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Lab Times

News for the European Life Sciences

Eco-Immunology

Let´s Go Wild

Career strategies for young European scientists (XXVII)

Welcome to Poland - Witamy Polska

Old structures and bureaucracy have long hindered the flowering of science and research in Poland. However, radical reforms have recently been introduced and so this little plant will soon grow into a big tree.

Photo: iStockphoto/puchan

Education and science have a long tradition in Poland. Kraków Academy, today's Jagiellonian University, is one of the oldest universities worldwide. The list of prominent Poles is spearheaded by the polymath Nicolaus Copernicus and the Nobel laureate Maria Skłodowska-Curie, who dubbed chemical element 84 Polonium after her home country. Many excellent scientists have given Poland the cold shoulder in the past and sought greener pastures abroad. A radical reform of the whole research and education system should now make Poland more competitive and attractive for Polish expatriates and foreign scientists. Here, *Lab Times* tells you whether now is the right time to head to Poland.

Background

With 39 million citizens, the Republic of Poland is the sixth largest European country. It is a parliamentary democracy with 16 voivodeships (provinces), which are further subdivided into counties and communes. Cities with more than half a million citizens are Poland's capital Warsaw, Kraków, Lodz, Wrocław and Poznań. The Kingdom of Poland was established in 1025. Close ties with Lithuania culminated in the formation of the Polish-Lithuanian Commonwealth in 1569, which persisted until Poland was divided between Russia, Prussia and Austria 200 years later. Poland became independent again as 2nd Polish Republic in 1918. During World War II, six million Polish citizens lost their lives and Poland was divided between the Germans and the Soviets. The latter installed a Communist government after the war. The People's Republic of Poland was proclaimed in 1952 and lasted until 1989. Lech Wałęsa and the independent trade union Solidarność were the major democratic forces behind the first free elections, which marked the start of the 3rd Polish Republic with a Western-style liberal political system and a market-orientated economy. Poland was admitted as full member of the OECD in 1996, of NATO in 1999 and of the EU in 2004. It is expected to abandon its currency Złoty and to adopt the Euro next year.

The aim of the European cohesion policy is to alleviate discrepancies between different EU regions. Between 2007 and 2013 more than €350 billion will be spent from several sources: the Regional Development Fund, the Social Fund and the Cohesion Fund. Poland is receiving a fifth of this amount, which makes it the largest beneficiary in the EU. More than 20 national and regional programmes have been set up to channel the money. The Ministry of Science and Higher Education is in charge of more than €4 billion to fund programmes in Innovative Economy, Human Capital & Infrastructure and Environment. That's hardly peanuts, if you consider that the regular annual budget for Research and Development is little more than €1 billion. Less successful in Poland is the 7th EU Framework Programme. Initial statistics revealed that the participation, success rate and number of network coordinators are below the EU average. This poor performance also pertains to the Starting and Advanced Grants of the European Research Council, indicating that Poles are still unfamiliar with this peculiar way of securing funds. Given that support from the EU cohesion policy is only temporary, it is likely that the current infrastructure may not be used very efficiently in future due to insufficient national funds.

Performance

After far-reaching reforms, including the partial privatisation of state-owned companies, Poland has become one of the fastest-growing economies in Europe. In 2009, it was the only European country to maintain growth of its GDP in the face of the financial crisis. A survey by Ernst & Young described Poland as one of the most attractive destinations for foreign investments. This is due to its location in central Europe, its large consumer market and economic stability. The number of foreign investment projects is on the rise, main investors being from Germany and France. The service sector particularly benefits, including IT services, electronics and the automotive sector. Aviation and biotechnology have become increasingly appealing. More than 40 research and development centres have been seen set up, for example by IBM, Motorola, Siemens, Lufthansa, Hewlett Packard and GlaxoSmithKline.

Since 2006, Poland has moved up 18 places in the IMD World Competitiveness

Yearbook, in which leading economies are grilled on more than 300 criteria relating to economic performance, government & business efficiency and infrastructure. The strong economic growth in Poland, with its still low cost-of-living index and favourable corporate tax rates, was emphasised in the report, whereas poor marks were given for high rates of inflation and bureaucracy, lack of attractiveness for students from abroad, lack of highly skilled employees at enterprises and for marginal high-tech exports. The problem of poor roads will be partially improved in the run-up to EURO 2012, the European Football Championship hosted by Poland and Ukraine. Currently, Poland is one of the leading European producers of rye, potatoes and sugar beet and more than half of its area is used for agriculture. However, agriculture is currently suffering from the small size of farms and their high fragmentation, lack of capital and relatively low productivity. Main industries include machine building, iron and steel, coal mining, chemicals, shipbuilding and textiles.

