Dear Colleagues,

Welcome to the third edition of the EURAXESS ASEAN quarterly newsletter 2019.

A new EU-Singapore initiative will encourage top Singaporean scientists to join research teams funded by the European Research Council (ERC). This agreement with the National Research Foundation Singapore (NRF) is the fourteenth international agreement of its kind. It forms part of the ERC’s global outreach strategy, which aims to make Europe a hub for research talent. Read all about this new development in our Briefing.

In September, 408 early-career researchers have been awarded European Research Council grants in this year’s first completed ERC call for proposals. The highly-coveted funding will help individual scientists and scholars to build their own teams and conduct pioneering research across all disciplines. The grants, worth in total €621 million, are part of the EU’ Research and Innovation programme, Horizon 2020. This edition’s Hot Topic features an interview with one of the recipients, Dr Nicholas Kurinawan, who hails from Indonesia and now carries out research at the University of Eindhoven in the Netherlands.

We hope you enjoy reading our newsletter, and welcome your feedback.

Your EURAXESS ASEAN team
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BRIEFING: New opportunities for Singaporean top talent to join European Research Council teams in Europe

A new EU-Singapore initiative will encourage top Singaporean scientists to join research teams funded by the European Research Council (ERC). This agreement with the National Research Foundation Singapore (NRF) is the fourteenth international agreement of its kind. It forms part of the ERC’s global outreach strategy, which aims to make Europe a hub for research talent.

The initiative, officially called an Implementing Arrangement, was signed by the European Commission’s Director General for Research and Innovation, Jean-Eric Paquet, and the CEO of the NRF, Prof. Low Teck Seng, in the presence of ERC President Prof. Jean-Pierre Bourguignon and Singapore’s Permanent Secretary for National Research and Development and Chairman of the Agency for Science, Technology and Research, Ms Chan Lai Fung. This signing took place on 6 October on the margins of the Science and Technology in Society Forum in Kyoto, Japan. The new scheme aims to encourage high-caliber researchers supported by the NRF to make research visits to Europe, where they will temporarily work in ERC-funded teams.

Director-General Jean-Eric Paquet said: “Cutting-edge research holds the key to a better future for citizens in Europe and beyond, and global scientific cooperation is essential here. That is why I welcome this new initiative with Singapore, which hosts much scientific talent. It is a win-win for both sides as it will encourage further collaboration.”

The CEO of NRF Prof. Low Teck Seng said: “NRF welcomes the new visiting researcher collaborative scheme with the European Research Council. This initiative will facilitate exchange of ideas and research experiences among top research talent and benefit research efforts of both Singapore and the EU. We look forward to fostering deeper connections among research communities from both sides through the research visits by Singapore-based researchers and to catalyse opportunities for top ERC-funded researchers to spend time with their Singapore-based collaborators.”

ERC President Bourguignon said: “International scientific collaboration is fundamental to push the frontiers of knowledge together. Since its inception in 2007, the ERC has launched a string of agreements of this kind with funders...
around the globe that are R&I leaders. I am very pleased to see this new scheme to encourage Singapore-based researchers to join ERC teams. It both reflects the quality of research talent based in Singapore and confirms the ERC’s and Europe’s openness to the world and attractiveness to top scientists.”

Also present at the signing ceremony were amongst others Dr Subra Suresh, President of Singapore’s Nanyang Technological University (NTU) and signatory of the very first agreement of this kind between the ERC and the US National Science Foundation (2012), as well as Prof. Tan Eng Chye, President of the National University of Singapore.

Before the signing ceremony in Kyoto, the ERC President visited Singapore on 3 to 4 October to meet NRF leaders and to raise awareness of ERC funding opportunities in Europe through events organised by EURAXESS ASEAN. This included a roundtable hosted by the EU Ambassador to Singapore, Barbara Plinkert, which enabled an in-depth exchange with Ambassadors to Singapore of EU Member States and the Presidents of e.g. NTU and NUS on the importance of international cooperation and mobility in science and technology.

The ERC offers long-term grants in Europe to excellent scientists of any nationality and in any field. To date, nine Singaporean researchers based in Europe have been awarded ERC grants, of which all are early- to mid-career researchers. This is the highest number of all ASEAN countries.

