RNA Rules in Life

The President of the Max-Planck-Gesellschaft

Professor Dr. Patrick Cramer

Introduces the second Kafatos Lecturer Elena Conti

20.10.2023

Schloss Nymphenburg, Munich

– Check Against Delivery –

In 1996 I met Fotis Kafatos at EMBL in Grenoble. I was a young PhD student, but I took the courage to approach him, Director General. I was surprised that he was interested in my research. This was the start of a fruitful collaboration. Clearly, Kafatos was a top European science manager, but he also remained a researcher at heart. And he was a great science communicator – he would have liked today's venue, a hot spot for science communication: Biotopia.

Our Kafatos lecturer today, my dear colleague Elena Conti, is one of the best structural biologists of our time. Elena's path started in Varese in Italy. I think that from her childhood times she carries the Italian sun in her heart. The sun, the lakes and the culture of Lombardy. And this may explain her smile.

She studied at the University of Pavia, arguably the oldest university in the world, and later at Imperial College in London. From there, she went as a postdoc to Rockefeller University in New York, and then as a group leader to EMBL in Heidelberg. For more than 15 years now, Elena has been living and working here in Munich, at the Max Planck Institute of Biochemistry.

Not surprisingly, Elena received numerous prices, among them the Leibniz Prize. She is a member of EMBO, Leopoldina and the Royal Society. She obtained three Advanced Grants of the European Research Council, ERC. By the way, it was Fotis Kafatos who started the ERC, together with Ernst-Ludwig Winnacker, who is here today!

But of course, Elena's CV, like every CV, contains hidden obstacles that you only realize when you read between the lines: For example, Elena is an X-ray crystallographer by training. But she left safe grounds and learned to use electron microscopy when this technology advanced about a decade ago. This is just one example that shows: A career like Elena's requires focus, flexibility and perseverance.

But it is just as important to keep an open mind and dare to venture into the unknown when an opportunity arises.

Maybe now you ask: all fine, but what did she discover? Elena elucidated mechanisms that underlie the life cycle of cells. She studied RNA, which forms long chain-like molecules in cells. She showed us how RNA chains are controlled, transported and degraded in cells. But why RNA? Isn't RNA just the little sister of DNA, which carries our genes? Or just the little brother of proteins, which do the heavy lifting in cells?

Well, no, RNA is central to life. RNA rules in life. As far as we know, life even started based on RNA. And today living cells use all kinds of RNA. RNA allows for the translation of the genetic information into proteins. RNA is essential for the development of organisms and for the growth and differentiation of cells. And: RNA can even be used to make corona vaccines, and possibly also personalized cancer drugs soon!

So there are many reasons why to study RNA – their structure, function and metabolism. And much of what we know about this comes from the work of Elena and her team. Over the last years, one of Elena's focuses was the mechanism of RNA degradation by large protein machines in the cell.

By the way, until 2013, Elena was my neighbor on campus. During that time, I got to know her as a very kind and generous colleague. She readily gave my team access to her astonishing robotic facility for protein crystallization. This allowed us to conduct experiments we otherwise could not have done.

Elena is also generous with passing on her knowledge to the next generation. She mentors and supports her coworkers to reach academic independence, especially also young women. Many of her former coworkers now run their own laboratories. She is simply a great role model.

Today, Elena will again be generous. She will share her insights with us. Dear Elena, many thanks for taking us into the wonderful nanoworld of the cell.

Ladies and gentlemen, the 2023 Kafatos Lecturer, Elena Conti!