Interview: Enrique Samper, President and CEO, NIMGenetics, Spain

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NIMGenetics is a leading Spanish company in the area of genetic diagnostics. The company's president and CEO, Enrique Samper, traces the evolution of NIMGenetics over the last four years, its cutting-edge technology in genomic tests and his plans to internationalize the company in Latin America and India.

What is lacking in Spain's system that would create more encouragement by the government to provide proper funding for science and innovation?

This issue is not specific to the current government; rather it is more widespread throughout different governments. This concerns the Spanish way of thinking about the world and who we are. I think that Spaniards have traditionally relied on other people to develop and innovate, and until 50 years ago, there was not much going on in Spain in biomedicine and biotech. This area of research is not embedded into our "genes" like it is in the Anglo-Saxon culture. We are a bit myopic in terms of looking at the future. Technology will lead progress, and the economics of technological advancements and companies will be absolutely fundamental to ameliorating the lives of people and improving the economics of the country. The government needs more expert vision, as well as clear examples as to how science and technology can be transferred into economic wealth.

Technology transfer must improve in Spain because the quality of science is very high, but the commercial area is challenging. Universities in particular seem to be hard hit by

the crisis; how can they get the best resources available today?

Having been trained in the US, my experience of the innovation ecosystem and education system is very different. Spanish students want to become a public servant with a good job and some security. American students want to become a top doctor, businessman or engineer. Spain lacks the part of the educational (From High School to Universities and R+D Institutes) system that directs people towards entrepreneurship. It takes a lot of time to change the mentality of the population. Secondly, we are missing general education about science and technology in the public itself. There is very little awareness of the value of science, medicine, innovation in the general population, which must be translated to people more convincingly.

NIMGenetics focuses on genetic diagnostics for DNA microarrays and next generation sequencing. In your position as CEO, what are your biggest current priorities?

NIMGenetics started six years ago with little funds and thus was born under very harsh conditions. We did crowdfunding between family, friends and contacts to get started. Essentially, we wanted to put all the know-how that Spanish scientists have and translate that into a company that creates value through providing better genetic diagnostics wherever we can reach. Our goal is to make genetic diagnostics useful, affordable and widespread. We believe that having a genetic diagnostic result early on in the pathology will have a very significant impact on the lives of people and this includes the affected patient, the patient’s family, the doctor and the global health economic system wherever we are.

How do you demonstrate the value of your products in Spain and worldwide?

We do many genetic diagnostics in pediatric cases, usually children with a genetic malformation, mental retardation syndrome or autism. Sometimes the pathology is not very clear as to what is the cause, so these children undergo a series of tests, in and out of hospitals for a very long time, seeing a variety of specialists. This is a difficult experience for all stakeholders. NIMGenetics provides a very specific tool in which we provide a correct diagnostic, identifying the cause of the problem very quickly and precisely. We are currently undergoing some pharmacoeconomic studies for our microarray technology that we can apply to different fields and this is indeed a profitable way of approaching the diagnostic; NIMGenetics often finds the genetic cause quickly, providing clinically relevant results in a few weeks, rather than going through different tests for years.

How do you compete with the trend among big pharma companies to develop companion diagnostics?

Companion diagnostics will be a game-changer in the pharmaceutical industry, since companies need to prove that their drugs are indeed useful. The majority of illnesses and pathologies have a genetic compound, and individuals have unique reactions to drugs. In oncology, where companion diagnostics are more advanced, it is essential to know the exact characteristics of a tumor because we cannot treat patients with chemotherapies that only work for 50 percent of the population. NIMGenetics provides genetic diagnostics for individualized and personalized medicines to characterize mutations in tumors. By determining the genetic profile of that tumor, the clinician can attack the tumor with the most powerful tools they have in chemotherapy. NIMGenetics will have a significant footprint in this area.

