Singapore and EMBO in numbers[a]

3
EMBO Members and
4
EMBO Associate Members

6
EMBO Young Investigators[b]

15
EMBO Global Investigators[b]

3
EMBO Postdoctoral Fellows[b]

15
EMBO Scientific Exchange Grantees[c]
10 researchers from other nations received a Short Exchange Grant (SEG) to attend Singaporean institutions
5 researchers from Singaporean institutions were awarded an SEG to an overseas institution

2
EMBO-supported conferences or workshops in Singapore[c]
277 attendees from outside Singapore
210 researchers from Singaporean institutions attended EMBO-funded conferences or workshops

a As of May 2025
b Current or former members of the scheme
c 2019-2025

EMBO contact

Dr Benjamin Toh
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Singapore has been an EMBO Cooperation Partner since 2011 and an Associate Member State since 2015.

Facts and figures

Singapore has six 'Autonomous Universities' including two globally-ranked research-intensive institutions: the nation's flagship National University of Singapore originally founded as a medical college in 1905 and the Nanyang Technological University founded in 1991.[1] More than 64% of Singaporean residents over 25 have post-secondary qualifications and in 2022 more than 56,000 people in Singapore were employed in R&D work.[2] The country has a formal 10-year blueprint to strengthen the nation's position as a global IP and innovation hub.[3]

Life scientists in Singapore have access to a range of national funding sources from the Ministry of Education, National Medical Research Council, National Research Foundation and A*STAR, institution-specific partnerships,[4] as well as EMBO.

Key figures

Population: 6.04 million[2]

R&D spending as percentage of GDP: 1.85%[5]

People employed in R&D: 56,081[2]

Universities: 6[1]

References
1. Ministry of Education: *https://www.moe.gov.sg/post-secondary/overview/autonomous-universities*
2. Singapore Department of Statistics: *https://www.singstat.gov.sg/*
3. Intellectual Property Office of Singapore: *https://isomer-user-content.by.gov.sg/61/d3841d3f-fa74-4859-9f7b-95fd471415b1/statistics-2022-2023.pdf*
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5. OECD, Main Science and Technology Indicators, Singapore: *https://data-explorer.oecd.org/vis?tm=main%20science%20and%20technology%20indicators&pg=0&snb=3&vw=tb&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_MSTI%40DF_MSTI&df[ag]=OECD.STI.STP&df[vs]=1.3&dq=SGP.A.T_RS%2BG_FA%2BG_FON%2BG_FG%2BG_FB%2BT_TT%2BG.PT_GERD%2BPT_B1GQ%2BXDC%2BFTE..&lom=LASTNPERIODS&lo=5&to[TIME_PERIOD]=false*

EMBO opportunities in Singapore

EMBO Postdoctoral Fellowships

support excellent postdoctoral researchers from Singapore to work in Europe and EMBC cooperation partners for a period of up to two years. International mobility is a key requirement. Applications open all year.

EMBO Scientific Exchange Grants

fund research exchanges of up to three months. The grants facilitate collaborations with research groups with expertise, techniques or infrastructure that is unavailable in the applicant's laboratory. Applications open all year.

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 of the programme. Application deadline: 1 April.

The EMBO Global Investigator Network

supports group leaders setting up their laboratories. Global Investigators receive financial support for four years for training and networking activities, providing them with opportunities to form collaborations with scientists in their region and in Europe. Application deadline: 1 May.

EMBO Courses & Workshops

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

EMBO Member, and Global Investigator and Young Investigator Keynote Lectures

provide funding for EMBO Members, Associate Members, Global Investigators and Young Investigators to give keynote lectures at international conferences. Applications accepted throughout the year.

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.

