Interview: Luis Serrano, Director, Centre for Genomic Regulation, Spain



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Luis Serrano, director of the Centre for Genomic Regulation in Barcelona, discusses improvements in technology transfer, Catalunya's competitiveness in research, and Spain's transformation from a follower to a leader in science and technology.

What were your initial goals when you became director of CRG in 2011?

CRG was in a very good position at the time, when former director Miguel Beato finished his position as director since the institute's inception. However, because Spain was in the middle of the crisis, we had to consolidate the Center. We had been growing exponentially and while we had not been affected by the cuts, our budget was frozen. Therefore we needed to economize and streamline the operations of CRG. The other goal at the beginning was to increase the internationalization of the institute and to create more relations with hospitals for translational research. CRG has done very well in terms of publications, obtaining European funds, and has generally been successful in all world-ranking classifications. However, we are not at the adequate level for technology transfer and our relationship with hospitals. I wanted more groups to be involved with this at the Center.

What were some of the tech transfer goals that you wanted to achieve?

When I took over, the previous head of tech transfer left after one year. We are currently reorganizing this department, which needs to be at the same level as our excellent science. Our goal is simply to ensure that we have high-quality and professional technology transfer, and we are

dedicating every resource possible to ensure this, including the creation of a valorization fund. If any group has a potentially commercial project, our tech transfer department can take it out of the lab, finance it for one year and mature the project enough to go into the market. The reason to do this is because you may have something exciting but you cannot convince your group to translate the work because if it fails after a year, resources are wasted. Financing projects with external money can help to avoid this situation.

CRG successfully created the spinoff Q-Genomics; what potential does the Center hold to create more companies like this?

There is great potential. With a new professional tech transfer department and with more people devoting resources to help, combined with this valorization fund we can potentially create more successful companies. Sometimes there is obsession with the idea of spinoffs, and often patent licensing is more effective. But this is essentially the goal for the following years. CRG needs to be excellent in tech transfer and translational research in hospitals. Ultimately, the Center is not competing with institutes in the UK or Germany, but rather with those in the US, China or Brazil. An institute of 500 people is not big enough on its own; we need to be more creative in terms of partnerships and alliances.

Is this part of a nationwide trend in which Spanish culture lags behind slightly in terms of entrepreneurial creativity?

I believe that this perception is a European problem, which is why the continent is not as competitive as the US. We do not have a culture of aggressive entrepreneurship in Europe. Clearly it is easier to start a project in the US, where scientists are more willing to take risks for financial, cultural and educational reasons.

90 percent of CRG’s revenue is funded by the Catalan government and 10 percent by the Ministry of Economy. What is Catalunya’s general investment in research?

The Catalan government has really bet that innovation is the future for competitiveness; they have devoted large amounts of money to protect research during this crisis because everything would otherwise be eliminated once the crisis finishes, with nothing to grow. Governments need to keep their investments in science and technology alive during such times to push the economy, and innovation is critical for this. Now Catalunya has globally competitive institutes in terms of research, but like the CRG they need to become competitive specifically in tech transfer and translational medicine. Publishing is great and our access to EU grants has been superb, but at some point we need to start returning value to the society that finances us.

How successful has been in CRG in gaining EU grants or private loans?

Setting aside big corporations, CRG has acquired more EU capital than any other institute in Spain, and has also received in proportion to its number of PIs (Principal Investigators) the highest number of ERC grants in Europe. CRG also coordinates more European projects than any other institute in Spain.

How does CRG engage in such international collaborations?

We have strategic projects like human genome analysis, in which we are involved with international cancer consortia in leukemia. At the moment we are coordinating about five European projects. CRG has also established agreements with institutes across the globe, from Buenos Aires to Bangalore. We are currently considering an agreement with the local governments in Sao Paulo and Rio de Janeiro. Next year we will look at options in India and China. CRG needs to make these partnerships everywhere to become truly globally competitive.

To what extent does CRG work with pharmaceutical companies?

CRG has enjoyed a successful collaboration program with Sanofi for the last five years, although the company recently disbanded its exploratory unit due to the crisis and now we need to find new ways to continue this project. The Center also works with business students from South Africa for six months at a time, financed by Novartis' affiliate there. There are also a number of individual collaborations with biotech companies or industry. Apart from Sanofi and Novartis we do not have any institutional agreements.

The Center covers a number of areas including bioinformatics and genomics, cell biology, and gene regulation. What are the real strengths of CRG in terms of output?

Our strength is that we cover many areas and this allows for more collaborations and the possibility to launch large interdisciplinary projects. Our weakness is that unlike institutes like CNIO, which has a very clear focus on cancer, it is more difficult to obtain sponsorship and donations due to our lack of association with any particular topic. We do very well at the level of publications but this is not enough to establish agreements with companies or to receive donations or sponsorship.

CRG is indeed very interdisciplinary in nature and has invested lots of money in equipment for a wide variety of activities.

There are not so many institutes in Europe with the level of core facilities and services that we provide. CRG is part of an alliance we helped to create called Core for Life (www.coreforlife.eu) that

consists of several institutes across Europe with a similar structure of core facilities. Many institutes have just one or two facilities but not the kind of facilities to truly build a line of research and support scientists. More institutes will need this because biology is becoming very expensive and instrument-dependent. For instance, it is quite difficult for a research group to run mass spectrometry; such activity must be centralized.

In 2011, you said you were going to make CRG the European benchmark in human genome analysis. How have you progressed in reaching that goal?

We are not quite there yet. This is not an easy goal to reach because competition across Europe is strong. However, over the last couple of years the Center has become a place of excellence, and it is certainly on the map. In terms of genome analysis we have well-known groups but we have not achieved the reference status. We are trying to launch research programs with hospitals with a focus on analyzing and sequencing human microbiomes in partnership with local hospitals and foundations. We are now engaging in different activities which are not group-based but institute-based to become a leader in genome analysis across all species.

What is your assessment of Spain’s capability for genomics research?

Of course Spain has a number of very high-quality institutes and hospitals. One of the biggest problems here is fragmentation; there are simply too many institutes in Barcelona. It does not make sense. Many of these institutes should either merge or establish alliances to tackle big projects. Spain is part of a number of very large consortia, but we are not being asked the ones that started international project. The challenge for us now as a country is to evolve from being a follower to a leader. Spain has the capacity in terms of know-how, technology, hospitals and institutes to launch something big that other countries will follow. In general we need to think about this more. Such a project could be focused not only on human health but on many other topics like plant science, but there needs to at least be something in which Spain will take the lead and others join.

What are your own aims in the coming years?

I would like the CRG to become a reference institute. Apart from that, the Center has excellence in research, tech transfer, translational research, communication to society, and these are our primary goals. The institute engages in many activities with children, schools, and with the public (www.crg.eu/outreach). CRG offers training at all levels and we are now implementing new training courses for students and postdocs to provide alternatives that are not only based in science. We are creating more links and agreements with hospitals. If we are successful in improving our

technology transfer over the next few years I will be happy. Finally I would like to increase the scope of CRG, primarily through a monumental project that is centered here in Barcelona.

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