

EMBARGOED UNTIL MARCH 26TH 2021

Graphene Flagship partner's spin-off INBRAIN Neuroelectronics raises over €14M to develop smart graphene-based neural implants for personalised therapies in brain disorders.

- INBRAIN Neuroelectronics is a spin-off company of the Catalan Institute of Nanoscience and Nanotechnology (ICN2) and ICREA.
- The company announces a €14.35M Series A investment, co-led by Asabys Partners and Alta Life Sciences, and joined by Vsquared Ventures (Germany), TruVenturo (Germany) and CDTI (Spanish Ministry of Science and Innovation).
- INBRAIN has the mission to decode brain signals into medical solutions by developing intelligent neuroelectronic therapies based on graphene technology for application in patients with epilepsy, Parkinson's and other brain related disorders.

Barcelona, March 26th, 2021

[INBRAIN Neuroelectronics](#) is a spin-off company of the Catalan Institute of Nanoscience and Nanotechnology (ICN2), partner of the Graphene Flagship, and ICREA. It was established in 2019, at the intersection between MedTech, DeepTech and Digital Health, with the mission to decode brain signals into medical solutions for application in patients with epilepsy, Parkinson's disease and other neurological disorders. The company designs small implantable brain **intelligent systems**, with the ability **to decode with unprecedented high fidelity brain signals to produce a therapeutic response, adapted to the clinical condition of the specific patient.**

In June 2020, INBRAIN received a first seed investment from a syndicate of investors led by Asabys Partners (through Sabadell-Asabys Health Innovation Investment) and Alta Life Sciences, including the *Institut Català de Finances* (ICF), Finaves (IESE Business School) and BStartup. **Today the company announces a €14.35M Series A investment**, one of the biggest rounds in the Spanish medtech industry, co-led by Asabys Partners and Alta Life Sciences, and joined by Vsquared Ventures, a deep tech focused early-stage venture capitalist based in Munich, TruVenturo GmbH, Germany's most successful internet company builders, and CDTI (Spanish Ministry of Science and Innovation). The financing round also counts with the follow-on investment from ICF Venture Tech II, investment fund from the ICF.

This investment will allow INBRAIN to bring for the first time this technology, **built around an innovative nanoscale graphene electrode**, to humans and to consolidate the safety of the material as the potential new standard of care in neurotechnologies.

According to a 2010 study commissioned by the European Brain Council, the cost of brain disorders in Europe alone reaches approximately 800 billion euros a year, with more than one-third of the population affected. Between 25% and 35% of patients having a neuronal disease are refractory to pharmacological treatment and are left without an effective therapy. The high incidence of brain-related diseases worldwide and their huge social cost call for greater investments in basic research in this field, with the aim of developing new and more efficient therapeutic and diagnostic tools.

Existing brain interfaces are based on metals (such as platinum and iridium), with significant restrictions on miniaturization and signal resolution, and therefore responsible for considerable side effects. As a consequence, there is a 50% rejection rate in candidate patients. INBRAIN

Neuroelectronics' disruptive technology, based on the novel material graphene, will overcome the current limitations of metal-based neural interfaces.

INBRAIN Neuroelectronics is bringing a complete technological transformation to the treatment of neurological diseases. Its brain implantable intelligent systems are based on **graphene electrodes**, which allow miniaturization to nanoscale fabrication, with the potential to reach single-neuron resolution. The extraordinary properties of graphene –which is light, biocompatible, flexible and extremely conductive– are harnessed in much smaller devices that are safer to implant and can be programmed, upgraded and recharged wirelessly.

Driven by **artificial intelligence**, the implant can learn from the brain of the specific patient and trigger adaptive responses to deliver a personalised neurological therapy. In addition, the use of **Big Data Management** will permit remote monitoring of the device and data processing.

The technology has already been validated in *in-vitro* and *in-vivo*, biocompatibility and toxicity tests have been successful. Studies on large animals have been completed and the investment will **be dedicated to bring the technology to human patients**, in collaboration with key neurosurgical and neurological groups in Europe.