Polish biotech

According to the OECD Science, Technology and Industry Outlook 2010, the scientific output indicators of Poland are mostly below average. This pertains, for example, to the number of triadic patents (patents filed for the same invention at the European, US and Japan Patent Offices) as well as to the number of publications per million inhabitants. The Science and Engineering Indicators 2010, published by the US National Science Foundation, put Poland at number 8 in Europe and 20 in the world for articles published in all fields of science and engineering. According to the SCImago Journal and Country Rank covering the years 1996 to 2009, Poland is 19th in the overall number of publications worldwide, 24th in citations and 26th for citations per document, if countries with more than 100,000 publications are taken into account. In Eastern Europe, it is 2nd after the Russian Federation in the number of publications, citations and H-index, which measures productivity and impact. Thomson Reuters's Science Watch reveals that Poland's relative impact is particularly high in space science and clinical medicine and is comparatively strong in agricultural sciences. In the latest QS World University Rankings no Polish university made it into the top 300 in the overall category. However, two Polish universities were represented in sub-rankings: the Jagiellonian University of Kraków in natural sciences (ranked at 175) and life sciences & medicine (196) as well as Warsaw University in natural sciences (137) and engineering & information technologies (rank 228).

Polish biotechnology is growing slowly but steadily. With more than 50 companies, Poland tops the group of new EU member states. Biotech benefits tremendously from the Governmental Action Plan of 2008 and from EU funds from the Innovative Economy Programme. As a consequence, science and technology parks are springing up like mushrooms. More than 80% of companies have less than 250 employees and the majority are service providers, performing contract research, manufacturing and other services. In the therapeutics sector a few companies are noteworthy: Mabion, focusing on the use of humanised monoclonal antibodies in oncology, Celon Pharma, applying RNA interference to combat various diseases, Celther, developing stem cell therapies for the treatment of Alzheimers and Euroimplant, devoted to innovative tissue engineering applications. Bioton and Adamed, the two leading Polish pharmaceutical companies, also invest significantly in biotech research.

The basics

After the fall of communism, the State Committee for Scientific Research, or KBN, took care of Polish science and technology. Since 2006, the Ministry of Science and Higher Education (MSHE) has been in charge of overall research policy and has the final say on the majority of funds. Two additional major players on the Polish science landscape are the Foundation for Polish Science (FNP), a self-financing organisation dedicated to excellence, competition and transparency in its funding programmes, and the Polish Academy of Sciences (PAN), a learned society and advisory body as well as a research performer, running a whole set of research institutions.

In 2008, total Research and Development (R&D) expenditure in Poland amounted to €1.77 billion. This is less than 0.6% of GDP and low in comparison to other EU countries, which spend on average about 2%. More than two-thirds of all R&D investments are derived from the state, indicating a lack of entrepreneurship. About three quarters of people involved in R&D are employed in the higher education sector. R&D is carried out in so-called units, which may be, for example, a one-man enterprise, a faculty at a university or a research institute with a couple of hundred employees. In 2008, there were more than 1,150 units. Among them were 195 higher education institutions, 271 scientific and research development units including the institutes of the Polish Academy of Sciences, 135 branch research development units and 640 development units. Whereas branch research development units are State institutions supervised by ministries with R&D remits, development units are associated with businesses carrying out R&D.

Research policy and funding

So in what sort of state is Polish education and research? Until now, the majority of public funds have been distributed via institutional, non-competitive instruments, also referred to as statutory funding. Less than 20% of research funds have been distributed in a competitive way. The Ministry of Science and Higher Education, headed by Barbara Kudrycka, has been responsible for research policy and funding but also for the design and implementation of research programmes, the assessment of funding applications and the evaluation of institutions. These evaluations have been highly unsatisfactory, since their outcome often did not result in performance-based funding. R&D in the business sector has been mostly pitiful, characterised by a lack of innovation and little cooperation with public research institutions. The capacity to secure and manage intellectual property rights is still underdeveloped. Traditional hierarchies, very low salaries, lengthy bureaucratic and non-transparent procedures for promotion, researchers' mobility seen as lack of loyalty and an aged group of highly influential professors, more

Internet Resources

- Mobility Portal Poland – www.euraxess.pl
- Study in Poland – www.studyinpoland.pl
- Ministry of Science and Higher Education – www.nauka.gov.pl/home
- Foundation for Polish Science – www.fnp.org.pl
- Polish Academy of Sciences – www.english.pan.pl
- National Centre for Science – www.ncn.gov.pl
- National Centre for Research and Development – www.ncbir.pl

Careers in Poland

than a third above the age of 70, have made academic careers very unattractive.

To substantially improve the Polish science and education system and its financing, a whole set of reforms is currently underway. Mid- to long-term strategies have been developed after consultation with the scientific community. Main strategies and programmes are the Strategy for Increasing the Innovativeness of Economy 2007-2013, the National Reform Programme 2008-2011, the Higher Education Development Strategy 2020, and Poland 2030 – Development Challenges. The Ministry of Science and Higher Education is currently out-sourcing several tasks to independent agencies and a new set of advisory and evaluation bodies, including the Young Scientists' Council and the Committee of Evaluation of Scientific Units have been established. However, the planning of the science budget, the statutory funding of scientific units, the funding of large research infrastructure as well as a set of specific programmes including the Scholarships for Young Outstanding Scientists remain with the Ministry. The main pillars of ongoing reforms are summarised below.

photo: Fotolia/ Roman Milert

If you apply for a position now, you could watch next year's European Football Championship in your new home country.

