

Opportunities for Relocating Scientists

Since 2006, EMBO Installation Grants have been supporting young group leaders in setting up their research groups in European countries with evolving research infrastructures. Present and past grant winners told *Lab Times* about their experiences.

Photo: Fotolia/ danilkorolev

Last year, cell biologist Reto Gassmann and his family moved from the United States to Portugal, despite salary and funding cuts as part of the austerity measures. Gassmann started work at the Institute for Molecular and Cell Biology (IBMC) in Porto in March 2012. "I am a Marie Curie Fellow of the Wellcome II Programme, which is financed by the Portuguese Foundation for Science and Technology and the Marie Curie Action COFUND. It's a three-year fellowship that covers my salary," he explained. The purpose of the Wellcome II Programme is to recruit scientists to Portugal from abroad. In January, his EMBO Installation Grant started, which he used to recruit a postdoc and a lab technician. "I hope that this grant will make it easier to secure national funding, which is critical but difficult to get when you're just starting out." That's not the end of the story, however, since; as a grantee he also appreciates being part of the EMBO Young Investigator network, which connects emerging group leaders in Europe.

From San Diego to Porto

Gassmann is investigating the molecular mechanisms that ensure the equal distribution of replicated chromosomes to daughter cells in the early embryo of the nematode *C. elegans*. His main research topic is the role of the motor enzyme cytoplasmic dynein, which is able to convert chemical energy into mechanical force. With his model organism, Gassmann wants to add

to the diversity of experimental approaches at IBMC. Before moving to Portugal, he worked for six-and-a-half years as a postdoc in the lab of Arshad Desai at the Ludwig Institute for Cancer Research in San Diego, USA. He completed his PhD in the lab of Bill Earnshaw at the Wellcome Trust Centre for Cell Biology in Edinburgh, Scotland, and studied molecular biology and biochemistry at the Swiss Federal Institute of Technology in Zurich, Switzerland.

Although Gassmann and his wife, cell biologist Ana Carvalho, received a lot of support from colleagues, it has been a challenging first year. "It was a bit of a shock to arrive in the midst of a deepening economic crisis and see the IBMC struggle financially – like many researchers at the institute, I've experienced a substantial salary cut," Gassmann told us. Since he arrived at IBMC without money to speak of for research, his very first task was to apply for funding.

Settling in had to be postponed because important grant deadlines came up within the first few weeks of his arrival in Porto. "It took some time to set up the lab because I didn't have lab members in the first year. So I was trying to do it all: routine tasks such as plate pouring and negotiating with suppliers while writing grants at the same time," he reported.

He received start-up money from the IBMC to equip his lab, while members of the institute have been generous in letting him use equipment and reagents. "Now that I have received the EMBO Installation Grant and have my first lab members, including a technician to take care of everyday lab business, I feel that my research is finally getting traction. I'm pretty excited about the months ahead," he said.

Research in financially trying times

Gassmann's and Carvalho's labs are attached to the molecular genetics group of IBMC director Claudio Sunkel. Furthermore, Helder Maia-to's group at the same institute is investigating chromosome instability and dynamics. "Thus, we are part of a community with some critical mass in our field," Gassmann remarked. "The IBMC is a big, diverse research community, which means that you can pretty much find any expertise or piece of equipment you will need. The institute's core facilities are excellently equipped and run," he added.

The downside of working in Portugal is the economic environment. "Despite efforts to navigate around the various problems posed by the dire financial situation, the institute is feeling its dependence on government funding for science," Gassmann told.



Photo: R. Gassmann

Reto Gassmann: First writing grants, then settling in.

The uncertainty about future funding opportunities made it difficult to plan ahead, he criticised. “It would be helpful if there were more national funding opportunities targeted at young group leaders. For someone who is just starting out as an independent researcher, it’s difficult to be competitive right away for regular Portuguese grant money and the economic crisis has exacerbated the precariousness of the funding situation,” Gassmann concluded.

From Harvard to Istanbul

Biophysicist Erdal Toprak took up an appointment as Assistant Professor at the private Sabanci University in Istanbul in May 2011. He returned from the USA to Turkey with a Marie Curie Career Integration Grant and won an EMBO Installation Grant in 2012. Toprak is studying how antibiotic resistance develops in bacteria. He wants to use his Installation Grant to cover the costs of consumables and devices, conference travel and publications. “I hope to get access to EMBO facilities and get my students trained,” the group leader told us. “I



Difficult beginnings. Erdal Toprak (left) had to share office space; Nurhan Özlü (right) had to turn a classroom into a cell biology lab.

am also hoping that the Installation Grant will promote my integration into the European system,” he added.