Background

The European Research Council, set up by the European Union in 2007, is the premier European funding organisation for excellent frontier research. Every year, it selects and funds the very best, creative researchers of any nationality and age, to run projects in Europe.

To date, the ERC has funded over 9,000 top researchers at various stages of their careers. It offers four core grant schemes: Starting, Consolidator, Advanced and Synergy Grants. As of 2019, ERC Synergy Grants are also open to applicants based in host institutions outside Europe.

With grants open to talent of any nationality, the ERC aims to attract top researchers from anywhere in the world to come to Europe and encourages non-European scientists to join teams led by ERC grantees. Over 60,000 researchers and other professionals have been or are employed in ERC teams. Estimates show that around 17% of team members, who can also be based outside Europe, are non-European nationals.

The first initiative to encourage talent from outside Europe to temporarily work with ERC grantee-led research teams was signed in 2012 with the USA.
EURAXESS ASEAN

(National Science Foundation, NSF). Such agreements, formally called Implementing Arrangement, then followed with prestigious funding bodies in Argentina, Australia, Brazil, Canada, China, India, Japan, Korea, Mexico and South Africa.

The ERC is led by an independent governing body, the Scientific Council. The ERC President is Professor Jean-Pierre Bourguignon, whose mandate runs until the end of 2019. The ERC has a budget of over €13 billion for the years 2014 to 2020, part of Horizon 2020, for which European Commissioner for Research, Innovation and Science, Carlos Moedas, is responsible.
2 IN FOCUS: EURAXESS Prize Winners 2019 getting ready to meet research peers in Europe

The EURAXESS Prize Winners 2019 have been selected! The five researchers are the winners of this year’s Falling Walls Lab competitions in their respective countries and institutions. The EURAXESS Prize is part of EURAXESS ASEAN’s support of the Falling Walls Lab competitions in Indonesia, Malaysia, Singapore, Thailand, and Vietnam. The aim of the Falling Walls Lab is to promote scientific and entrepreneurial vision and to initiate and promote exchanges between young scientists and young professionals across disciplines.

The EURAXESS Prize has a value of 600 Euros and offers the unique opportunity for the awardee to visit a research lab or university in any of the 28 Member States of the European Union. The Prize serves as a career-advancement bursary enabling the winners to expand their professional network through linkages and future collaboration with their research peers in the European Union.

EURAXESS ASEAN will be documenting the Europe trips of our winners on our Facebook Page! Each of the five winners competed against other high-calibre...
participants who each had only three minutes to present their research projects, ideas and initiatives to a multidisciplinary jury.

„The idea is actually an alternative way in capturing carbon dioxide (CO₂) in greenhouse gases. CO₂ is the primary gas of greenhouse gases that drives global warming and climate change which continue to rise every year. This has cause snowmelts, rising sea levels, severe drought, extreme weather events and others. The current technology in capturing CO₂ in industry is by using amine but it suffers several drawbacks such as it has high vapor pressure, corrosive and it requires high energy input for regeneration. Hence, a new solvent to replace this usage of amine is highly needed. A green salt called ionic liquids (ILs) has been proposed as a new alternative in capturing CO₂. ILs is a salt in liquid form which compose entirely of cation and anion which can be changed independently regarding the properties that we want. In my research, we used amino acid as anion since it has amine functionality. Amine has high reactivity with CO₂ which would then increases the CO₂ absorption. But some of these ILs suffers the problem of having high viscosity which make handling difficult. By polymerizing this ILs which is known as Amino Acid Polymerized Ionic Liquids (AAPILs), this ILs turns to solid form which eases the handling. The CO₂ adsorption capacity for AAPILs also higher almost double than other ILs and amine. This AAPILs also can be recycled more than 5 times with the efficiency of 90% sorption capacity in the 5th sorption cycle. Now, this is the perfect candidate in capturing CO₂ to replace the usage of amine and would be beneficial to the industry and to the environment.„
"My innovative idea is to simplify the dam construction process to save time and money. Using lightweight concrete modules that we’ve developed, we can build a dam structure faster and cheaper. The design of the spillway is also unique that will allow water flow and trigger more aeration which generate more oxygen for downstream for the benefit of the river’s ecosystem. My research project is unique and useful especially for construction projects in remote areas because it can be done using manpower without heavy equipment. I’ve already started a prototype in a weir and small dam structure, and I hope in the future it can be implement on a much larger scale. Construction will be more effective and efficient; in consequence, we can use the remaining time and budget that we saved for other good things."