Find more EMBO schemes at *embo.org/funding*

Find the most recent version of this brochure and also more foci on other EMBC Member States and EMBO/EMBC global partners at *embo.org/the-embo-communities/embo-communities-by-country*

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Information as of May 2025
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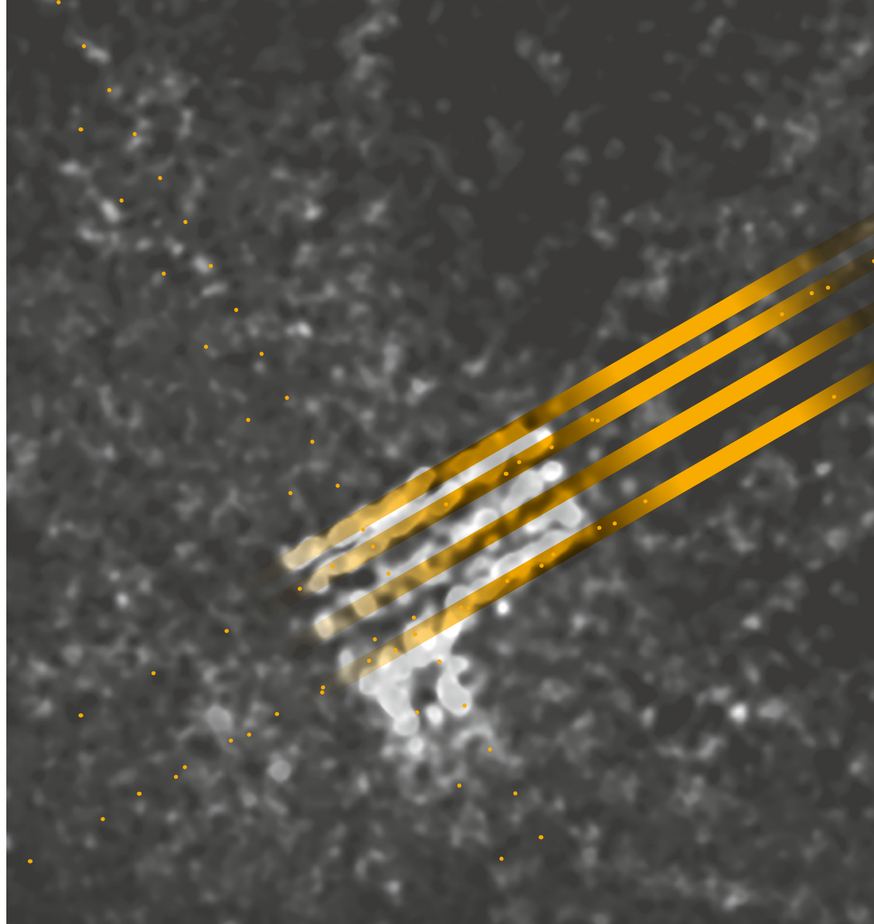
Cover: Original image courtesy of EMBO Member Pierre Gönczy, EPFL



Focus on Singapore

EMBO

Perspectives
from Huck Hui Ng

Assistant Chief Executive Officer (Research and Talent Development) A*STAR, Singapore | EMBO Associate Member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What prompted you to study and work overseas before returning to Singapore?

Science is global, and young people should work with researchers who are passionate and who are pioneers in various fields. I learned that lesson as a young student doing my undergrad research. As an example, as a student researcher you read papers from world leaders about their discovery, and I was fascinated by the work by Professor Kevin Struhl at Harvard Medical School in dissecting transcriptional apparatus and processes. I thought that is pretty cool – and I went to his lab to do a postdoc!

What was returning to Singapore like at that time?

Having been born and raised in Singapore, the return felt like a natural homecoming. Around the year 2000, Singapore began its ambitious and substantial investment in biomedical research. In my view, there was no more exciting place to be than in a nation experiencing such dynamic growth. Singapore's trajectory has been remarkable. The government's unwavering commitment to research, spanning beyond just biomedicine, has been instrumental in cultivating both capabilities and a robust talent pool. This endeavour necessitates attracting talent from all corners of the globe, while simultaneously nurturing and empowering our own homegrown talent.

How important for Singapore's life sciences is the country's Associate Membership of EMBO?