INBRAIN is directed by **Carolina Aguilar (Former Medtronic Deep Brain Stimulation European and Global Commercialization Director)** and was founded, among others, by ICREA Prof. **Jose A. Garrido**, leader of the ICN2 [Advanced Electronic Materials and Devices](#) Group, Prof. **Kostas Kostarelos**, leader of the ICN2 [Nanomedicine](#) Group and Professor and Chair of Nanomedicine at the National Graphene Institute and the Faculty of Biology, Medicine and Health of the University of Manchester (UK), and Dr **Anton Guimerà**, a researcher at the Barcelona Institute of Microelectronics (IMB-CNM-CSIC). The technology development team is formed by neurotechnology experts such as **Bert Bakker** (CTO) and **Michel Decre** (Technology Advisor & Board Member) from Philips and other European successful neurotechnology startups

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About INBRAIN Neuroelectronics

INBRAIN Neuroelectronics S.L. is a neurotechnology company dedicated to the development and commercialization of graphene-based neural interfaces and intelligent neuromodulation systems. Founded in 2019, the company is a spin-off from the Catalan Institute of Nanoscience and Nanotechnology (ICN2) in Barcelona, with intellectual technological property as a result of the collaboration with the National Graphene Institute of the University of Manchester. INBRAIN is developing the least invasive and most intelligent neural

interface on the market that will be able to read and modulate brain activity with very high resolution to obtain optimal results in personalized neurological therapies. For more information, please visit inbrain-neuroelectronics.com.

About Asabys Partners

Asabys Partners is a venture capital manager specialized in the healthcare sector, founded by Josep Ll. Sanfeliu and Clara Campàs and participated by Alantra. Its first investment vehicle, *Sabadell Asabys Health Innovation Investments SCR, SA*, was launched in 2019 and is backed by the Banc Sabadell as reference investor. The fund has a target size of more than €80M and invests in healthcare companies across three verticals: medtech, digital therapeutics and biotech, that have highly innovative and disruptive technologies. www.asabys.com

About Alta Life Sciences

Alta Life Sciences is a leading venture capital investment firm headquartered in Barcelona, Spain that acts as investment advisor to the fund ALSS I FCR. The fund invests in companies at all stages of development from seed financing through to commercial growth and in all areas of life sciences including biotechnology, medical devices, diagnostics, genomics and digital health. Altamar Private Equity SGIC, a leading independent firm in the management of international private equity and other private assets, is ALSS I FCR's management company. www.altals.com

About CDTI

CDTI is the body from the General State Administration that supports knowledge-based innovation, advising and offering public aid for innovation through subsidies or partially reimbursable aids. CDTI also internationalizes the R&D and innovation business projects of Spanish companies and entities and manages Spanish participation in international R&D organizations, such as Horizonte2020 and Eureka, as well as in the Science and Space industries. Additionally, through the Innvierte Economía Sostenible initiative, it supports and facilitates the capitalization of technology companies. www.cdti.es

About VSquared Ventures

Vsquared Ventures is a VC firm based in Munich. Backed by leading European technology entrepreneurs and family offices, Vsquared Ventures embraces technology to advance society. Past founding investments include Isar Aerospace and IQM Quantum Computers among others. www.vsquared.vc

About TruVenturo

TruVenturo is one of the most successful early stage investors and company builders in Europe. For over a decade TruVenturo has been investing at the forefront of digitalization and life sciences, always focusing on identifying big future markets and disruptive business models. Therefore, the team is a strong believer in pharma to prevent age related disease and prolong healthy human lifespan as well as utilising neurostimulation technologies to create bi-directional Computer-Brain-Interfaces. TruVenturo's current portfolio includes over 20 companies, among them several industry leaders and hidden champions. www.truventuro.com

About ICF Venture Tech II

ICF Venture Tech II FCRE is a €20M venture capital fund managed by ICF Capital SGEIC that invests in technology and innovative companies with high growth potential in early stage and Series A. It is one of the four venture capital funds directly managed by Institut Català de Finances. Investments are mainly in equity or debt/convertible debt, preferably in co-investment with other funds. The ticket size is between €500,000 and €2M. www.icf.cat