BioSynaptica S.A.

Targeting Neurodegeneration with Engineered Erythropoietin

Verticals
Biotechnology
Human Health

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Team
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Co-founder- CSO
Matías Depetris
Co-founder - CEO
Marcos Oggero Eberhardt
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Co-founder - Researcher

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

Required investment
USD 1.5 M
Operations
Manufacturing Process Development
Analytical Development
Proof-of-Concept in Animal Models
Preclinical Initiation

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)
ITERA – Inteligencia Tecnológica.
LoM – Smart Finance.
Parque Tecnológico del Litoral Centro (PTLC, Santa Fe).
IPMont (Uruguay)
CAB Startup (Argentina)

BioSynaptica is a biotech startup pioneering the development of innovative biotherapeutics derived from human erythropoietin (hEPO) for the treatment of neurodegenerative disorders, with a focus on retinal diseases.

Retinopathies: A Major Global Cause of Blindness

Retinopathies, particularly proliferative retinopathies, are a leading cause of blindness worldwide. They are characterized by pathological neovascularization (uncontrolled formation of abnormal blood vessels) in the retina, and by the severe damage and dysfunction of retinal nerve cells, which contribute to disease progression. Current treatments, based on monoclonal antibodies (Avastin™, Lucentis™, and Eylea™), target only neovascularization and have no effect on the affected nerve cells.

A Novel hEPO-Derived Molecule for Retinal Disease Treatment

Human erythropoietin (hEPO) is a biotherapeutic used to treat anemia due to its ability to stimulate red blood cell production (erythropoiesis). In addition, hEPO exhibits neuroprotective and neuroplastic activities: it protects neurons from neurotoxic damage, reduces neuroinflammation, and promotes neuronal connections.

However, when used as a neurodrug in non-anemic patients, hEPO can cause side effects related to its erythropoietic activity. BioSynaptica has developed a new hEPO molecule that blocks the erythropoietic activity (undesirable effect) while preserving its neuroprotective and neuroplastic capabilities, as demonstrated in *in vitro* and *in vivo* studies.

In an *in vivo* model of proliferative retinopathy, this new molecule showed conclusive results on the two main components of the damage process: neuronal and vascular. This would translate into a superior effect compared to current treatments.

Our novel hEPO molecule has patent applications in Europe and 14 other countries, covering around 60% of the global market. Positive patentability opinion from the PCT international examiner strengthens our position. We've already secured a patent grant in Israel and Rusia, with the overall patent portfolio expiring in 2039.

Market Overview

The global market for therapeutics in the treatment of neurodegenerative diseases was valued at USD 40 billion, with a CAGR of 3.1% in the same period.

In particular, retinopathies represent a USD 18 billion market, with an estimated CAGR of 6.4% (2022-2030).

The target market segment for BioSynaptica's business consists of biotechnology and/or pharmaceutical companies that can incorporate an innovative biotherapeutic for the treatment of retinopathies into their product portfolio.

B2B Licensing and Royalty Model

BioSynaptica will conduct investment rounds to carry out proof-of-concept studies in animal models of specific pathologies, starting with retinal disorders, and then conduct the corresponding preclinical trials. Once these objectives are achieved, the technology will be sublicensed to one or more pharmaceutical companies for clinical trials up to, eventually, the introduction of the drug to the market, charging upfront payments, milestone payments, and royalties on net sales. This model will be replicated to cover other neurodegenerative diseases that can be treated with our technology.