PROFILE

Limno Pharma is a pharmaceutical company dedicated to the research and development of novel treatments for ophthalmic diseases. Our focus is on the treatment of retinal degenerative diseases, pathologies affecting over 200 million people worldwide and with scarce treatment. The main competitive advantage of our first product, LIM21, over marketed drugs is the topical administration as eye drops, while scarce current treatments are administered as intraocular injections.

SPEAKER

Elena Puerta-Fernández, CEO. BS Pharm, PhD in Biochemistry and Molecular Biology (University of Granada) and Executive MBA candidate (EAE Business School). After an international research career longer than 15 years, she joined Abengoa Research, as Senior Scientist, where she worked in R&D in the Bioenergy sector for 5 years. An expert in Biotechnology, Microbiology and Genetics she joined Limnopharma as CEO in 2020.

epuerta@limnopharma.com

PRODUCT

LIM21, a treatment for retinitis pigmentosa (RP) and age-related macular degeneration (AMD)

MECHANISM OF ACTION

LIM21 is a chemical derivative of a natural product (new chemical entity) which shows high efficacy decreasing the symptoms of RP and dry AMD in mouse models. LIM21 is a small molecule, easy and inexpensive to manufacture and very stable. Since it is not a gene therapy, all patients suffering RP or dry-AMD could benefit from it.

LIM21 is a small molecule with relevant antioxidant and anti-inflammatory properties. Chemically is formed by two natural products with important neuroprotective characteristics that have previously shown positive effect improving ocular structure and function in patients suffering retinal degenerative pathologies and positive effects in patients suffering neurological pathologies.

LIM21 modulates the activity of a key epigenetic metabolic regulator, involved in processes such as aging, inflammation and apoptosis, which is already considered a good target for retinal degenerative pathologies.

TARGET INDICATIONS

Ophthalmology: Topical treatment for retinitis pigmentosa (RP) and dry age-related macular degeneration (dry-AMD). Possibility of using our drug for the topical treatment of other retinal degenerative pathologies, such as diabetic retinopathy.

CURRENT STATUS

- We have completed LIM21 proof of concept for RP and dry-AMD, with demonstrated efficacy in two animal experimental models for RP and one experimental model for dry-AMD.
- We have substantial data supporting a mechanism of action involving modulation of a key epigenetic metabolic regulator.
- We have performed some preliminary preclinical studies: ocular tolerability studies in rabbits and ocular biodistribution in rats.

- We have also demonstrated that LIM21 reaches the back of the eye, both in rats and rabbits.
- We have scaled up the synthesis of LIM21 up to 80 grams and are currently optimizing the topical formulation.

INNOVATIVE ASPECTS

- The main competitive advantage of LIM21 over Luxturna® (RP gene therapy), anti-VEGF therapies and other drugs under development, is the topical administration as eye drops. Eye drops administration will greatly improve patients' quality of life, helping with treatment compliance (therefore increasing efficacy) and decreasing treatment costs.
- Marketed drugs for RP and AMD include only Luxturna®, an RP gene therapy useful for 2% of patients (those carrying a mutation in the RPE-65 gene), and anti-VEGF therapies, useful for patients suffering wet-AMD (10% of AMD patients). These treatments are advanced therapies that must be administered as intraocular injections.
- Regarding drugs under development, most drugs (over 80%) are complex biomolecules or gene therapies that would also be administered as injections. LIM21 is a topical treatment that would be administered topically as eye drops. This will allow long-term treatments, due to the non-aggressive administration.
- LIM21 is a small molecule, easy and inexpensive to manufacture, stable and potentially less immunogenic than biological drugs.

IPR

Our technology is protected under two patents, WO 2018/096196 and WO 2018/100219, licensed exclusively to Limnopharma. WO 2018/096196 includes LIM21, has been extended to US and EU, and it has been recently granted in US. WO 2018/100219 has been extended to EU, US, Japan, China, Canada, Australia and Mexico and granted in US.

PARTNERING OPPORTUNITIES

We are opened to any kind of collaboration with the pharmaceutical industry, either licensing the technology and/or co-development agreements. We are currently raising funds for CMC & preclinical development and are willing to discuss equity investments.

Regarding financing, we have closed seed round (€ 500K) through public and private funding and we are currently raising funds (€4M) for performing LIM21 preclinical experiments (regulatory and non-regulatory), that will be completed by Q3 2023.