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SciLifeLab appoints Alexey Amunts as head of new research program

Presentation

Alexey Amunts, Head of the newly established Biology of Molecular Interactions Program. Photo: Neil Grant

Science for Life Laboratory (SciLifeLab) is a collaboration hub for the top research institutions in Sweden, providing the country's largest life sciences infrastructure. It is organized in Research Programs, and Alexey Amunts is the Head of the program for Biology of Molecular Interactions, comprising 23 groups

SciLifeLab promotes a collaborative research that would be leveraged from its infrastructure, while contributing to its further development. To support both the research and technology development, it is organized in Research Programs, each one with own emphasized strengths and a complementary strategic goal. Before taking on the research program Biology of Molecular Interactions, Alexey Amunts has been a group leader at SciLifeLab and Stockholm University Department of Biochemistry and Biophysics for almost three years.

From Cambridge to Stockholm

Previously Amunts did a postdoc with the Nobel Laureate Venki Ramakrishnan at the MRC Laboratory of Molecular Biology, where the new cryo-EM methodology was pioneered. When the opportunity to establish cryo-EM at SciLifeLab arose in 2015, there was little hesitation in his decision.

"The offer from Stockholm was one of a kind: first, it came from Gunnar von Heijne, an eminent scientist,

whose scientific path and leadership I admire; second, it implied setting up a new technology on the national level; finally, while related to a forming institute, it combined an academic and organizational freedom with a long-term commitment".

Flying start for cryo-EM in Sweden

Since the establishment of the Swedish National Cryo-EM facility, it has attracted more than 30 new labs, whose members have been trained and now can apply the technique to their research questions. The meteoric progress prompted the Wallenberg foundation to grant a further endowment of 70 MSEK for acquisition of additional microscope, recruitment of personnel and acceleration of detecting cameras.
"Göran Sandberg, the Executive of the Wallenberg Foundation, asked for a 15 minutes presentation to the board about the cryo-EM activities and our research results. I had so much data that I couldn't complete the presentation within the designated timeframe. But rather than cutting the talk, he acted to double the funding. This illustrates what an outstanding atmosphere we have the privilege to be part of. Such an environment attracts the best people, which is especially pronounced on the level of postdoc and PhD. This is also the most important, because they are the ones driving towards innovations".

Stimulating environment in the lab

Amunts' own research deals with the fundamental question of how proteins are synthesized, folded and assembled into functional multicomponent membrane complexes that drive the cellular energy production.
"We aim to dissect the molecular mechanisms and dynamics underlying synthesis of bioenergetic complexes that fuel life. These processes are orchestrated by specialized ribosomes that have diverged from the accepted canonical systems. In addition to unknown detailed structures of those ribosomes, numerous unique yet-to-be-discovered factors coordinate protein synthesis with external regulatory circles. The high complexity of the subject requires people in the lab to embark on different disciplines, be creative and proactive.
To be productive in a new research area, a stimulating environment that would support the efforts of researchers is essential. I believe that to make discoveries, bright individuals should be given freedom of action, and protection from time and funding constraints so that they can focus on solving difficult problems. The SSF Future Leaders grant scheme allows doing exactly that. It has helped us build a scientific culture in the lab that encourages asking big questions and taking risks, while offering researchers access to the most advanced technologies, expertise, ample funding and supporting collaborations. And this is what makes the environment stimulating."

Biology of Molecular Interactions Program

When Alexey Amunts reflects on the plans for the SciLifeLab research program for Biology of Molecular Interactions he also highlights the collaborative nature and the importance of creating the right environment to enhance individual groups' productivity.
"The range of the aspiring initiatives of 23 research groups encompassed in the program spans from photosynthesis through methods development for time-resolved molecular visualization to anti-cancer therapeutics. But the common ground is that all aim to understand central biological dynamic processes at the molecular level. Therefore our program also complements research groups with the molecular biology orientated facilities including cryo-EM, protein production, proteomics and drug discovery that set up to provide the needed research infrastructure. To further develop technological innovations and support translational opportunities, the program bridges partnerships with the MAX IV Laboratory and leading pharma companies AstraZeneca and Sobi. Taken together this provides a promising environment for conducting fundamentally important research and training opportunities for future leading researchers".

SciLifeLab – Molecular Interactions

SciLifeLab is a joint enterprise of the four universities, that aims to provide frontline technologies for the Swedish academic community and develop cutting- edge research programs. Situated on the expanding Stockholm biomedical campus that includes the University Hospital BioClinicum research centre and

pharma companies, SciLifeLab offers the opportunity to work in an internationally competitive and synergistic environment. In addition to facilitating collaborations with clinically oriented groups, SciLifeLab also provides its scientists with flexible laboratory space, the latest technological tools and generous funding for ambitious research projects.

www.scilifelab.se (https://www.scilifelab.se/)

Amunts joined SciLifeLab in 2016 and obtained the Future Leaders grant of the Swedish Foundation for Strategic Research in 2017. He is also the recipient of the 2018 Cancer Society Junior Investigator Award that includes a six-year research support.

SciLifeLab (https://www.scilifelab.se)

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