Radical reforms

Research policy in Poland is often implemented via legislation, which has to be adopted by Parliament and approved by the President. The "Building upon Knowledge" reform package was initially presented in September 2008. It took two years to come into effect. Its main goals are to establish a transparent funding system, to reward science that is excellent according to international standards, to concentrate funds on the best and get rid of poor performers, to extend competition for funds and to implement a comprehensive evaluation system. In addition, researchers' mobility and early-career scientists receive special attention.

A second reform package called "Partnership for Knowledge" addresses the higher education system and is expected to come into force later this year. The autonomy of institutions will be strengthened and their management improved. The best institutions will be selected in open competitions in eight areas including medical science, agriculture, forestry and technology, and receive the status of a National Leading Scientific Centre (KNOW for Krajowe Naukowe Ośrodki Wiodące). Extra funding will be provided for up to three centres per area and initially for five years. A novel academic career model with simplified and transparent rules for recruitment, promotion and the award of academic titles will be introduced. Moreover, a revised loans system is going to increase the accessibility of higher education to students in need. The rights of students will be better protected and the best students will receive additional financial support.

The reforms led to two independent funding agencies, the National Centre for Research and Development in Warsaw and the National Science Centre in Kraków. They will manage more than half of the Polish science budget after full implementation. The National Centre for Research and Development (NCBiR, Narodowe Centrum Badan i Rozwoju) has responsibility for applied research, technology transfer and strategic R&D programmes as well as for defence and security research. The National Centre for Science (NCN, Narodowe Centrum Nauki) is in charge of basic research. At least a fifth of its budget is earmarked for early career scientists below the age of 35. The NCN Council was recently appointed and job openings were announced for a Director and Programme Directors. The first calls for grants are expected for the second half of 2011.

There are too many changes in the Polish system to present here, even the most important ones. The motives for reform are reasonable and the goals highly ambitious. It will take perseverance to deal with the part of the scientific community that fears changes and wants to sustain the old system. It will also require iron commitment from the government to provide additional financial resources as well as continuous support from the scientific community. Hopefully, the Polish elections in 2012 will not lead to an overall majority, which could turn back the clock.

Foundation for Polish science

FNP, the Foundation for Polish Science, was established two decades ago as an independent and self-financing organisation. In many ways, the FNP is serving as a role model for the ongoing reform process. "Supporting the best, so that they can become even better" is its motto. This is also reflected in the low success rate of applications, which is around 10 to 15% or even less. FNP awards competitive and peer-reviewed fellowships, grants and prizes, including the FNP Prize, which is also called the "Polish Nobel". The Central Fund for Development of Science and Technology provided the initial capital, which has been quadrupled to more than €90 million in the meantime. €7.5 million from FNP's own assets will be spent in 2011. In addition, €22.5 million will come from EU funds. FNP is managed by an Executive Board headed by Maciej Zylicz and supervised by a council of appointed and elected professors. FNP was evaluated recently by an international group of experts. A report entitled *Strengthening the role of FNP in a changing landscape* documented that FNP is successful and has a pivotal role in the Polish system by establishing a transparent and competitive funding system based on peer-review (a third of referees come from abroad). Recommen-

dations include to retain FNP's autonomy, to focus its own on-going programmes and to expand its activities by attracting the management of additional third-party programmes.

According to Programme Division Director Jakub Wojnarowski, the FNP is now in a strategic phase of defining its new role and activities in face of the reforms. Over the next few years, FNP will assist other institutions in implementing the reforms, but also manage new NCBiR or NCN programmes whilst both agencies get going. FNP will also fill any gaps not covered by the two agencies. The scope of on-going FNP programmes will be narrowed and there will be a stronger focus on younger scientists. One planned measure is FIRST TEAM, which targets postdocs between four and six years after receiving their doctorate and enables them to set up their first lab. So it's definitely worth taking a look from time to time and tracking the progress of FNP as it restructures its own funding programmes.

Currently, FNP offers two major programmes for foreign researchers: Homing Plus and Ideas for Poland. Homing Plus encourages young Polish scholars from abroad to return to Poland but is also open to postdocs from abroad. Requirements are a doctorate up to four years old, a research period abroad of at least nine months and proof of employment by the host institution for the duration of your project. Applicants either have to return to Poland within six months or must have been in Poland for no more than 12 months at the deadline. A research grant of up to €20,000 a year and a stipend of about €1,250 a month for between 12 to 24 months is provided. In addition, research stipends for two master students amounting to €250 per month may be applied for. This year's first deadline just passed on March 15th but there might be a second call later this year.

