Leading a research group in Europe

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In my last two posts of this series of blogs on being a PI in Europe, I gave an overview of the French and British systems. In this new entry, I will discuss the Italian system. I will also talk about the European Molecular Biology Laboratory (EMBL), an intergovernmental scientific organization that operates a research unit near Rome where I am currently a principal investigator (PI).

People entering the Italian research section are in majority people who performed their PhD research in Italy. After graduation, one is encouraged to undertake the post-doctoral research abroad. Successful PostDoc will likely gain a position in ones' alma-mater. In the Italian university system, a researcher can return to her/his former lab and work there as a post-doc for a few years.

One way to gain a permanent position as a professor in an Italian university starts with an exam called “concorso”. First, one has to become a ricercatore tipo A (RtdA). This position is for three years. Practically, it is equivalent to a Post-Doc. Then, assuming that a position becomes available at the university (e.g. due to the retirement of a professor), one has to pass another exam to be ricercatore tipo B (RtdB), also a three-year contract. In some cases, if the candidate has a very strong CV, s/he could directly apply to be RtdB. At the end of the contract, the young researcher can apply to the position of associate professor, which is permanent. No exam is required at this stage but it is necessary to have a teaching habilitation, which is based on productivity parameters (citations and number of published papers) and the evaluation of the candidate CV by a scientific committee. Be aware that the university is only providing the salary of the Professor, but will not give further fundings for research.

Another main way to become a PI in Italy is to enter the Consiglio Nazionale delle Ricerche (CNR). This organization covers a wide range of research disciplines including Biology, Physics and Geology. As for the Centre National de la Recherche Scientifique (CNRS) in France, employees are civil servants. The entrance exam is composed of written and oral parts, which will be entirely in Italian. Having a host laboratory is not essential at the moment

of the examination, but it is strongly recommended to have a supporter before the exam occurs. Like at the university, the CNR mostly provides the salary and little in term of research funding.

Besides Universities and CNR**,** there are also several very good research institutes in Italy following an international model. Places such as Istituto italiano di Tecnologia (IIT), Istituto FIRC di Oncologia Molecolare (IFOM), Istituto San Raffaele Telethon per la Terapia Genica (SR-TIGET), the Telethon Institute of Genetics and Medicine (TIGEM) and the EMBL organize international recruitment for group leaders.

Young PIs who successfully joined a University, an institute or the CNR can gain research funding through several options such as the “Rita Levi Montalcini for young researchers” Grant scheme aimed at young Italian and foreign scholars with no more than six years of post-doctoral research wishing to move to Italy (https://www.miur.gov.it/programma-rita-levi-montalcini) and the Italian Foundation for Cancer Research (AIRC). Another major Italian funding body is the Telethon, which specializes in genetic diseases. It is important to be aware that there is no funding agency specifically supporting basic research in Italy. Therefore, it is currently best to work on scientific questions focused on cancer or genetic diseases, and keep following funding agencies policies. Otherwise, to be able to work on a wider range of research themes, getting a grant from the prestigious European Research Council (ERC) is very beneficial.

I would like to focus more on EMBL where I am working. It is an inter-governmental organization funded by more than 20 European states. It was created 40 years ago in the same spirit as the Conseil Européen pour la Recherche Nucléaire (CERN), but with a focus on basic life science. It has multiple centers across Europe. The largest ones are located in Heidelberg (Germany, https://www.embl.de/research/units/index.html) and Hinxton (United Kingdom, https://www.ebi.ac.uk/research). Smaller EMBL units are based in Barcelona (Spain, https://www.embl.es/research/unit/index.html), Grenoble (France, https://www.embl.fr/research/unit/index.html), Hamburg (Germany, https://www.embl-hamburg.de/research/unit/index.html) and Rome (Italy, https://www.embl.it/research/unit/index.html). EMBL does not offer a tenure track system, which means that PIs do not usually stay more than a decade in this organization. This turnover insures that young PIs can be exposed to some of the best research facilities, including core funding, cutting-edge technologies, and top training center. PIs are expected to move back to their home country to disseminate expertise. The turnover of staff at EMBL creates a dynamic, interactive and open environment mostly composed of junior PIs. Besides, there is a constant influx of new ideas, which helps to devise new approaches to solve scientific questions. Indeed, EMBL is an organization composed of very diverse and highly qualified research groups. Therefore, young PIs gain access to a very strong set of experts in various fields, such as: structural biology, proteomics, bioinformatics, genomics,

cell biology, development biology and advanced imaging. I do find that this environment is helping me to combine different methodological and innovative approaches to address the key questions in my lab, like how a cell differentiates during blood cell formation?

To conclude this post, I would say that entering and being successful in the Italian research system is quite difficult because the opportunities are few and the amount of funding available is fairly small. Of note, the recruitment path I highlighted (PhD in Italy, Post-doc abroad, going back to the same lab, RtdA, RtdB and Professor) is not necessarily the norm nowadays. The Italian state has laws in place to favor meritocracy over connections in recruitment. As a result, if you are foreigner with a very good CV and learn Italian, it may be no less difficult to enter the national research system than for Italian citizens. In addition, there are in Italy several research institutes whose way of operating is quite international, which helps young scientists coming from abroad to start a research group. In particular, EMBL offers a very supportive environment to perform excellent basic research in this beautiful country.