlighting innovative findings in cancer biology.

Francesca Nardi's contact details: Department of Surgery, NorthShore University Research Institute, Affiliate of University of Chicago Pritzker School of Medicine, Evanston, IL 60201, USA.  
E-mail: francesca.nardi2310@gmail.com



Francesca Nardi

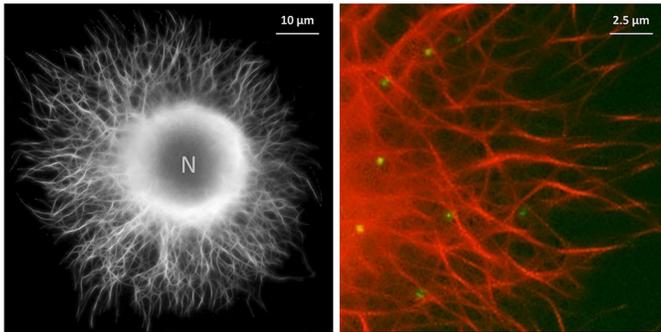
### Have you had any significant mentors who have helped you beyond supervision in the lab?

I would like to especially thank my mentor and principal investigator at NorthShore University Research Institute, Susan Crawford, who has helped me throughout this past year of research and in the realisation of this paper. Susan has gone beyond her role as my supervisor and has provided me with continuous support by being an endless source of knowledge and guidance. She always inspires me with her charisma and passion for science, and continues to show me the beauty of doing research every day.

**“The search for answers and the excitement associated with making new discoveries [...] makes me love science.”**

### What motivated you to pursue a career in science?

What got me interested in science – and still motivates me to pursue a career in science – is my curiosity and interest in understanding how things work and function. The search for answers and the



**High-grade prostate cancer (PC-3) cells.** Left: Shown is the complexity of the microtubule network (N, nucleus). Right: BODIPY-stained lipid droplets (green) observed within microtubules stained for  $\alpha$ -tubulin (red) in the peripheral region of the cell.

excitement associated with making new discoveries, as well as the constantly evolving knowledge emerging from new technology and lab findings, makes me love science.

### What's next for you?

While in Italy, I completed a master's degree in medical biotechnology and molecular medicine; and I moved to the USA to gain additional experience in medical research. During the past two years I have been involved in exciting projects and decided to pursue an academic career by applying to a PhD program in the field of cancer biology. I hope to start the program in the fall of 2019.

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

When I moved to Chicago from Italy two years ago, I knew very little English and, in a short period of time, have accomplished three very important goals: (1) the ability to speak and write a new language, (2) finding a wonderful and rewarding job and, (3) now, my first paper published in a superb journal. I hope this is just the beginning of a longer list of accomplishments in my scientific career.

### Reference

Nardi, F., Fitchev, P., Franco, O. E., Ivanisevic, J., Scheibler, A., Hayward, S. W., Brendler, C. B., Welte, M. A. and Crawford, S. E. (2018). PEDF regulates plasticity of a novel lipid-MTOC axis in prostate cancer-associated fibroblasts. *J. Cell Sci.* **131**, jcs213579.