"Ideas for Poland" is a new programme from the European Research Council to support the winners of the Starting Grant competition. The applicant has to work at a Polish institution. Provided are a monthly personal grant of €2,580 for up to six years and a one-time research grant of up to €26,000. Applications have to be made after receiving or during the implementation of the ERC Grant. The first awardees are the sociologist Natalia Letki and the computer scientist Mikolaj Bojanczyk from the University of Warsaw. There are many other FNP programmes including bilateral exchange and funding agreements with foreign funding bodies including the German Research Council and Max Planck Society, the Norwegian Scientific Research Council and the National Institutes for Health (USA). Since the FNP's whole funding repertoire is currently under review, it is advisable to keep an eye on its website.

Polish Academy of Sciences

The Polish Academy of Sciences, Polska Akademia Nauk, or PAN, was established in 1951 and is operating as a state scientific institution. It is both a research institution as well as an advisory body. As a researcher, PAN currently maintains more than 70 research establishments, including 30 research institutes and seven research centres, but also libraries, museums and botanical gardens. The institutions are financed primarily by the State. In 2008, their budget amounted to €250 million and 8,800 staff were employed. As a national advisory body, PAN operates as a learned society with national and foreign members. Members are elected for life into one of several divisions. More than 100 scientific committees are affiliated with these divisions, each primarily concerned with its scientific discipline. In addition, there are national and task force committees, which deal with issues of interdisciplinary or national relevance and are affiliated with the Presidium, headed by Michael Kleiber since 2007.

The new Act on the Polish Academy of Science inflicted many new regulations. For example, the two tasks of PAN as a learned society and as a researcher have to be clearly separated from one another. A chancellor will take care of PAN's finances, a commission in charge of ethics will be established, the number of divisions needs to be reduced and members over 70 years of age will receive senior status, locking them out of elections for several functions. Research institutes have to be supervised by boards of curators and must be evaluated regularly. The outcome of evaluations decides whether an institute will get funding, receive a shot across the bow and some time for reorganisation or even be liquidated. The institutes also have to introduce measures for the promotion of early career scientists and must compete with each other for funding. The reform package is highly controversial. In particular, the expected reorganisation of some PAN institutes, which will merge with other non-PAN units, is seen as the beginning of the destruction of a system which was highly productive. Nevertheless, if you start looking for a host lab, PAN institutes such as the Nencki Institute of Experimental Biology or the Institute of Biochemistry and Biophysics in Warsaw, are good starting points.

One famous Polish scientist (at least of birth) - Marie Sklodowska-Curie (right) with her daughter

Higher education

In 2008, 131 public and 325 private institutions constituted the higher education system of Poland. There are about two million students, of which half are full-time students and about two-thirds are enrolled at public institutions. Only about 0.5% of students are foreign – twenty times less than the average of OECD countries. A third of the foreign students are from Belarus and Ukraine, other major groups are from Norway, the United States, the Czech Republic and Sweden. There are 22 universities with social and theoretical science faculties, 17 technical universities with a focus on engineering sciences and many specialised units, for example nine medical universities, seven units for agriculture and 18 for fine arts. Full-time studies at public institutions are tuition-free, but institutions may charge registration fees and extra fees for weekend and time-intensive courses. Poland has one of the lowest expenditures per student in the OECD.

Research activities are concentrated within a small group of universities. Eight universities attract more than 50% of all R&D funds in the higher education sector. In the 2010

Careers in Poland

SCImago Institutions Ranking, research at the institutes of the Polish Academy of Sciences as a whole was ranked high. In addition, in the health sciences category the three top Polish universities were Wrocław Medical University, Jagiellonian University and Poznań University of Medical Sciences, whereas the leading higher education institutions in life sciences were the Jagiellonian University, Wrocław Medical University and the Medical University of Łódź. Academic careers follow the pathway of doctorate (doktor), habilitation (doktor habilitowany) and professorship (profesor). The latter is conferred by the President of Poland after recommendations from the Central Commission for Academic Degrees and Titles.

Photo: iMonika Brzezińska

Traditional Polish costumes might be a good alternative to the standard lab coat.

Funding potpourri

Early in 2010, the Ernst & Young Better Government Programme presented a report entitled *Scientific productivity of public higher education institutions in Poland: a comparative bibliometric analysis*. Poland's higher education system was compared to those of the UK, Germany, Austria, Finland, Italy and Switzerland. The relatively low productivity of Poland's higher education system was attributed to financing shortfalls, a high teaching load and low salaries. A typical professor at a Polish university was shown to receive a gross salary, without bonuses and salary add-ons from research grants, that was five times lower than that of an average professor in the UK. This leads to a situation where university personnel often have several additional part- and full-time jobs, preventing them from focusing on research.