"In the competition, I shared our approach to accelerate and de-risk vaccine development, which leverages our team’s unique ability to uncover the changes in molecular pathways that underlie our bodies’ responses to vaccines. Using this platform, our team generated a safe, effective Zika vaccine candidate in just six weeks, instead of months and years with the traditional process. […] I strongly believe that this work is able to transform the vaccine industry, which has been underfunded due to the stereotype that vaccine development is
lengthy, costly and risky. Even today, vaccine development still involves a high degree of guesswork without proper understanding of the molecular changes. Our approach is guided by the molecular changes in our body in response to the Yellow Fever vaccine, a highly effective one-shot vaccine that confers lifelong protection. Not only are we able to speed up development, our vaccine candidates are superior in the safety and efficacy aspects.

„Our innovative idea actually stems from a plant disease called bacterial wilt disease that has affected many economical crops around the world such as potato, tomato, chili, and tobacco. This disease is caused by bacteria. Recently we found a virus that is capable of killing these specific bacteria. While the word “virus” may sound alarming since it usually reminds us of infectious disease like influenza or Ebola, these viruses are safe to human and only target the bad bacteria. These viruses are extracted from natural soil, so they are safe to the environment. We then further improved their strength so that they are even more effective when used in eliminating bacteria.“
“My idea is to introduce a novel catalyst in vehicles and industrial factories for the treatment of nitrogen oxides (NOx), which are toxic air pollutants and cause serious adverse effects all over the world. The unique structure of this catalyst provides outstanding stability and activity for the reduction of nitrogen oxides in exhaust gas thus “Breaking the Wall of Nitrogen Oxides”. The total amount of nitrogen oxides (NOx) released worldwide is about 115 million tons per year and is expected to increase rapidly due to the industrialization and growing populations in many countries. These pollutants have detrimental effects on both human health and the environment. In humans these pollutants affect respiratory and lung function. NOx also plays a role in the formation of fine particles (PM), leading to several negative health effects. NOx pollutants also make vegetation more susceptible to disease and affect plant growth. In addition, it also reacts with other pollutants to cause environmental damage.”

About Falling Walls Lab

The Falling Walls Lab is a unique competition that provides young students, researchers and entrepreneurs a platform to present their innovative ideas, research projects and social initiatives. The challenge is to present this in just 3 minutes in English!

The Falling Walls Lab was initiated on the 20th anniversary of the fall of the Berlin wall. Inspired by this world-changing event on 9 November 1989, the question of every Falling Walls gathering is “Which walls will fall next?”

Falling Walls Labs are part of the annual, internationally-renowned conference for breakthroughs in science and society, the Falling Walls Conference. It fosters discussion on research and innovation and promotes the latest scientific findings among a broad audience from all parts of society. International Falling Walls Labs are organised by academic institutions throughout the world – many of those with the support of the EURAXESS Worldwide team. The winners of each international Lab travel to the Falling Walls Lab Finals in Berlin, which takes place every year on 8 November. At the Berlin Lab, 100 innovators receive the opportunity to present their work in front of a distinguished jury and attend the Falling Walls Conference on 9 November where they meet the world’s top scientists.

The FULL INTERVIEWS with our 5 EURAXESS Prize Winners 2019 can be accessed at the EURAXESS ASEAN website.
HOT TOPIC: Interview with ERC Starting Grant Winner Dr Nicholas Kurinawan

In early September, four hundred and eight early-career researchers were awarded European Research Council grants in this year’s first completed ERC call for proposals. The highly-coveted funding will help individual scientists and scholars to build their own teams and conduct pioneering research across all disciplines. The grants, worth in total €621 million, are part of the EU’s Research and Innovation programme, Horizon 2020.