Molecular biology serves as the bedrock of contemporary biomedical research. Our affiliation with EMBO is pivotal in enabling us to forge and sustain vital international connections. Science, at its heart, is a collaborative endeavour that transcends geographical boundaries. My own training in Scotland, for instance, profoundly shaped my identity as a scientist. To be immersed in that environment, to engage with the brilliant minds behind those discoveries – what could be more thrilling? The recognition of my election as an EMBO Associate Member fills me with immense gratitude and humility.

What is your current research focus?

My laboratory is dedicated to the development of therapeutic solutions for fatty liver diseases. This endeavour began about eight years ago through a collaboration with a hepatologist, a clinician specializing in liver diseases. By combining his clinical expertise with my lab's strengths in molecular and genomics approaches, we are able to investigate the molecular pathways in the liver across different stages of the disease. The biology at play is incredibly intriguing, and one of our primary goals is to identify ways to intervene – to slow down the progression of the disease and to modulate the various pathways that are activated or deactivated.

Fatty liver disease is a complex interplay of lifestyle, diet, and environmental factors. Genetic predisposition can also play a role. While the liver possesses a remarkable capacity to handle increased fat under normal circumstances, an overload can disrupt its function, leading to fat accumulation. If this condition persists, it triggers a cascade of disruptions in various pathways, potentially culminating in cirrhosis, a severe degeneration of the liver. At this advanced stage, treatment becomes significantly more challenging. My laboratory, in collaboration with others, is actively looking into new strategies to treat fatty liver diseases at different stages.

What have been your Eureka! moments?

I have been fortunate to have experienced several! The first occurred when we conducted large-scale sequencing to map the binding sites of transcription factors on embryonic stem cells. As we profiled 13 different transcription factors, a striking pattern emerged: many of these factors converged on the same genomic regions, forming what we termed transcription factor binding hotspots. Subsequent investigations by my lab and others have revealed that these hotspots are critical regulatory elements, such as promoters and enhancers, that play pivotal roles in directing gene expression.

Another Eureka! moment came when we sought to dissect the pathways governing self-renewal and differentiation in stem cells. Through a comprehensive functional screen, we successfully identified specific pathways that control key decisions for self-renewal of stem cells.

A third profound moment of discovery unfolded when we created a mid-brain organoid. By guiding the differentiation of embryonic stem cells, we were able to generate a complex three-dimensional tissue structure that closely resembled the mid-brain. Remarkably, the neurons within this organoid produced neuromelanin, and, under specific conditions, we could even recapitulate certain aspects of Parkinson's disease in the laboratory setting. This particular work holds a special fascination for me because the emergence of a 3D model containing such a diversity of cell types within a single tissue was entirely unexpected.

How do you balance your senior management role with your research?

It is an intricate balance and both are exceedingly purposeful. I feel incredibly fortunate to have the opportunity to contribute in a non-research capacity. This role allows me to have a broader impact on science, the community, and people, which I find deeply fulfilling. Importantly, I remain closely connected to my lab, meeting with them weekly and maintaining daily communication with my students and lab members.

Meet scientists from the EMBO communities

Lena Ho
Taking the long view

Assistant Professor at Duke–NUS Medical School and the Institute of Medical Biology, A*STAR, Singapore | EMBO Young Investigator

Lena Ho takes a pragmatic long view of her research into the effects of microproteins on mitochondrial dysfunction. "What is the goal to achieve in 25 years? What are the tools I need to build in the next five years to get there?" she says. "Maybe as a lab the right person has not come along, or the field just needs more technological improvements. We will wait. We know it is going to happen. It is just a matter of time."

Ho has no doubt she is on the right research path, saying that over the past eight years of running her own lab she keeps coming back to this same question at every turn. "How can we use microproteins to improve metabolism?" she asks. "I feel overall that metabolic dysfunction is the root cause of most of the aging and of the chronic diseases that we face."

Ho returned to Singapore after studying in the United States and has seen major changes. "Singapore is now scientifically on par with any medium to top tier institute in the US," she says.

She was awarded an EMBO Young Investigator award in 2020. "The EMBO award has enabled me to access communities that I would not otherwise," she says. "EMBO is incredibly generous and even after your tenure as a Young Investigator you continue to be welcomed and stay as part of the network forever!