

TECHNOLOGY TRANSFER AND VALORISATION OFFICE (TTVO)

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TTVO contributes to translating CNIO research and innovation for society's benefit by ensuring appropriate protection of intellectual property and by channelling the technologies that arise from our research to companies and entrepreneurs to develop them further and thereby impact society.

The activities of the TTVO during 2022 focused on: monitoring CNIO's scientific developments; identifying new inventions; protecting and managing industrial and intellectual property at the CNIO; managing contracts with other institutions and industry; and, finally, commercialising and exploiting CNIO's assets to promote impact on the biomedical industrial sector and society, both through exploitation licenses and through the creation of spin-off companies.

TTVO manages a portfolio of 48 active patent families, and provides advice and assistance during the drafting of patent documents, their filing, and the prosecution process. In 2022, 4 priority patent applications were filed, one of them co-owned with *Academisch Ziekenhuis Leiden (LUMC)*. These 4 new patents protect quite varied inventions, including: telomerase gene therapy for kidney fibrosis; a signature for prognosis of brain metastasis relapse; a nucleic acid detection method; and a device and method for cryo-EM sample preparation. Moreover, 12 PCT (Patent Cooperation Treaty) applications for international extension were also filed in 2022.

In addition to the patents, an algorithm for precision nutrition was registered through the Safe Creative intellectual property registry. This will be licensed to a new spin-off in which the CNIO and the Foundation for Biomedical Research of the University Hospital *12 de Octubre (FIBH12O)* will participate.

For yet another year, licensed patents make up a remarkable 50% of the CNIO portfolio. In 2022, the patent family WO2019002581, "Identification and elimination of damaged and/or senescent cells", was licensed to the Swiss company Rejuveron. In addition, the patent PCT/EP2022/051505, "Telomerase reverse transcriptase therapy for kidney fibrosis and non-human animals thereof", was incorporated into the license agreement with Telomere Therapeutics.

In 2022, the TTVO managed 330 agreements (MTAs, CDAs, research collaborations, licenses, etc.). The majority of these agreements (65%) were established with international entities, which is an indicator of the internationalisation of CNIO's research activity. Through collaborations with industry, €2.4 million were secured for research activities.

“Our Office is fully aligned with the CNIO objective of translating new discoveries in cancer prevention, diagnosis, and treatment for the benefit of society.”

Among the most outstanding agreements signed this year with the private sector is the continuation of the collaboration with Loxo Oncology. This work agreement has been renewed for the period 2022-2023 with a budget of €1.8 million. Other relevant agreements with the private sector include one for €0.24 million with the company Astra Zeneca Ltd. (UK), for a project developed in collaboration with the Brain Metastasis Group; and another agreement for €0.1 million with the company Circle Pharma Inc. (USA), for a project developed in collaboration with the Cell Division and Cancer Group and the Breast Cancer Clinical Research Unit. Also signed was an addendum to the collaboration contract with *CRIS* against Cancer and Bionam Biotech *AIE* for a pancreatic cancer project of the Experimental Oncology Group, with a budget of €0.1 million; and a research agreement with the company Mirati Therapeutics Inc. (USA) of €0.14 million for a project of the same group. Finally, research agreements have been signed with other companies such as MeCo Diagnostics Holdings Inc. (USA) for €0.07 million for a breast cancer project that will be carried out by the Breast Cancer Clinical Research Unit; and an agreement of €0.01 million with Rocket Pharmaceuticals Inc. (USA) for collaboration with the Molecular Cytogenetics Unit.

Patents and unpatented research tools (murine lines, cell lines and antibodies) are licensed to provide financial return to CNIO. The net income generated in 2021 from CNIO asset licenses totalled €1.3 million (about € 1 million from monoclonal antibodies).

All of the achievements mentioned here stand as a testament to the excellence and hard work of CNIO scientists and to CNIO's unwavering encouragement of innovation and technology transfer activities. ■