The results of this grant competition show a greater diversity of nationalities than ever before: researchers are from 51 different countries of origin across the world.

These Starting Grants will help the selected scientists build their own research teams, creating an estimated 2,500 jobs for postdoctoral fellows, PhD students and other staff at the host institutions.

Joining the ranks of this year’s awardees is Dr Nicholas Kurinawan, a graduate of National University of Singapore and currently Assistant Professor at the Department of Biomedical Engineering at Eindhoven University of Technology in the Netherlands.

Nicholas was awarded the prestigious ERC Starting Grant for his work on dissecting the dynamics of the physical interactions between cells and the extracellular matrix. He and his team will develop ways to mechanically manipulate cell behavior using dynamic substrates and materials. EURAXESS ASEAN caught up with Nicholas to find out more about him and his research.

Hello Nicholas! EURAXESS is an initiative that supports mobile researchers. Can you share with us the different stops of your research career so far?

I was born and raised in Indonesia. After completing high school, I moved to Singapore for an undergraduate study at the National University of Singapore, majoring in Mechanical Engineering and minoring in Physics. Then I stayed in Singapore for a PhD at the NUS Graduate School for Integrative Sciences and Engineering (NGS). In the PhD project, I developed multiscale characterization tools, based on spectroscopy and micromechanics, to study cancer metastasis.
For my postdoc, I wanted to enrich my knowledge on the behavior of biopolymers inside (cytoskeleton) and outside the cell (extracellular matrix), so I took up an offer from AMOLF, a physics-oriented institute in Amsterdam. Part of this postdoc period was supported by a personal Marie Curie Fellowship, which gave me a lot of independence to personally direct where my research was going. In 2015, I became an assistant professor at the Department of Biomedical Engineering of Eindhoven University of Technology. My current research integrates what I know about the cell, cytoskeleton, and extracellular matrix to understand cell response to biomaterials and to translate the insights for new regenerative medicine approaches.

Your research career has taken you to different places across the world. How has mobility helped you develop your career?

The most important benefit of mobility that I felt is the chance to experience a variety of scientific settings. Different groups in different countries have different ways of working, priorities, communication and leadership styles, publishing strategies, etc. All of these are shaped by the context, such as local culture, expectations, institutional responsibilities, and personalities. You only get glimpses of these in normal research collaborations, but you have to be inside the system for considerable periods to start to understand the underlying reasons and rationales. In research you have to work with a lot of people coming from various backgrounds, so understanding these can really help not only career-wise but also in making personal connections with your colleagues.

You have just been awarded an ERC Starting Grant to work on a rather fascinating topic. Can you tell us a little about it and what you are setting out to achieve?

The basic premise is that cells are physical entities that have to physically interact with their environment, be it the natural extracellular matrix, biomaterials, or medical devices. Lately, there is a growing appreciation of these physical interactions, and a lot of effort is being spent to examine the effect of substrate structural and mechanical properties on various cell behaviors. However, most of these studies are ‘static tests’, whereas it is known that the extracellular matrix and biomaterials can dynamically alter their properties. My project will address this gap by investigating the dynamic physical interactions between cells and their environment, using a combination of smart materials, cell manipulations, and computational modeling. The outcome is expected to yield a novel toolset to spatiotemporally control cell–materials interactions for directing tissue regeneration.

What encouraged you to apply for this specific grant?

The ERC Starting Grant specifically encourages high-risk-high-gain projects that have the potential to revolutionize a scientific field. This is precisely the nature of my research idea, which does not fully match the criteria of many
other funding instruments. The amount of funding is large enough and flexible enough to build a critical mass to make the idea happen, which is especially useful for an early-career PI. Moreover, it is a highly prestigious grant that can really help my career in the future.

What single piece of advice would you give young researchers beginning their careers in ASEAN?

Find a niche. Find a subject that is uniquely your own, given your scientific background and interests. This may mean staying away from 'mainstream' or 'hot' research fields, but it will not only prevent unnecessary head-on competition with other, perhaps more established researchers, but also provide interesting opportunities for collaborations in the future.