If you are hooked on the idea of continuing your career in Poland, the best strategy is to get your funding from international sources, because only these can provide enough dough for you to focus on your career. Poland is a member of the EU, the European Molecular Biology Organization and the Human Frontier Science Program, which provide highly competitive but also lucrative postdoctoral fellowships and research grants. The Howard Hughes Medical Institute, which supported scientists in Poland in the past, recently announced that it is not inviting applications from Polish scientists for its International Early Career Scientist Program and has also stopped support via its International Research Scholars Program. If you receive one of the European Research Council's starting grants, which add up to €2 million for five years, you are pretty much set. EMBO installation grants are of interest if you already have a full-time position at a Polish institution. An installation grant helps you to start your own independent group, even in an area in which early independence is not frequently promoted. Successful applicants receive €50,000 a year for three to five years and additional benefits from the EMBO Young Investigator package. In the last calls, one or two grants per year have gone to Poland. The next deadline is April 15.

Another source of funding is the Wellcome Trust and its International Senior Research Fellowships. Outstanding scientists, irrespective of their nationalities, who wish to establish an independent career in biomedicine either in Poland or in six additional Central or Eastern European countries, are supported. Five to ten years of postdoctoral experience are required. The fellowship is for five years and provides salary, research costs and a meeting allowance. The fellowship is renewable after five years if the host agrees to contribute half of the salary costs. You need an established sponsor at the host institution, which will be also assessed by the Trust. Five scientists working at Polish institutes are currently supported by the programme. Details of the 2011 deadline have not yet been released.

If you are currently not able to stand up to fierce competition, there are still other avenues to explore. Bi-national agreements offer study and research visits and you should check whether your country has a special agreement with Poland. Vacancies in EU-funded projects are posted on the Euraxess Polandmobility portal. The Jozef Mianowski Fund, the International Visegrad Fund, the Polish Fulbright Commission and the UNESCO/Poland Programme offer additional opportunities. Job and fellowship offers are also posted online at the Ministry of Science and Higher Education, at the Foundation for Polish Science and the Polish Academy of Sciences. You may also look at individual institutes and universities for openings, but sometimes the content provided in English is limited or there is only information available in Polish. And of course, in light of reforms, a couple of new programmes are bound to be announced. Hopefully, with sufficient funds for your salary and research expenses.

Outlook

A courageous reform process has just begun in Poland. Some of the reforms will remove old structures and bad habits dating back to the pre-democratic period. Excellence in science, internationalisation and the promotion of young scientists are now on the agenda of funding agencies, research institutions and universities. However, it remains to be seen how the prescribed reforms will be put into practice at the local level. It will certainly take a couple of years before Poland reaps the fruits of its efforts. Until 2013, substantial EU funds will allow improvement in the current infrastructure but also cover the requirements to triple national R&D expenditure. Right now, scientists able to tap international sources of funding are quite happy with their work in Poland. If you join them, you have to be prepared to adapt to a system on the move.

Ralf Schreck

If you are interested in reading some personal insights on the Polish research system, please visit our accompanying *Lab Times* online editorial at *www.labtimes.org.*

Lab Times online

Scientific Careers in Poland

(March 28th, 2011) **The wind of change is currently blowing in the Polish science scene, with many new reforms breaking old habits. After spending some time abroad, Agnieszka Dobrzyn and Matthias Bochtler will, if they haven't done so already, soon be returning to Poland. Both think that time has come to look eastwards...**

GOOD TO BE FULLY BACK IN POLAND SOON

The German **Matthias Bochtler** studied physics in Munich and Cambridge, and received his PhD in 1999 for work performed in the lab of Nobel laureate, Robert Huber, at the Max Planck Institute for Biochemistry in Martinsried, Germany. In 2001, he was appointed junior group leader at the International Institute of Molecular and Cell Biology (IIMCB) in Warsaw, Poland. His group was financed by the Max Planck Institute of Molecular Cell Biology and Genetics in Dresden (Germany) and the Polish Academy of Sciences. He received an EMBO/HHMI Young Investigator Award in 2004 as well as the Pienkowski Professor Award in 2005. In 2007, Matthias Bochtler became Director of Structural Biology at Cardiff University, UK. In 2010, he received a professorial title from the Polish President and, starting in July this year, he will return full-time to IIMCB.

Lab Times: *Why did you initially choose the International Institute of Molecular and Cell Biology in Warsaw?*

In 2001, I learned at a Cold Spring Harbor meeting from Maciej Zylicz, the current president of the Foundation for Polish Science and a professor at IIMCB, that a competition was underway for a junior group position at the Max-Planck-Institute of Molecular Cell Biology and Genetics (MPI-CBG), which should be run as an outstation located at the IIMCB. This sounded like an excellent opportunity, so I applied for the job. The start was rocky: I was flying to Warsaw for the interview on an indirect flight via Vienna. Shortly after takeoff from Vienna, the pilot announced that he had to return to Vienna due to a bird strike to the engine. Luckily, the plane landed safely and nobody was hurt. I arrived late for the interview in Warsaw but now it was time for even more good luck; after the symposium, I was offered the job. I did not hesitate to accept it.