In terms of our prenatal and pediatric genetic diagnostics, NIMGenetics has designed a set of tests that identify problems in chromosomes based on a very clinically oriented design. With three billion base pairs, the genome is very large and complex and has many components for which scientists have still not determined their exact function. Our prenatal diagnostic focuses on more than 124 syndromes, allowing us to determine the relationship with a missing gene or missing part of a genome and its clinical significance. The correlation is very direct, allowing us to help clinicians identify problems in pregnancies very easily. To add value to the clinical community, we work with knowledgeable individuals from the CNIO and CNIC with over 20 years of clinical genetic experience.

The company has many products and services already available; in 2012 NIMGenetics commercialized Trisonim, which detects a number of syndromes in maternal mothers. What has been the response from the medical community of this product?

NIMGenetics was the first company to put this type of product into the market in Spain in June 2012, and it has been revolutionary. Trisonim provides extremely precise information about the occurrence of eight different chromosomal syndromes.. We were the first company to introduce this product into Spain through direct collaboration and association with the Beijing Genomics Institute, the largest genomics company in the world. This partnership came into being through our development of KaryoNIM, a groundbreaking prenatal test, through a research project sponsored by CDTI. Six months after our introduction of Trisonim, other companies starting commercializing similar non-invasive fetal tests using related technology but of lesser diagnostic power. The advantage of Trisonim is its ability to read the complete sequence of the DNA of fetal DNA in maternal blood. Competing products read small fragments of the genome called single nucleotide polymorphisms (SNPs), which are informative for very large chromosomal syndromes (i.e. Down Syndrome), but less so for smaller syndromes, of which there are many. We have chosen very good

technological partners and because of our 20 years experience in genetics we are able to permeate the gynecological medical community successfully.

NIMGenetics has an aggressive internationalization strategy. As a company of this size, how are you able to get your name out there as well as you have?

The know-how in genetics combined with an excellent management team sets NIMGenetics apart from the competition. The vision of the company is a bit different as we are still a small Spanish biotechnology company. The experience of NIMGenetics' founders in the United States has also probably played a role; we were all exposed to doing things differently. We had the opportunity to visit Silicon Valley a few years ago, and seeing the tremendous growth of tech companies there has certainly provided a boost. My vision is to internationalize the company as much as possible. We focus on different markets, starting in emerging regions where the natality rate is much higher like India and certain parts of Latin America. This plan is very ambitious and NIMGenetics cannot do it alone. We joined forces with the Instituto de Medicina Genómica (IMEGEN) in Valencia, which also specializes in genetic diagnostics using complementary tests. Together, we will go to Mexico, Colombia, Peru and Chile with a combined portfolio of 1400 genetic tests, and we stand a good chance to become a leading player. In India, we have signed a letter of intent which is a first step into the service contract agreement with one of the largest laboratories of clinical diagnostic and pathology laboratories in the country. That will be a very powerful synergy. In both Latin America and India, the technology has not been fully commercialized, so now is the time to enter these countries. If we do not make this effort now, perhaps in three years it will be too late. We must make the effort to do this and improve the lives of thousands and thousands of people.

How have you instilled your entrepreneurial experience among your team here?

We are 35 people at NIMGenetics, and this includes a sales force of about 10 individuals. To date, there is very little biotech venture capital in Spain compared to Silicon Valley or Boston. The only way we can make this happen is through a recurring cash flow. We have to generate the majority of our revenues for growth. There are a set of investors in NIMGenetics that have been very faithful to us. So far yet we do not have an institutional investor, but we have grown from zero to 35 people and about €4 million in revenue this year with only €600,000 in total capital invested in NIMGenetics. This has been also supported by a series of public organizations in Spain like CDTI and ENISA. These groups provide us with small grants and loans, for another million Euros or so. Still, we have been very capital-efficient because this growth would have cost at least threefold in the US with our talent.

What are your ambitions for the next five years?

We have been in business for six years and growth has been about 75% CAGR; our aim is to grow 100 percent per year, which is easy as a startup but becomes more difficult with each passing year. We will focus on international markets as we already have significant presence in Spain, where we can have a market share of 25 percent for our tests. Spain will continue to be a place of growth, but our greatest opportunity is international. In five years' time, we hope to be recognized as significant partners in the genetic diagnostics field across five continents.

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