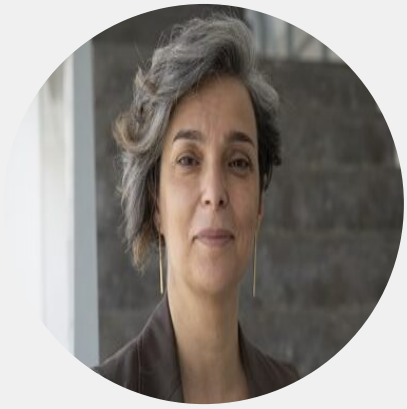
Maria Mota – Executive Director, iMM



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09.01.2024

Tags: Portugal, Europe, iMM, Instituto de Medicina Molecular

Dr Maria Mota, executive director at Portugal's Institute of Molecular Medicine (iMM), shares how the non-profit institute generated its own circular economy during the COVID-19 pandemic and saved the Portuguese government some EUR 15 million thanks to its in-house developed PCR tests. She describes the expanson of the iMM's focus based on this experience and the creation of a Centre for Action. Mota also outlines the need to foster clinical research in Portugal and an upcoming merger with the Gulbenkian Institute of Science to create a new public and privately funded international institution.

We last interviewed you about five years ago, before the COVID-19 pandemic. What has been happening at the Institute of Molecular Medicine (iMM) since then and how did the iMM weather the pandemic?

In essence, the iMM has always been a fundamental biomedical research institute. Our drive is about chasing questions within our research, as the question can be more important than the answer in many cases. We want to give researchers and scientists the freedom to be creative in their pursuit of finding new questions in their research.

Despite our successes in fostering this creative culture, it can be challenging in a country like Portugal with limited resources. The issues that I outlined in 2018 still exist today and we continue

to lack the security of some other European countries in terms of public funding levels. Nevertheless, we have still been able to attract amazing researchers with interesting portfolios to come here, pose new questions, and build an environment in which they feel secure to be creative. Witnessing researchers pursue their creativity is truly an amazing thing to be a part of.

Another key part of this period was COVID-19. When we met back in 2018, no one could have predicted that, two years later, we would face a worldwide pandemic. The iMM is part of a campus with the leading medical school and hospital in the country, and many see us as creative people. In the early days of COVID-19 a patient was diagnosed with the virus leading to its spread within the hospital. We did not have diagnostic kits at the time but with my experience in infectious diseases I thought that creating our own PCR test might be possible, and indeed, it was. We therefore moved from a creative mindset back to the basics of solving problems, and the PCR test we used was as good as any on the market, in terms of results. We were able to use this as the basis to test all the retirement homes across the country.

You mentioned focusing on problem solving and developing a diagnostic kit in response to the pandemic. How has that experience shaped the activities of the IMM moving forward?

We saw the potential of working closely with other researchers in a collaborative effort. We are a creative institution and should safeguard researchers in their work and in the development of their own ideas, but at the same time we should be actively contributing to resolving health issues.

As a result of this, we created a Centre for Action. The scientists participating in it are not the same ones that are at the iMM, but are a a group of global experts dedicated to specific missions originating from Portugal and various locations worldwide. This research team approaches challenges with a multidisciplinary perspective, seeking comprehensive solutions. On top of this, we have a logistics and delivery team to move the prototypes we build and scale them up, adapting them depending to the market in which they are presented. All in all, this Centre is designed to solve healthcare problems of both today and tomorrow.

We now have funding from private and public enterprises and are sourcing experts from around the world to assist us in developing this concept and moving forward. We need to work side by side with science in developing these ideas and this new Centre and the iMM will complement each other. The iMM researchers have natural problem-solving abilities, and COVID-19 highlighted the capacity of creative minds to address present-day challenges.

We are a non-profit organisation, but during the pandemic we were able to generate profit through our large PCR testing operations that also resulted in cost savings for the Portuguese government of up to EUR 15 million. With the profit generated through these activities, we were able to set up this Centre for Action and have decided to create a circular economy system, using profits to reinvest back into research for this new centre and the iMM.

Researchers are perhaps often focused on pure science and are less concerned about commercialising their discoveries. Has this new circular economy concept meant a change in mindset?

It does not require the researchers at the iMM to change how they think as their creative ideas will always be protected. In fact, both sides of the structure will be completely independent, though the doors will always be open for people to learn and help each other. New ideas are never a bad thing.

I will give you an example of one of our ideas going to market. In 2011, a PhD student did some very basic research on the development of immune cells called gamma delta T-cells. These cells are in the blood circulation when a patient is very sick and it is difficult to reach them. This student developed a concept to produce them *in-vitro* and took entrepreneurship courses, developed and patented the idea, and even created a company. Later on, he found that one of these cells had potent antitumor activities and the team took out a second patent.

In 2018, the iMM and I sold the company and today these cells are in phase I clinical research in California through Takeda International. This process was hard for me as it was the first time I went through something like that, and despite the success I see it as less successful as it could have been. Portugal should be able to undertake the initial innovative research and then take on the next steps of pushing it through clinical trials. Why do we need to go to California for a Portuguese discovery? This should be the next step in the innovation chain.

Has the iMM taken any steps to rectify this break in the development chain?

Yes. In June 2018 we set up the Technology Transfer Office (TTO) and it has already been highly successful. We have 49 patent families and 50 percent of them have been licensed to the industry.

What barriers are preventing Portugal for assuming a greater role across the entire innovation and commercialisation value chain?

The good news is that Portugal has a little bit of everything, but the bad news is we are not world class players in any one area. Therefore, we have a real opportunity at the iMM and we can use our connections with the University of Lisbon and the associated medical school and hospital. At times, we lack the resources and funds are really stretched to the limits, but the main change we need is cultural.

People here are quite comfortable and becoming a larger part of the innovation chain requires a push and for people to be ambitious. There is a centre for clinical research in the hospital to set up clinical trials, and we hope the Centre for Action will facilitate its growth in the future. We need to look towards higher stands and have world class levels of management to attract the attention of international biopharmaceutical centres and push our centre to flourish further. This in turn will allow us to have Portuguese ideas go through clinical trials in Portugal.

A lot of initiatives have already been rolled out to attract international talent to work in Portugal. What more can be done?

One aspect is salaries. They are low for Portuguese people to live here and are not attractive for international people who can perhaps survive here, but do not have the funds to travel with their families. People who come here want the freedom to enjoy other parts of the world, not just Portugal. Furthermore, the research funds allocated from Portugal need to improve. Researchers are obtaining interactional funding, but they would like the security of local grants as a backup.

Looking ahead, what does the future hold for the iMM?

In 2024 there will be a merger between the iMM and the Gulbenkian Institute of Science, and we will create a new institute called the Gulbenkian Institute for Molecular Medicine. It will be a very interesting centre with public funding from the University of Lisbon Medical School, as well as private funding from the Gulbenkian Foundation, the “la Caixa” Foundation and the Soares dos Santos family. Our concept is that we will be an international institution with the protection of creativity and the drive towards finding healthcare solutions.

Do you have a final message to share with PharmaBoardroom's international audience?

We began working towards our goals many years ago and continue along this path, especially with the aforementioned merger. The institute will become a place with many arms, looking to attract the best experts, be creative and make things happen with the Centre for Action. We want to start attracting the biggest clinical trials and put together a next-generation biobank, using big data and finding healthcare solutions across Europe and the globe. Lisbon is a fantastic place to live and attractive for young people, and we want the institute to make it also a great place to do research.

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