Lab Times: *How was your junior group funded and how difficult was it to get started?*

At the time, IIMCB was a fledgling institute with just two fully operational groups, plenty of space, a very friendly atmosphere, dedicated scientists and very little equipment. The (then) vice president of the Max-Planck-Society, Klaus Hahlbrock, and the (then) acting director of my "home" institution, the MPI-CBG, Wieland Huttner, recognised this extraordinary situation and pledged very substantial funding for additional equipment. This solved most financial worries but

not the practicalities. At that time, Poland was not yet in the EU, consumables were expensive because the market was small and major equipment had to be imported. I am very grateful for the support from MPI-CBG (particularly Judith Nicolls) and IIMCB (particularly Małgorzata Mossakowska and then Roman Szczepanowski) to deal with tedious customs procedures, and to Prof. Hahlbrock for pledging extra funds at a critical time to cover costs of a newly-introduced import tax.

In 2001, there was an extremely large pool of well-educated people looking for PhD and postdoc positions in Warsaw. Sadly, the difficulties with equipment and the inevitable delays put most of them off in the beginning. Two left after inspecting the lab on the day they were supposed to start. Luckily, the third student, Renata Filipek, was brave enough to stay and helped me to get things started. This turned matters around and after a while it was quite easy to find excellent co-workers. I remember a single advert in Gazeta Wyborcza (the leading Polish newspaper), which attracted over 50 applications. In the meantime, the situation has changed dramatically. IIMCB is very competitively equipped (at least comparable, if not better than a typical University in Poland or in Western Europe). However, opportunities outside IIMCB have also increased dramatically, so it is now harder to find excellent people.

Lab Times: *How is the structure of IIMCB and how international is the research staff?*

IIMCB has flat hierarchies but no permanent positions for scientists. Group leaders are regularly evaluated by external referees, and continuation of the rolling tenure contracts depends on the positive outcome. The research staff is mostly Polish but I have had co-workers from Belorussia, Italy, Morocco, Spain and France. There are other non-Poles at the institute as well, some of them on PhD or postdoc projects. Nevertheless, compared to the situation in the UK or Germany, the number of non-Poles is still relatively small.

Lab Times: *Do you need to have some knowledge of Polish to survive?*

For the scientific life, Polish is not needed. Institute seminars are in English and the vast majority of people at the institute speak fluent or even excellent English. It surely helps to understand some Polish and it's even better to be able to say at least a few words. Germans have made a real career leap in this respect. I used to be told that my voice (particular the chest vowels) reminded Poles of a shepherd dog or a mafia boss. Now someone remarked at a PhD defense at the Jagiellonian University in Krakow that my voice reminded her of the Pope!

Lab Times: *Did you feel integrated into the scientific and social life?*

Currently, I am in the UK almost all the time. But I certainly did feel very integrated during the years as a Max-Planck-Junior Group leader. IIMCB was a very welcoming environment and I still have many good friends there. I know that many of the other foreigners have similar feelings. A German postdoc in the neighbouring lab actually ended up marrying a Polish colleague, so in this case, integration has certainly worked perfectly!

Lab Times: *How do you judge the funding situation in Poland in general?*

It used to be difficult but has improved greatly. In recent years, very substantial funding has been pumped into infrastructure upgrades. Equipment availability at IIMCB and the Ochota campus, in general, has changed within ten years from difficult to extraordinarily good. As far as I can see, the same is true for the major universities in Poland (e.g. Warsaw, Krakow, Gdansk Universities) as well. I also have to say that Poland has been very generous in funding my personal research. Nevertheless, the situation is of course not ideal: at IIMCB, there are almost no permanent positions and very few staff positions. Grants from the Polish Science Ministry are tailored to provide extra salaries for scientists who are already employed. As IIMCB has very few such positions, there is a funding gap that has to be filled by other means. International grants have been essential in this respect.

Lab Times: *What is your opinion on the current reforms?*

I have been mostly away for a few years now and, therefore, I am not fully aware of the details. However, I understand that a cornerstone of the reform is the idea to channel funding through an independent organisation (somewhat like the German DFG) rather than through the Polish Ministry of Science. In principle, making science funding independent of short term political aims is a good thing. On the other hand, I have not seen much political interference with funding decisions or research priorities by the ministry since 2000. In contrast, the UK research councils are clearly trying to "steer" research in ways that I do not always find appropriate. Clearly, the rules are one thing and the interpretation is sometimes quite different!

