Luis Serrano – President, Centre for Genomic Regulation CRG), Spain



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21.12.2018

Tags: Spain, Genomics, CRG, Research

Luis Serrano, president of the Centre for Genomic Regulation (CRG) in Spain, gives an update on the Centre's recent history and outlines the need for greater understanding of science and research within the Spanish political class.

Could you update us on the main developments for the centre since we last spoke to you four years ago?

These last four years have not been the best because of the economic crisis.

Despite this, we have been able to develop a strategic plan and have been able to attract very skilled people to join us. Following the strategic plan, we are now on the right track. We have hired a training manager and have increased the number of people undertaking our courses, around 40 to 50 percent of those coming from outside Spain. Furthermore, for the first time since the foundation of the institute, we have managed to hire a good number of females, with the proportion of female employees hovering around 40 percent. We are also going to hire medical doctors to the institute.

Moreover, we acquired the facilities for the national centre for sequencing, so we now have a huge genomics capability. All in all, we have managed to be active in spite of the economic problems.

Could you elaborate on your technological transfers?

We have had successful technology transfers, for example with one particular project specializing in microbiotics, which was incorporated last year. Also, we have had another project that was meant to be incorporated, but due to the political turmoil it was delayed and will most likely be finalized in July. That is for software development already being explored by several multi-national companies. Lastly, we have another project in the pipeline, together with Imperial College, investigating Huntington's disease.

We have just seen a change in the Spanish government. How does it affect your outlook?

I am more optimistic now that the government crisis seems to have been resolved. When we enter discussions with the different political parties, I feel things are improving, though the main problem is that they are unaware of the issues we encounter because they have neither a scientific background nor scientific advisors in their government. Only when we go to the parliament and discuss issues with them, they finally understand the problems we are facing.

How much of a concern has the crisis in terms of the government in Catalonia been for you?

We receive 30 million euros of funding from the Catalan government, with two million more coming from the central government. The problem is that for 9-10 months, there have been no decisions in the government, so nothing has evolved or changed. There were no new laws and the budget is continuous with no change, which has an impact on us. Consequently, we cannot create a long-term plan. Our vision will be limited to the short term until there is stability, which unfortunately is not advantageous for us.

You've mentioned that you feel there is a lack of understanding amongst the political class about the workings of the research community. What can you do to surmount that informational asymmetry?

I have spoken to every single political party in the last few months. We realize that often they will pass a law without considering the consequences for science. For example, one of the laws recently changed capped programs to 15,000 euros, above which we need to go to a public tender for each individual program. This would mean between 200-300 public tenders per year, which is impossible: we do not have the capacity for this. We are negotiating to have the threshold raised to 50,000 euros, a significant improvement.

By establishing a dialogue with the stakeholders and explaining the implications this will have, we are able to negotiate for the changes we need and make progress. It is a formidable task, but necessary to prevent being hit by unforeseen consequences in the future.

What are the other big challenges that you have identified at the moment?

My challenge will be to ensure that all the national grants and fellowships arrive at a consistent time annually and will not change depending on the government and other factors. This will be revolutionary in Spain.

There is significant uncertainty in how we operate. Due to political issues, we often experience delays, sometimes up to 6 months or even longer. Before increasing the funding that we receive, we need to amend laws that have increased the level of bureaucracy. This would significantly simplify our operations.

Science and research are specific sectors that must have specific laws. It does not work if we are categorized under the umbrella of a different rule. It is not that we what to be less transparent or work the system, but the current rules and structures insufficiently cater for the needs of the scientific community. There must be a way to simplify this. It is easy to say that there are research grants available, but we need to know how administration processes work in order to take advantage of these.

Medical sciences are changing. There is a move towards genomics as public healthcare budgets come under increasing pressures, and a need to increase efficiency in the allocation of therapies. How prepared to you think Spain is for this new world of medicine?

One of the biggest problems is that there are issues with integrating systems across Spain. Both Andalusia and Catalonia have very good electronic records. However, these are incompatible. This data is critical to expanding on personalized medicine. We need to be able to know the phenotype, the drug, and the treatment. Likewise, how are plans to have personalized medicine at the European level going to succeed if I cannot receive the necessary data from Holland or elsewhere?

If we want to expand into personalized medicine, there needs to be standardization, not just across Spain, but across Europe so that we can get free access to data. We are vastly improving our data collection techniques. However, the system breaks down when we are trying to share this data with our partners. I say it's like building a house and having a roof without any foundations.

Where does Spain sit on the spectrum of producing a genome project?

It doesn't make sense at this time to begin a genome project specifically in Spain. The genome project in Spain is not going to provide different results from that of France or Italy. Similarly, adding 10,000 people in Spain to the genome project is not going to bring value-added compared with the 1 million in the USA or the 400,000 in the UK. We should only be starting projects that contribute to progress in the field, for instance focusing on a particular disease or particular group, something unique. Perhaps we could map the genomes of all the people taking a particular drug, such as anti-cholesterol drugs, and use this data to see if there are genetic predictors for who will have certain side effects.

In Catalonia, there are many clinical trials. It would be interesting to personalize medicine to these clinical trials, or even more ambitious projects. Why not identify every child in Spain born with a treatable rare disease, and launch a coordinated effort with one hospital per autonomy and conduct gene therapy on those identified as carrying the rare disease. This would truly put Spain on the research map.

Tell us about some of your key projects at the moment?

One of our current projects is the mapping of expression pattern of every single cell in the human body. This is a significant project with many international partners participating. We are also involved in several cross European projects. We are currently trying to launch a European wide project investigating the structure of the chromosome with several partner institutes.

We have the capability of leading international research projects connected with gene expression. We are leading some research products on the 3D structure of DNA and the exchanges gene expression in two situations: hormone-induced cancer, and trans differentiation in stem cells.

What is your relationship with private enterprises within the world of pharma?

Within pharma, we have different collaborations, but currently, we do not have any official agreements with pharmaceutical companies We used to have a collaboration agreement with Sanofi, which unfortunately they decided to end.

There is hope of signing a future agreement with Novartis, but we have had disagreements around them wanting to bring people in from Africa. Nonetheless, negotiations are ongoing. I do not believe the lack of formal agreements to be a major problem. Rather the more concerning issue is that the big pharma companies are leaving Europe and basing their new investments in China or Boston. This is an industry-wide issue.

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