Thank you Nicholas and good luck with your project!

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**ERC Starting Grants**

**In Brief**

Postdoctoral researchers of any nationality can strengthen their research independence by establishing their own research team at a host institution (universities, research institutions, companies or international organisations) in any of the EU member states or Horizon 2020 associated countries.

**Who can apply?**

Junior researchers who

- completed an excellent PhD, generally between 2 and 7 years ago
- are at the beginning of an independent research career and have already shown research independence
- have a promising academic track record
- present a ground-breaking and ambitious research proposal

**Further requirements**

The host institution must employ the researcher for at least the duration of the project. Applicants must provide a letter of commitment from the host institution.

**Type and extent of funding**

Funding of up to 1.5 million euros, in exceptional cases up to 2 million euros, to complete a research project of the researcher’s choice. The researcher’s salary may also be (partly) paid out of these funds.

**Duration**

Up to 5 years.

**Application**

Applications must be submitted online by the researcher on behalf of the host institution through the Funding & Tenders Portal. ERC Starting Grants are advertised once a year. The next application deadline is 16 October 2019.
Malta at a glance

The Republic of Malta is an island country situated right in the heart of the Mediterranean Sea, yet close to the European mainland. With its rich history, dating back to 5,000 BCE, Malta is often referred to as an open-air museum. Along with its history and heritage, Malta offers 300 days of sunshine, sea-sculpted shores, azure waters and delicious Mediterranean cuisine. The island’s lifestyle is modern and welcoming, providing a good base for families. Malta has excellent local and international public and private education, with all schools teaching in English. English is one of the two official languages, along with Maltese.

Malta is considered as one of the safest countries in the world, especially when it comes to natural disasters and crime according to the 2018 edition of the World Risk Report.

In recent years, Malta has experienced above average economic growth and has been ranked as the fastest growing economy in the Eurozone for the first half of 2018.

With efficient support features in place, the island is also an attractive place for business. The government understands that a healthy private sector and an overall pro-investment climate contributes to the country’s sustainable development.

Moreover, Malta is on its route to becoming a leading innovation island. It has made important strides in key technological areas by establishing the first

Research and Innovation Landscape of Malta

[VIDEO]
regulatory framework for Block Chain, Cryptocurrency and Distributed Ledger Technology.

EURAXESS Malta has produced a video that gives a brief overview of the Maltese science, technology and innovation landscape. Watch the video here.

Maltese Policy, Strategy and Funding opportunities

The Malta Council for Science and Technology (MCST) is the governmental body responsible for Research and Innovation (R&I), space, science and technology in Malta. MCST is responsible for the National R&I Strategy, the National Action Plan and the National Space Policy.

Being the official contact point for the EU Framework programme for Research and Innovation (Horizon 2020) and the PRIMA initiative, MCST is also the managing body of the national funds for research, namely the FUSION programme and the Space Research Fund. MCST has a team of National Contact Points ready to assist you in finding relevant partners, applying for funding or resolving your project related queries.

MCST regularly publishes calls for proposals under various funding mechanisms, some of which are highlighted below:

FUSION, a National Funding Programme, is supported through Malta Government funds and managed by the Malta Council for Science and Technology. The main objectives of FUSION are: to raise the level and profile of locally funded research; to ingrain research and innovation at the heart of the Maltese economy; to spur knowledge-driven and value-added growth and to sustain improvements in the quality of life.

IPAS+ provides researchers with two options:

- Option A aims to foster mutually beneficial international relationships between local R&I-performing academic or private entities and foreign counterparts.

- Option B provides opportunities for Maltese entities intending to submit a Horizon 2020 (H2020) proposal as the coordinator of a consortium to engage a service provider (local or foreign) who will be supporting the applicant through proposal writing and submission.

The Space Research Fund provides financial support for research, development and innovation in the downstream Satellite Earth Observation (EO) sector, specifically projects that deal with the processing and exploitation of data collected through EO satellites.
Malta’s research landscape

The **University of Malta** (UM) is the highest teaching and research institution in Malta and was founded in 1769. It is a publicly funded institution and caters for 11,000 students which include over 1,000 international students from 92 different countries and comprises over 1,000 academics, and approximately 800 technical and administrative staff. The UM is made up of 14 Faculties and a number of interdisciplinary Institutes, Centres and Schools. The UM is actively participating in MSCA projects and proposals.

