

Perspectives from Nektarios Tavernarakis

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What are the current trends in the life sciences landscape of Greece?

Greece is paying a lot of attention to health- and medical-related research, which has become even more important during the pandemic. The biomedical research field, other areas related to biotechnology, and the agro-food industry need to be reinforced. Greece also needs to invest in emerging fields such as artificial intelligence and nanotechnology, which are driving the so called Fourth Industrial Revolution, and keep up with the pace of other countries in precision medicine and gene therapy.

What opportunities are available for life scientists in Greece?

Biomedical research is quite advanced. There are several institutes and research centres, for example the Hellenic Pasteur Institute, the Biomedical Sciences Research Center “Alexander Fleming”, and the Biomedical Research Foundation of the Academy of Athens in Athens, the Foundation for Research and Technology here in Heraklion, and other institutions in Thessaloniki and Patras. There are also universities with biology departments and medical schools, such as here at the University of Crete.

A lot of opportunities exist for young researchers in universities and research centres, and for people who want to become principal investigators or professors. There are openings, but not as many as we would like. There is a high demand by Greeks who are abroad and want to come back.

Are there any challenges?

Funding of research needs to be improved. Greece needs to increase its support for science. By prioritizing and supporting frontier research and science, Greece can increase its inter-

national competitiveness substantially, as well as its participation in international funding schemes. We need more funding for researchers, instruments, and ways to fund research throughout Greece in a transparent and meritorious way. We are developing this now: there is a new agency, the Hellenic Foundation for Research & Innovation that has been modeled after the ERC.

Another challenge is research infrastructure. Greece has invested in generating state-of-the-art facilities, but the national programme has ended. To update our aging infrastructure, we need more support. We also need to be affiliated with the European research infrastructures, for example for bio-imaging, and be able to participate in the European Synchrotron Radiation Facility, CERN, and others. Our government needs to support the relevant fields to allow the participation of the Greek scientific community.

What advice would you give to an early-career scientist considering a career in Greece?

It is really important to be passionate about what you do. Research is not always easy, but there will be moments in which you will feel the satisfaction of discovery and contribution to human knowledge. This is very rewarding, but you need to be able to weather the storm. If you are persistent and patient, you will have success, even in suboptimal conditions in a country like Greece, where a researcher is not as well supported as in other countries.

Meet scientists from the EMBO communities



Zoi Lygerou Collaboration as the key to success

Professor at the University of Patras | EMBO Young Investigator (2002–2005) | EMBO Member

For Zoi Lygerou, collaborating, locally and internationally, is crucial. “We are a small but well-connected scientific community here in Greece. This has allowed us to establish a network of complementary research infrastructures,” she says. International networks complement what is possible at home. Asked what she loves most about Greece, she does not hesitate: “The sea! Seeing the view from my office and home just makes my day!”

While government investment in research in Greece has been slow, it is improving. “There is now a realization that you cannot have innovation without a good level of investment in basic research and training,” Lygerou comments. Thanks to strong ties, the Greek scientific community advocated for a new national agency for more efficient access to funding; government

campaigns promote opportunities for international students. “There is a real momentum right now. We hope it continues!”

Lygerou uses a combination of imaging, modelling, and molecular biology techniques to study the mechanisms of genome stability. Being an EMBO Young Investigator helped her establish her group. “EMBO has been instrumental,” she says, both in enabling her to pursue her own research, and affording her students unique opportunities, such as access to training at core facilities—knowledge later shared with the group. “Progress in the field is fast.”



Margarita Zacharogianni From bioscience to medical affairs

Medical Affairs Manager at Creative Pharma, Attica | EMBO Postdoctoral Fellow (2015–2017)

“My EMBO fellowship remains the highlight of my career,” says Margarita Zacharogianni, Medical Affairs Manager at Creative Pharma, a clinical research organization based in Attica. After completing her PhD in Utrecht, she returned to Greece looking for an opportunity to pursue her own research in the field of mTor signalling in cell growth pathways.