Toprak worked for three years as a postdoc at Harvard Medical School in Boston, USA, in Roy Kishony’s Systems Biology group. He received his PhD in Biophysics and Computational Biology from University of Illinois at Urbana-Champaign. Returning to Turkey to start a lab from scratch took

some courage after several years in a well-funded and crowded lab. “Sabanci University tried its best to give me a jumpstart. A professor kindly offered to share his office,” Toprak recounted. “I began to write grant proposals immediately after my arrival. After a few weeks, I decided to recruit some undergrads and started to work with them. Some of them were terrific.”

Cell division expert Nurhan Özlü, who won an EMBO Installation Grant in 2011, had even more demanding tasks to master. When she started as an Assistant Professor at the private Koç University in Istanbul in autumn 2010, she first had to establish the fundamental lab infrastructure. “The laboratory space I was given originally was a classroom. I worked with the engineers and architects to build all essential

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Installation Grants

...assist scientists in relocating and setting up their research groups in selected European countries. The ten Installation Grantees for 2012 have moved to the Czech Republic, Estonia, Poland, Portugal and Turkey. The same countries will support applications in 2013.

EMBO Installation Grants are based on a support scheme by EMBO and the US-American Howard Hughes Medical Institute (HHMI). "In 2005, there were only few candidates of EMBO Young Investigator level in Central Europe. Many excellent young scientists didn't want to return to these countries after a training period in a high-profile lab in the United States or Western Europe," recounted Gerlind Wallon, EMBO Deputy Director and programme manager. "With the EMBO/HHMI Startup Grants, we wanted to fight the brain drain. The goal was to encourage the local research institutions to grant independence to young researchers, to provide the resources to enable competitive research and to supplement their research budgets." EMBO/HHMI Startup Grants were replaced by EMBO Installation Grants in 2006. Scientists apply for the latter programme together with their host institution and should have been offered a full-time position. The commitment and support of the receiving institution during and beyond the tenure of the grant is regarded as essential. Applicants should have an excellent publication record and should have spent at least two consecutive years outside the country, in which they intend to establish their laboratory. The scheme is open to young as well as established researchers. No age or nationality limit applies.

Since 2006, EMBO has received between 30 and 74 applications for Installation Grants per year. The annual application deadline is April 15th (www.embo.org/funding-awards/installation-grants/apply). Candidates are interviewed by an EMBO Member with expertise in their area of research and are additionally assessed by the EMBO Young Investigator Committee. The latter takes into account the original application, the interview report and the offer made by the host institution. Success rates range between 13 and 25 per cent. So far, 58 grants have been awarded. Grantees receive an annual support of €50,000 for three years from their host countries, with the possibility of two additional years of funding. EMBO also offers additional, competitively-awarded small grants of up to €10,000. "There are no restrictions on how the funding has to be used. The grant might also supplement the successful applicant's salary," Gerlind Wallon explained. "Grantees can participate in the EMBO Young Investigator network, which supports contacts and collaborations between young scientists in Europe. They can choose an EMBO Member as a mentor and have access to laboratory management courses and facilities at the European Molecular Biology Laboratory (EMBL) in Heidelberg," she added. The EMBO Laboratory Management Courses have been attended by nearly a thousand young group leaders and postdocs since their introduction in 2004. They address how to build and manage a team, how to communicate with team members in a constructive manner and support them to become independent scientists, how to manage their time and stress levels, hire people and build and maintain collaborations. This year, courses are fully subscribed but further courses will be available in 2014 (www.embo.org/events/laboratory-management-courses).

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means for a fully functional molecular cell biology and proteomics laboratory," she recounted. "This was quite a different experience to my previous postdoctoral and doctoral training."

Özlu worked for four years as a postdoc in Timothy Mitchison's and Judith Steen's laboratories at Harvard Medical School.

She did her PhD studies in Tony Hyman's lab at the Max Planck Institute of Molecular Cell Biology and Genetics in Dresden.

"The most exciting task was establishing a mass spectrometry-based proteomics facility. I learned many technical details, both about the instrumentation and the software," she told us. In her tailor-made lab

at Koç University, she is meanwhile investigating the cell cycle-dependent cell surface changes in mammalian cancer cells.

