



ROKE I. ORUEZABAL
Director of Innovation

CNIO's Research Groups participate in many of the most relevant international scientific societies and research networks. International cooperation with the biotech and pharma sectors increased in 2022 with more agreements signed than ever, deals managed by the Technology Transfer and Valorisation Office. Besides the strengthened collaborations with pharma companies such as Janssen, Loxo Oncology, Boehringer Ingelheim, and Bristol Myers Squibb (among others), the CNIO, with the Experimental Therapeutics Programme in the lead, was also successful in generating and stepping up alliances with foreign biotech companies and public research institutions, giving added value to the CNIO's small-compound library. This reflects the fact that half of the patents in the CNIO's portfolio have been licensed out, an astonishing achievement for a public research institution. Once again, the CNIO broke another barrier thanks to its Biotechnology Programme, signing contracts with industry for an amount above €1.5 million, especially in the monoclonal antibodies field.

The volume of collaborative research agreements signed in 2022 represents almost €2.4 million in revenue for CNIO. On

the other hand, in 2022, the net income from CNIO's 2021 asset licensing equalled €1.3 million. Among the new license agreements signed in 2022, in addition to cell lines and antibodies, it is worth highlighting strategic alliances with research centres of excellence, such as the *IRB*, pharmaceutical companies like Loxo Oncology, or biotech companies as Rejuvenon.

Currently, the CNIO's active patent portfolio comprises 48 families of patents. In 2022 a total of 12 patents entered the international phase (PCT). As in previous years, we monitored the possible inventions derived from the work of CNIO scientists.

In 2022, a total of 5 projects were awarded within the framework of the National *AEI* Innovation calls, endowed with over €1.7 million. Of these, 2 were "Strategic Lines" projects in collaboration with the pharmaceutical companies PharmaMar and Lilly: "Manipulation of tumour replication to resensitise against immunotherapy" (Luis Paz-Ares) and "Patient-derived pancreatic tumour organoids: a better

“CNIO's commitment with innovation has continued for another year, hand in hand with private and public partners, in a joint effort to eradicate cancer.”

predictive alternative to animal models" (Mariano Barbacid). Another project corresponds to the "Proof of Concept" call, "Implementation of treatments directed at CDK16-18 for the treatment of cancer" (Marcos Malumbres). Similarly, within the call for "Public-Private Collaboration", 2 collaborations were approved: "An effective and safe system for the treatment of atrial fibrillation through irreversible electroporation" (Fernando Peláez), developed with MedLumics; and "Development of a new gene therapy for the treatment of idiopathic fibrosis" (Maria A. Blasco), coordinated by the CNIO spin-off Telomere Therapeutics.

Within the field of personalised precision medicine, in 2022, 2 projects were awarded by the *ISCIII*, co-funded by "NextGenerationEU": "Integrating longitudinal patient-generated data and multi-omic profiling for comprehensive precision oncology in women's cancers" (Miguel Ángel Quintela), receiving approximately €2.5 million; and "Development and implementation of a functional genomics validation platform for undiagnosed hereditary cancer" (Mercedes Robledo), with nearly €3 million in funding.

At an international level, 2 projects were awarded in the context of Horizon Europe in 2022: the first, a proof-of-concept study entitled "Targeting RANK receptor as a novel therapeutic

strategy in triple negative breast cancer" (Eva González); and the second, encompassed within the Innovative Health Initiative (IHI), entitled "GUIDing multi-moDal thERapies against MRD by liquid biopsies - GUIDE.MRD" (Núria Malats), receiving more than €1.2 million funding.

Among the research contracts with the pharmaceutical industry signed in 2022, those with the CNIO spin-off Telomere Therapeutics, as well as Rejuvenon, Bionam Biotech *AEI*, Loxo Oncology, Altos Labs, and Mirati Therapeutics, stand out. Likewise, strategic alliances were generated with the pharmaceutical companies Sanofi and Ammirall in order to participate in their Open Innovation programmes.

Finally, the Innovation Department, with the aim of fostering the culture of innovation and with the support of the *Fundación Banco de Santander*, selected 3 CNIO researchers to participate in the *Instituto de Empresa* business school course, "Accelerate: Building Business from Science and Technology", which will be held in 2023.

As a research institution of excellence, the CNIO has developed a strong commitment to innovation and public-private collaboration, commitment that will have an impact on our society in the form of new therapies and new hope for families. ■