Lab Times: *How is the spirit of younger researchers in Poland?*

Poland still has a five-year training period for undergraduates, which is a good thing because it truly prepares for lab work. Moreover, Poland has many very keen students actively seeking internships to gain additional practical experience during the long summer holidays. Very often, the students who came on their own initiative because they were genuinely interested later turned out to be the best PhD students. Poles have a reputation for being "romantic" types and sometimes that's true of the students. Many of them come with high expectations and are initially willing or even demanding to undertake projects, which I find brave! Realism then comes with some experience of the inevitable setbacks in a lab. The good thing is that the Polish system is more compatible with this "romantic" approach to science because the rules about timing for a PhD are less strict. Provided a supervisor can fund the research, a PhD can be continued until results are there. This avoids the pains of a defense that takes place because time is up rather than because the work has been completed.

Lab Times: *What needs to be done to make Poland more attractive for scientists from abroad?*

To me, Poland is already very attractive but this is not to say that there are no problems. The most serious issue at the moment is the dramatic gap between the very generous funding for infrastructure and equipment, and the very limited funding for people. I found it sad when a former co-worker told me that she will now apply as a lab robot rather than as an experienced scientist because there is such a strong bias for investing in equipment! Living in the major cities in Poland is expensive (comparable to say, Berlin). Salaries are much lower, because they haven't kept pace with soaring living costs and salary increases in the private sector. For a PhD student on the "official" salary without top-ups from grants of the supervisor, it can be extremely hard to make ends meet in the big cities. The low domestic salaries in academia also make it difficult for lab leaders to compete with the private sector for the best more advanced scientists. Another serious problem has been that ZUS (the Polish social security system) does not always cover parenting times (the details are complicated), which can force lab leaders to find money twice to get the same work done once. The good news is that I have heard that the latter problem is about to be fixed by a change in the law.

Lab Times: *You just told us that you will return to Warsaw this summer. What are your motives and expectations?*

It's a mix of motives. IIMCB has a very friendly atmosphere, good local collaborators and a very stimulating seminar programme. I always had freedom to choose my projects according to my own scientific judgment rather than according to some overall institutional strategy. All this can be said about Cardiff University as well. But contrast the national environment: despite its great tradition for excellent science, funding in the UK is being cut all the time. I understand the pressures on the UK government in a dramatic budgetary situation but the impact is felt (except perhaps the MRC labs and some national research institutes) and it's painful. Compare this to the situation in Poland: I have already mentioned the major investments into infrastructure, not

only at IIMCB but also at the Academy Institutes and the top universities. There is still a large pool of local well-trained prospective PhD students and postdocs, although the job "market" is no longer so much in favour of the lab leaders as it used to be. I also have to say that Poland has made my decision to come back easy with generous research grants that will fund co-workers, at least for a while. During the last few weeks, I have learnt that I can expect a ministerial grant on RNA guided nucleases and a major grant (Team) from the Foundation for Polish Science. I will have open positions for three master degree students, two PhD students and one postdoc starting and plan to run a recruitment symposium in July (applications welcome until July 1st to mbochtler@iimcb.gov.pl). This will, of course, still be advertised officially but it's always good to use all channels. What are my expectations? I hope that I can take advantage of the good atmosphere at IIMCB, the funding, the infrastructure and the surroundings to do some really good science in Poland.

A CAREER IN POLAND CAN BE AS REWARDING AS ONE ABROAD

The Pole, **Agnieszka Dobrzyn**, is associate professor and head of the Laboratory of Cell Signaling and Metabolic Disorders at the Nencki Institute of Experimental Biology in Warsaw. She studied biology at Warsaw University-Bialystok and received her PhD in the lab of Jan Górski at the Medical University of Bialystok, in 2001. Funded by a postdoctoral grant from the American Heart Association, she joined the lab of James Ntambi at the University of Wisconsin, Madison, USA. Instead of pursuing her career further in the States, she decided to return to Poland in 2006. In 2007, she became a group leader at the Nencki Institute and received an EMBO Installation Grant. Last year, she also succeeded in the TEAM programme, which is managed by the Foundation for Polish Science and funded with EU Structural Funds. Agnieszka is working on signalling events involved in lipid metabolism and human metabolic diseases.

Lab Times: *Why did you choose to return to Poland?*

Despite the temptations of launching a career in the US, returning to Poland wasn't a difficult decision. In 2005, Poland became a member of the EU, meaning more funding and more opportunities to interact with international colleagues. Having been successful abroad, I felt that I would be able to find an independent position and create my own research group in Poland. Four years, six research grants and €1 million research funds later, it seems that I was right.

Lab Times: *How is your group currently funded at the Nencki Institute?*

My group consists of twelve people: four postdocs, six PhD students, a technician and myself. We have one EMBO grant, two grants from Foundation for Polish Science (funded with EU Structural Funds), three grants from Polish Ministry of Science and Higher Education, and start-up funds from the Nencki Institute, with an overall budget of more than €1 million. This funding allows us to carry out cutting-edge research projects on metabolic disorders.