From Seattle to Ankara

Bioinformatician Can Alkan, Assistant Professor at the private Bilkent University in Ankara and selected as an EMBO Installation Grantee in 2012, said his repatriation went smoothly after twelve years in the United States. "I wouldn't really say that Bilkent is new for me, since I graduated from the same institute with my BSc in Computer Engineering. I was out of the country for a long time but I visited it frequently," he said. During his first year at Bilkent, however, he experienced difficulties in recruiting graduate students because "the students just did not know who I am". The Installation Grant helped him to build academic contacts with the European Bioinformatics Institute in Hinxton, UK. He also gained access to the sequencing centre at the European Molecular Biology Laboratory (EMBL) in Heidelberg. (Alkan already gave further details of his career in an interview with *Lab Times* reporter Ralf Schreck – see www.lab-times.org/editorial/e_400.lasso).



Photo: C. Alkan/Bilkent University

A faculty position usually includes teaching obligations. How did the new faculty members cope with these duties? "I have been teaching three courses per year, which is quite typical for everyone here. A few colleagues shared their experiences and mentored me when I faced difficulties," said Erdal Toprak. Nurhan Özlu told us she spent half of her time on teaching and related activities because she was working at an undergraduate university. "Having less teaching obligations and spending more time on research would allow my group to proceed faster," she commented. Can Alkan didn't give any lectures before he joined Bilkent. He remarked that it could be challenging at times. "Especially teaching a new course takes some time to prepare but it gets easier when teaching the same course for the second time."

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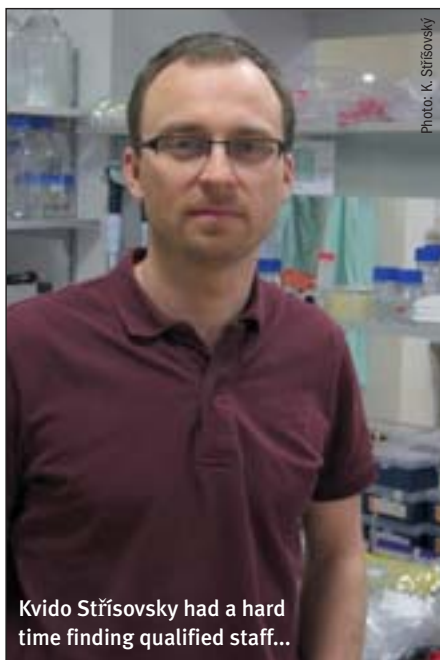


Photo: K. Stříšovský

Kvido Stříšovský had a hard time finding qualified staff...

Turkey is continuously investing in research and development. However, some rather mundane difficulties are hampering the productivity of the rapidly evolving scientific community. One major problem is logistics. "Almost all of the laboratory equipment and supplies are imported. It sometimes takes months until the goods arrive at the lab," Özlü said. "Another obstacle is the limited access to technical support and training by international suppliers," she told us. "We have to be very well organised and order everything we need well in advance."

Erdal Toprak remembered that he used to complain about late deliveries when there were snow storms in Boston. "Waiting for an extra day was unacceptable for me during my postdoc in the United States. Now, the average waiting time for chemicals is four to five weeks." Toprak sometimes brings small items such as microscope filters or pipettes to Turkey in his luggage when he returns from Europe or the USA. This all the more often, since in Turkey laboratory equipment and supplies are expensive due to a high VAT rate, customs fees and the suppliers' mark-up.

International contacts desired

Group leader Özlü misses the effortless scientific discussions she had at Harvard Medical School. "We have many talented and very good scientists in Turkey but it is difficult to find a research group in your field to discuss a specific question," she explained. "As molecular cell biologists, we haven't reached the critical mass yet." She plans to use her Installation Grant to attend international meetings, to develop new col-

laborations and to send her students to PhD courses and workshops.

The young group leaders especially appreciate their scientific independence. Erdal Toprak wants to bring academic and social diversity to his host institution by hiring international students and postdocs in the future. He thinks that the number of well-funded academic positions should increase.

Nurhan Özlü wants to establish a strong group and a productive research programme in Turkey to promote scientific excellence and competitiveness. "Being in a scientifically growing and evolving environment has several benefits for junior group leaders in terms of self-motivation and funding opportunities," she said. Can Alkan would like to support an interdisciplinary bioinformatics training programme and recruit graduate students through it. The scientist also advocates changes in visa requirements for non-European researchers to facilitate journeys to conferences and meetings in Europe.

