BioSynaptica S.A.

An innovative medicine to treat neurodegenerative diseases

Verticals
Biotechnology
Human Health

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Team
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Co-founder- Researcher
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Co-founder - Director
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Co-founder - CTO

Previous funding
USD 124,000
Founders
USD 100,000
Aceleradora Litoral
USD 200,000
FONDCE - BICE

Required investment
USD 2M
Operative actions (production process development, scale-up and analytical development).
Analysis and complementary tests (proof of concept in animal models).
Technical consultancies.

Institutions linked to IP
UNL
CONICET
UNSAM

Strategic alliances
Aceleradora Litoral
Biotechnological Center of Litoral (FBCB-UNL)
Max-Planck-Institut für Multidisziplinäre Naturwissenschaften (Germany)
ICIVET (UNL)
CAB-Startups (Argentine Chamber of Biotechnology)

Summary
We are a Technology-Based Company incubated at the School of Biochemistry and Biological Sciences of the Universidad Nacional del Litoral (UNL) in the city of Santa Fe, Argentina. Our development focuses on the generation of an innovative neuropharmaceutical from human erythropoietin (hEPO) derivatives designed to meet the needs of millions of people suffering from central nervous system conditions, such as Parkinson's and Alzheimer's diseases, amyotrophic lateral sclerosis, multiple sclerosis, neurotraumas, among others.

Detected problem
Neurodegenerative diseases are disorders characterized by a progressive deterioration in motor function and/or cognition caused by a selective loss of neurons from the central nervous system. The best-known diseases such as Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis, among many others, are responsible of serious cognitive, physical, and psychosocial consequences and represent one of the main causes of morbidity in western countries. Besides, despite their significant worldwide increment, there are no current effective treatments to prevent or cure them.

Technological solution
hEPO is a widely-used biotherapeutic product for the treatment of anemia, since it is responsible for the production and maintenance of red blood cells in circulation (erythropoiesis). This protein also protects neurons from the damage caused by neurotoxic agents (neuroprotection), reduces neuroinflammation and restores neuronal connections (neuroplasticity). However, when it is designed as a neuropharmaceutic for patients who do not suffer from anemia, the molecule displays erythropoiesis-associated side effects. At BioSynaptica, we modified the hEPO molecule by blocking the undesirable erythropoietic activity but preserving its neuroprotective and neuroplastic capacity and improving the properties and, as a result, we obtained a therapeutic candidate for the treatment of chronic diseases.

Market
The global central nervous system treatment market size was USD 116 billion in 2021 and is expected to expand at a CAGR of 9.4% from 2021 to 2028. The neurodegenerative disease drug market size reached USD 40 billion in 2021 and is expected to register a CAGR of 3.1% over the same period.
The target market segment is biotechnology and/or pharmaceutical companies that may incorporate an innovative drug into their product portfolio. These companies will be able to commercialize the drug in a monopoly for 12 to 15 years in several countries from Asia, Europe, Oceania and America.

Monetization model
B2B: Licensing and royalties.
Initial development results were protected by patent requests in Argentina and via PCT with WIPO. Based on the positive evaluation of this latest application, a patent nationalization phase was initiated in more than 20 countries in Asia, Europe, Oceania and America.
BioSynaptica will carry out successive rounds of investment to perform proof of concept tests in animal models of specific diseases, pre-clinical studies, and clinical trials phases I—II in the context of the medicinal species registration in Argentina and in other countries. Once these objectives are achieved, the technology will be sub-licensed to one or more pharmaceutical companies to perform clinical phase III and the drug introduction to the market. Initial payments, payments for fulfilling milestones, and royalties on sales will be collected.