Lab Times: *What about teaching?*

The Nencki is an institute of the Polish Academy of Sciences and scientists working here do not have any teaching obligations. My only 'teaching duty' is to give a few lectures a year within the 'Molecular Biology' course for PhD students.

Lab Times: *What are your career perspectives at the Nencki Institute?*

At present, I am an associate professor with a five-year contract ending in March 2012. At the end of the contract, my work will be evaluated by the Scientific Council of the Nencki Institute and, if positive, I will get tenure. Within the next three to four years I should also be promoted to full professor, which requires a good publication record and at least three PhD students that

have graduated from my lab. The Nencki Institute supports career development of researchers and, to date, my career path has run pretty smooth. Hope this part is not going to change.

Lab Times: *Are there special measures to attract and integrate scientists from abroad at your institution?*

Attracting and supporting promising researchers from abroad, who are willing to continue their career in Poland, is one of Nencki Institute's statutory activities. Once a year, the Institute opens an international competition for a lab leader position. In 2006, I was a laureate of this competition, last year - Tomasz Wilanowski from the University of Melbourne, Australia. Nencki Institute provides benefits and start-up funds at the European level and administrative assistance in preparation of external grant proposals. There are also attractive calls for postdocs. Right now, the Institute is trying to fill ten postdoctoral positions for a large bio-imaging project, funded by the 7th EU framework programme, and several PhD student positions within an international graduate programme, run by Nencki Institute and 17 international partners.

Lab Times: *How difficult is it in Poland for a woman to make a career in science?*

It is not easy to be a woman in science. This is true in most of the European countries and, I am sorry to say, Poland is not an exception. When we look at the statistics, at the level of PhD students and postdocs, representation of women is about 45%, however, in high-level scientists' positions, women are still under-represented in Poland. To improve the gender balance in high-level scientists' positions, a number of programmes have been created, e.g. Parent-Bridge Program (Foundation for Polish Science) with the objective to enable the best researchers with young children to return to advanced research work and to enable pregnant women to conduct research projects financed from external sources. There is also an ongoing discussion within a scientific community of how to promote highly qualified women as candidates for top-level jobs, speakers at conferences and interview partners for media. This kind of discussion is really needed.

Lab Times: *There is much discussion of ongoing and future reforms in Poland - do you experience some improvements already and what is your opinion on the reforms?*

The quality of science in Poland has suffered from two main, mutually related problems: a disastrous level of funding over the last few decades and the brain drain of young, talented scientists seeking careers in North America and Western Europe. Poland's ongoing political reforms are reversing those trends, creating the potential for a world-class science infrastructure. One of the current infrastructure investments, the Centre for Preclinical Research and Technology programme, is placed at the Nencki Institute and Ochota Campus. We would benefit greatly from this new research infrastructure with facility investments and professional support in technology transfer that is currently lacking. This can help up us to turn our discoveries into new diagnostic and therapy targets. Similar investments are being made in different places in Poland, right now and that's definitively a positive change. Another key to realising Poland's potential is attracting researchers, who are willing to demonstrate that a career in Poland can be as rewarding as one abroad. In my lab, I have two postdocs who received their PhDs in Ireland and the UK, and have now returned to do their postdoctoral training in Poland. And this is not a rare situation. At Nencki we are facing a new trend: young researchers find Poland an attractive place to start their scientific career. This is a good prognostic for the future.

Lab Times: *How do you judge the funding situation in Poland, in general?*

Science funding is dramatically low in Poland. It makes up only 0.34% of the State income, while in other European countries average funding constitutes about 3%. As mentioned before, there are fairly large investments on infrastructure: buildings and world-class equipment. However, there is very little funding left for research grants. This strategy has several pitfalls. I worry that

one day we will wake up with dozens of well-equipped new research centres, located all over Poland, with nobody inside. I hope that the Polish government will understand that science is vital to the economy and that this worst-case scenario will never come true.

Lab Times: *How is the situation and spirit of young Polish researchers?*

Because of long-standing hierarchies it is practically impossible for young scientists to become independent group leaders in most of the Polish universities. Nencki Institute is one out of two research institutes I know that hire young scientists through international competitions and make them group leaders, with the same independence and flexibility that they could expect in the United States or Western Europe. Habilitation isn't required. The spirit if young researchers would be much higher, if young, successful scientists were offered their own labs and larger grants in Poland.

Lab Times: *What needs to be done to attract more scientists from abroad?*

Poland should become more integrated into the European Union, meaning more funding and more opportunities to interact with international colleagues. Also, Polish research institutes could be more open to international researchers, e.g. English could be an official language at university seminars, courses, administrative documents, etc.

Lab Times: *Any other comments of interest for young scientists thinking to continue their career in Poland?*

There are a number of funding options for junior research leaders returning to Poland. If you have a promising and innovative proposal you can get substantial funding to start a lab, often with a free choice of institute.

Read more about career and funding opportunities in Poland in the current issue of Lab Times.

Interviews: Ralf Schreck

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