A two-year EMBO Postdoctoral Fellowship, which she completed at the Biomedical Research Foundation, Academy of Athens, enabled her to do just that. While some aspects of her work such as buying consumables seemed more arduous than in the Netherlands, she says she was amazed at how well equipped the institute was. “The infrastructure was state-of-the-art, we had everything we needed. I am thankful for the chance to do my research here in Greece,” she says.

Zacharogianni explains that Greece is a great place to be a student: “There are many lively and vibrant student cities in Greece with good institutes and facilities.” After her fellowship she moved into industry. The biomedical industry, says Zacharogianni, represents a significant part of the Greek economy: “All the large global pharmaceutical companies have branches here, and there are also the local pharmaceutical companies.”



George Garinis Creating connections in Crete

Professor at the University of Crete | Affiliated group leader at the Institute of Molecular Biology and Biotechnology, Foundation for Research and Technology – Hellas (IMBB-FORTH) | EMBO Young Investigator (2013–2016) | EMBO Member

George Garinis's group, based at the IMBB-FORTH in Heraklion, studies the causes of aging. “We use mouse

lines with inborn defects in DNA repair to understand the underlying mechanisms of age-related diseases,” he explains. Just metres from the IMBB-FORTH is the University of Crete, both important scientific centres. “Crete is a hub for biological research,” says Garinis, who established his lab on the island in 2012. “There are not many places where you can enjoy the sun and do great science!”

Garinis is grateful for the role EMBO plays in facilitating crucial networks to other parts of Europe. “For me EMBO is all about connection,” says Garinis, himself an EMBO Member and previous EMBO Young Investigator. “Crete is in the south-eastern part of Europe. Connectivity to the rest of Europe is, therefore, very important for us.” Garinis has also organized several EMBO Workshops on the island. “Organizing EMBO Workshops gave us the wonderful opportunity to invite inspirational scientists to Crete,” he says. “It was a great time.”

He would also like to see more international students come to the region. “We have an affordable and good quality of living, combined with high quality science. I have not met anyone who has regretted moving here!”

As a member state of the EMBC, Greece, through EMBO, has supported life scientists across Europe since 1972. Could you talk about this commitment and your involvement?

EMBO provides opportunities for Greek life scientists and clinical researchers to network with other scientists and participate in EMBO Courses & Workshops. Many of these happen in Greece and allow the local scientific community to interact with top scientists from all over the world. This is important for a country that is on the periphery of Europe and far away from centres of excellence. The EMBO fellowships are also important: many people from Greece have been EMBO Postdoctoral Fellows abroad, and there are some incoming fellows, too.

In February 2022, Greece has joined the initiative increasing participation in the EMBO Programmes throughout Europe. Could you comment on the new activities?

Greece has been through very rough times in the past years. Now the situation is improving, and we are almost back to normal, but you cannot change geography. Greece is on the outskirts of Europe, which means that

Greece and EMBO in numbers

6 EMBO Young Investigators^b

33 EMBO Courses & Workshops^c

2,235 participants
535 Greek nationals attended EMBO Courses & Workshops anywhere

EMBC Delegates

Nektarios Tavernarakis
Chairman of the Foundation for Research and Technology – Hellas, Heraklion | Professor at the University of Crete

Eleftheria Zeggini
Director of the Institute of Translational Genomics, Helmholtz Zentrum München, Neuherberg | Professor at the Technical University of Munich, Germany

EMBC Advisor

Panagiota Katsafana
National contact point and financial officer, Ministry of Development and Investments, Athens

The EMBO Programmes are funded by the European Molecular Biology Conference (EMBC), an inter-governmental organization that comprises 30 Member States. Greece has been an EMBC Member State since 1972.