Back to the Czech Republic

"My host institution has been extremely helpful," said Lukáš Trantírek, EMBO Installation Grantee 2012 and Assistant Professor at the Central European Institute of Technology (CEITEC) in Brno. His employer provided him with a start-up grant and will cover the overheads and salaries of two postdocs in his group throughout the term of his Installation Grant. Trantírek's group is analysing how the structure of DNA is influenced by physical and chemical factors and how the DNA conformation can be manipulated. He himself is particularly interested in novel methods of in-cell NMR spectroscopy. "I will use the Installation Grant to finance my research activities," he told us.

Trantírek is a well-travelled researcher. Before joining the CEITEC in November 2012, he worked as a researcher and lecturer at Utrecht University in the Netherlands and held a post as Assistant Professor at the University of South Bohemia in České Budějovice, Czech Republic. Prior to that, he spent two years as a post-doctoral research fellow in Juli Feigon's lab at the University of California, Los Angeles, USA, as well as one year at the Institute of Organic Chemistry at Johannes Kepler University in Linz, Austria. Before, he had received his PhD in Organic Chemistry from Masaryk University in Brno.

Tedious bureaucracy and high prices

The group leader complained, "My first month was full of paperwork." Since eve-

ry major purchase for his laboratory at the CEITEC has to be put out to tender, it can take months until the ordered equipment finally arrives. "The delivered products often do not have the required quality and the formalities are very time-consuming," he commented. Trantírek also proposed less bureaucratic national grant application procedures and a stronger position of incoming scientists in their host institution's management.

Strong management skills required

Further problems are the sometimes high prices for research-related items. "Pre-cast gels, for example, were 40 per cent less expensive in the UK than here," said Kvido Stříšovský, an EMBO Installation Grantee 2011 and a group leader at the Institute of Organic Chemistry and Biochemistry (IOCB) of the Academy of Sciences of the Czech Republic in Prague. "When I order antibodies directly from a supplier in the UK, they are even 50 per cent cheaper in some cases." His lab is analysing how intramembrane proteases of the rhomboid family recognise and cleave the transmembrane domains of their substrates and how they mediate signalling and participate in membrane protein quality control. The researcher worked for six years as a postdoctoral fellow in Matthew Freeman's group at the MRC Laboratory of Molecular Biology in Cambridge, UK. He received his PhD in Biochemistry and Molecular Biology from Charles University in Prague.



Photo: L. Trantírek

...Lukáš Trantírek (centre) was more lucky.

When Stříšovský started at the IOCB in July 2011, he found himself in a very small, provisional lab because the department was about to move into a new building with more lab space. "Since I was still living, mentally, in Cambridge during the first month, this didn't bother me," he joked. "Most of my time during the first three months was taken up by ordering equipment and reagents for the lab, writing a paper and grant proposals," he added. His grant applications were successful and his lab started working in April 2012. "I have no teaching obligations and can devote all my time to research," he recounted. Although international orders require more effort because of the language barrier, he managed to convince the purchasing department to order reagents directly from significantly cheaper European producers or distributors, if necessary. He also needed to organise a few local services, including a microbial media kitchen and a DNA sequencing service that make everyday work in the lab more efficient.

"To find qualified staff was much harder and took me longer than I thought," Stříšovský noted. He placed advertisements in *naturejobs* and exploited the Euraxess portal and other free services in the UK and in the Czech Republic. "One of my post-docs comes from the University of Tübingen, Germany, the other from the University of Manchester, UK," he said. He also found the EMBO Laboratory Management Courses to be very useful.

Czech PhD students receive a very solid education but PhD and postdoc salaries are so low that it is difficult to compete with institutes abroad, Petr Svoboda remarked. The scientist is head of the Laboratory of Epigenetic Regulations at the Institute of Molecular Genetics of the Academy of Sciences of the Czech Republic in Prague and was an EMBO Grant recipient from 2007 to 2011. Svoboda has secured long-term funding for his group but he is less optimistic about the future of his fellow researchers. "The strong dependence on grants with a success rate of approximately 20 per cent

is tantamount to a lottery. In fact, it makes planning ahead beyond the term of grants very difficult and is threatening the very existence of many labs," the scientist said. "The management of a portfolio of smaller grants is very time-consuming and the strong administrative control of research is counterproductive," he criticised.

Kvido Stříšovský regarded the small national research community as a drawback because expertise and excellence were scattered in individual labs. He wants to promote a more international environment and encourage scientific discussions at his host institute. The group leader suggests that two EMBO Installation Grants should be awarded in the Czech Republic per year instead of one. "There are a number of excellent young researchers who would like to come back and bring their international experience to our scientific community," he pointed out.

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