

## FIRST PERSON

# First person – Raja Gopal Reddy Mooli

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. Raja Gopal Reddy Mooli is first author on 'An indispensable role for dynamin-related protein 1 in beige and brown adipogenesis', published in JCS. Raja Gopal Reddy is a postdoctoral fellow in the lab of Sadeesh Ramakrishnan at the Division of Endocrinology and Metabolism, University of Pittsburgh, PA, USA, investigating the role of hypoxic signaling in liver cancer and the crosstalk between liver and beige adipogenesis mechanisms.

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

Fat tissue, also known as adipose tissue, controls energy homeostasis in our body. For example, white adipose tissue stores energy, whereas brown or beige adipose tissue dissipates energy as heat. Mitochondria are organelles that metabolize carbohydrates and fat to generate energy (in the form of ATP). In brown and beige adipose tissue, mitochondria generate heat instead of ATP. In our study, we found that a protein called dynamin-related protein 1 (DRP1) is essential for the mitochondrial biosynthesis associated with the development of brown or beige adipocytes. Inhibition of DRP1 in the cells early on hampered the expression of several genes involved in mitochondrial biosynthesis and beige adipocyte development.

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

The formation of mature beige adipocytes (beige adipogenesis) takes place in a series of steps that are divided into the early induction phase (days 0–2), intermediate phase (days 2–4) and terminal phase (days 4–6). The unexpected finding from our study was that the inhibition of DRP1 at the early phase,



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but not at the later phases, arrested the development of beige adipocytes.

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

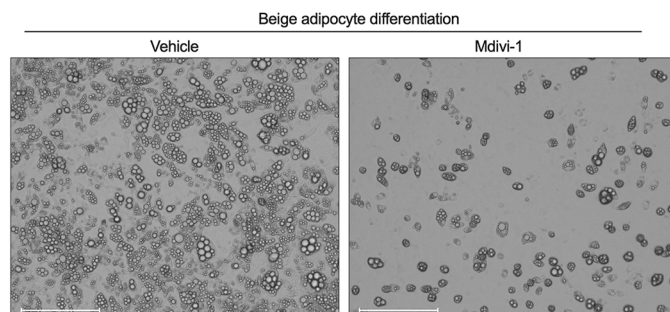
Journal of Cell Science is a highly reputed journal in the field of cell biological research. The research findings of our study fitted well with the scope of JCS. Moreover, the expert editorial team, timeline of decision and balanced assessment of the work made us believe that JCS is the best platform to showcase our results.

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

Ever since I started my career in research, I received significant supervision from my mentors. In particular, during my graduate studies, Drs S.M. Jeyakumar and A. Vajreswari were great mentors, guiding me scientifically and teaching me the importance of critical thinking in research. Currently, Dr Sadeesh Ramakrishnan (my postdoc mentor) gives me immense freedom to try new ideas and supports me in each one of them with his own critical inputs. It is really wonderful working with him, as he helps me both technically and scientifically. Most importantly, he loves to discuss results, plan new tasks every day and share his knowledge with me.

### 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 really liked physiology while I was in high school. What inspired me most was the complexity of living organisms. In that sense, I strongly believe that surrounding circumstances led me



Images showing primary mouse stromal vascular fraction (SVF) cells differentiated to beige adipocytes with or without mdivi-1. Magnification, 20 $\times$ .

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to the place where I am now. In one line, I can say that my curiosity towards learning new aspects of biological systems is my motivation.

**Who are your role models in science? Why?**

Firstly, for me, it's hard to mention a particular name as a role model in science, because everyone does a fantastic job. I believe that critical thinking, curiosity and hard work are the major fuels for a good researcher. So, everyone around me is my role model, because I can always learn and motivate myself by looking at them.

**What's next for you?**

Currently, I am working as a postdoctoral fellow and, in the future, I would certainly love to see myself as an independent investigator in the field of adipose tissue biology and its role in metabolic diseases.

**Reference**

**Mooli, R. G. R., Mukhi, D., Chen, Z., Buckner, N. and Ramakrishnan, S. K.** (2020). An indispensable role for dynamin-related protein 1 in beige and brown adipogenesis. *J. Cell Sci.* **133**, jcs247593. doi:10.1242/jcs.247593