17 EMBO Members^a

- 6 Athens
- 5 Heraklion
- 1 Ioannina
- 2 Patras
- 1 Thessaloniki
- 2 Vari

3 EMBO Postdoctoral Fellows^c

3 Going abroad

35 EMBO Scientific Exchange Grants^c

2 Coming to Greece

33 Going abroad

1 EMBO Core Facility Fellow^c

Going abroad

^a working in Greece
^b former programme members, working in Greece
^c 2017–2021

Opportunities in Greece

EMBO Postdoctoral Fellowships

fund internationally mobile researchers for a period of up to two years. Five additional fellowships are reserved for those applying to work in participating countries*, and an interview is guaranteed provided their application passes initial quality screening. Applications open all year around.

EMBO Scientific Exchange Grants

support new international collaborations, enabling the transfer of expertise unavailable in the applicant’s laboratory. They fund research visits of up to three months. Applications open all year around.

EMBO New Venture Fellowships

help early career scientists to explore topics outside their current area and enter a new research direction. They fund research visits of up to three months. Application deadline: 7 November 2022.

EMBO Core Facility Fellowships

support training for staff of core facilities that provide services to research institutions or universities. They fund international exchanges of up to one month. Applications open all year around.

The EMBO Young Investigator Programme

supports group leaders in the early stages of setting up their independent laboratories for a period of four years. Networking is a key aspect. Application deadline: 1 April.

EMBO Advanced Collaboration Grants*

fund exchange visits of group leaders with scientists in other EMBC Member States to develop or carry out collaborative projects, or to prepare joint grant proposals. Applications open all year around.

EMBO Courses & Workshops

stimulate exchanges of the latest scientific knowledge and provide training in experimental techniques. Application deadlines: 1 March and 1 August.

EMBO Lecture Courses*

train PhD students and postdoctoral researchers. Application deadline: 1 August.

EMBO Lecture Series*

fund series of lectures of EMBO Members and Young Investigators at different institutions. Applications open all year around.

EMBO Press

publishes five journals that serve the global life science community: The EMBO Journal, EMBO reports, EMBO Molecular Medicine, Molecular Systems Biology, and Life Science Alliance, which is published in partnership with Rockefeller University Press and Cold Spring Harbor Laboratory Press.

* Greece is one of eleven participating countries. The aim of the schemes is to increase participation throughout Europe.

embo.org
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Facts and figures

Gross expenditure on research and development in Greece has been rising steadily over the past few years and is currently at around 1.5% of GDP². The General Secretariat for Research and Innovation (GSRI), tasked with co-ordinating and promoting research and innovation in Greece, has recently identified biosciences as one of several “Smart Specialisation Strategy Priority Areas”⁸. Actions planned for these areas, which were identified as being of significant economic importance, include supporting research staff and developing research infrastructures⁸. The GSRI also supports several national research centres including the Biomedical Research Foundation of the Academy of Athens, Biomedical Sciences Research Center “Alexander Fleming”, and the Foundation for Research and Technology – Hellas⁹.

The recently established Hellenic Foundation for Research & Innovation has been created together with the scientific community. Its aim is to provide transparent funding and scholarship opportunities for young researchers and counteract the outflow of young talent¹⁰.

Greece has a rich heritage and culture of academic inquiry, priding itself on quality education⁶. There are 24 state run universities, with 140 Master programmes taught in English⁶. For example, the International Hellenic University, a collaboration with the EU, offers courses on science and technology taught exclusively in English¹¹. In addition to the universities, many private colleges collaborate with international organizations to provide accredited study programmes¹¹. All organizations take part in the ECTS credit system¹¹. For students from the EU there are no tuition fees; for others they are low, with scholarships available even for short term stays¹². Greece is very

Key figures

Population: 10.8 million¹

R&D spending: 1.5% of GDP²

Patents: 68³

Researchers: 36,688 FTEs⁴

International students: 30,000⁵

Universities: 24⁶

Horizon 2020 funding⁷:
1.7 billion euros
2,896 grants
39 ERC principal investigators
181 MSCA unique participants

student friendly: there are around 60 student cities, over 260 sunny days per year⁶ and a student ID that provides discounted tickets for transport and cultural events⁵.

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Focus on Greece