The **Malta College of Arts, Science and Technology** (MCAST) is a vocational education and training institution. Established in 2001, MCAST offers 180 full-time and over 300 part-time vocational courses ranging from certificates to Master degrees.

**Malta Enterprise** is the country’s economic development agency, tasked with attracting new foreign direct investment as well as facilitating the growth of existing operations. The agency has developed various R&I incentives for the promotion and expansion of industry and the development of innovative enterprises.

The **Malta Life Sciences Park** (MLSP) provides an international class facility for life sciences and information technology development. The MLSP is designed to promote research and development and to spur the growth of the life sciences sector in Malta, building on the base that the country developed in the pharmaceutical industry during the last decade.

Based at the University of Malta, **TAKEOFF** is Malta’s first technology business incubator. The programme is specifically designed to help innovators and aspiring entrepreneurs create successful science, technology, engineering, creative media and knowledge-based startup business – taking them from idea to investment and, well, to takeoff.

Malta is also home of a number of private companies which main core is research and development in various sectors.

Upcoming developments:

- Construction of new center of excellence for aircraft maintenance which will include ground breaking facilities.
- A state-of-the-art laboratory dedicated to medical cannabis research is being set up in Malta as a result of a memorandum of understanding between Malta Enterprise and the La Sapienza University of Rome.

**EURAXESS in Malta – ready to support you!**
EURAXESS Malta is hosted by the Malta Council for Science and Technology and is ready to assist you if you choose Malta as your host country or you would like to cooperate with Maltese researchers!

PlumTri acts as a platform that facilitates networking and knowledge sharing amongst stakeholders in the Mediterranean, involved in the spheres of research and innovation and serves as a ‘one-stop-shop’ for information on relevant funding opportunities and events in the EuroMed region.

Be part of Malta’s Research and Innovation landscape!
In Case You Missed IT…

The EuroScience Open Forum (ESOF) to take place in Trieste (Italy), 5 – 9 July 2020

ESOF is one of the best opportunities for everyone from leading scientists, early careers researchers, business people, policy makers, science and technology communicators to the general public to come together to find out more about how science is helping us advance today. Find out more

The Asia-Europe Sustainable Connectivity Scientific Conference (AESCON) to take place in Singapore, 26 – 28 February 2020

AESCON is the first scientific conference on Asia-Europe sustainable connectivity, bringing together researchers and policy analysts working in the field of international connectivity, globalization and their impacts on sustainable development, with a particular focus on AsiaEurope connections. Find out more

New Website for Horizon Europe – the next EU Funding Programme for Research and Innovation

The EC’s proposal for Horizon Europe is an ambitious €100 billion research and innovation programme to succeed Horizon 2020. Horizon Europe is being built on three pillars: excellent science; global challenges and European industrial competitiveness; and innovative Europe. Find out more

Stay updated on European Funding Opportunities – Sign Up for the EURAXESS ASEAN Flashnotes

EURAXESS Flashnotes are bi-monthly emailers on European research funding and mobility programmes.

To join our mailing list, please send us an email at asean@euraxess.net with the heading “Join Flashnote mailing list”
6 About us

EURAXESS ASEAN is a networking tool for European researchers active in Southeast Asia and for international researchers wishing to collaborate and/or pursue a career in Europe. EURAXESS ASEAN provides information about research in Europe, European research policy, opportunities for research funding, for EU-ASEAN and international collaboration and for trans-national mobility. Membership is free.

Visit us at asean.euraxess.org and Join the EURAXESS ASEAN community.

EURAXESS Worldwide networks have thus far been launched in North America (USA & Canada) Japan, China, India, Korea, ASEAN (currently focusing on Singapore, Thailand, Malaysia, Vietnam and Indonesia) and Latin America and the Caribbean States (currently focusing on Brazil, Argentina, Chile, Mexico and Colombia).