Fighting Programmed Cell Death

Developing Drug Candidates Intended to Block Cellular Regulated Necrosis

SeaBeLife, a French biotechnology company, leverages its proprietary technology platform enabling the development and production of first-in-class drugs designed to block regulated necrosis (or regulated cell death). The substances target and treat acute pathologies with no effective treatments affecting vital organs such as the liver and kidneys. Morgane Rousselot, SeaBeLife's co-founder and CEO, talks about the company's innovative technology and plans to expand into other disease areas.

CHEManager: What does the name SeaBeLife mean?

Morgane Rousselot: In line with our motto 'From Sea to Life!' SeaBeLife is developing molecules that will improve the quality of life for patients with acute and severe pathologies. These are small molecules, capable of inhibiting regulated necrosis. Originally identified in the collections of the Station Biologique de Roscoff, some of them were bio-inspired by the marine environment. This is the fruit of the Laboratoire de Biologie Intégrative des Modèles Marins — LBI2M, UMR8227 — and the KISSf molecular screening facility's labor, focusing on the selection of chemical inhibitors of protein kinases.

What was the starting point and motivation for founding SeaBeLife?

M. Rousselot: The company was created from the research work of Stéphane Bach, a CNRS research engineer and scientific manager of the Roscoff KISSf screening platform, Marie-Thérèse Dimanche-Boitrel, research director at IRSET — the Institut de Recherche en Santé, Environnement et Travail – and Claire Delehouzé, SeaBeLife's scientific director and associate biotechnology engineer.

SeaBeLife's technology is based on a portfolio of over 150 biologically active, relevant molecules with the unique specificity of inhibiting two forms of regulated necrosis cell death activated in pathological conditions: necroptosis and ferroptosis.

The company was founded in 2019 and is presided over by CEO Morgane Rousselot, and Claire Delehouzé, with the entrepreneurial objective of accelerating development and advancing its pipeline.

What makes the company's technology so unique?

M. Rousselot: SeaBeLife's first-in-class small molecule is a dual inhibitor of regulated necrosis simultaneously targeting necroptosis and ferroptosis. In severe diseases, cells undergo regulated necrosis that vary between several forms, 'choosing' in the end the form with the least energy consumption while adapting to environmental signals. Recent research has shown that necroptosis and ferroptosis are two significant forms of regulated necrosis activated simultaneously or alternatively within tissues during diseases, initiating a detrimental cascade leading to organ destruction. Currently, there is no dual inhibitor of regulated necrosis on the market, providing SeaBeLife with a significant competitive advantage and a unique positioning.

How exactly can patients benefit from your pipeline drugs?

M. Rousselot: The goal of the therapeutic solution developed by SeaBeLife is to block cell death. Backed by in vivo tests and proofs of concept, its unique patented technology has already demonstrated its ability to protect organs, like liver, eye, kidneys, heart, brain, threatened by serious pathologies like severe hepatitis, dry AMD, etc. Several key steps remain before our candidates can reach patients, including clinical trials in humans.

Which therapeutic indications are you targeting with your products?

M. Rousselot: Our portfolio consists of two distinct assets currently under development, focusing initially on chronic pathologies – acute and orphan diseases – to mitigate development risks.

SBL01 is developed to treat acute liver diseases; severe and life-threatening conditions necessitating intensive care unit hospitalization, with a fatality rate of 30%. This provides an opportunity to rapidly demonstrate the effectiveness of our dual approach in the clinic in the context of an acute and orphan disease.

SBL03 targets geographic atrophy, the severe form of dry age-related macular degeneration, the leading cause of blindness in people over 50, affecting over five million patients globally. This is our first program to address high-prevalence chronic indications and represents a substantial market opportunity.

In the long term, through our development strategy, we aim to turn our focus to neurodegenerative diseases.

What will be the next key steps in the development of the company?

M. Rousselot: As of 2024, the applications for our molecules are protected by six patent families, with our most advanced candidates targeting liver and eye pathologies.

SeaBeLife is currently raising a Series A round to finance the completion of:

- SBL01's regulatory development, which includes the Phase 1 study with safety and preliminary efficacy data in humans by 2026
- SBL03's preclinical and regulatory development up to the submission of IND, by the end of 2025
- Subject to financing, the first human clinical trials for our drug candidates may begin as soon as 2025.

What do you see as the main drivers for your success and what is the feedback from the industry?

M. Rousselot: I see our key success drivers as being our innovative approach, our commitment to scientific excellence and our ability to address unmet clinical needs by focusing on the development of cutting-edge therapies for severe diseases such as ALI/ALF and dry AMD.

The feedback we are receiving from industry and from public and private investors is very encouraging. We have been praised and rewarded for our multi-targeted approach. KOLs recognize the transformative potential of this approach in the treatment of serious diseases for which effective therapeutic options are currently limited.

We are also encouraged by the growing support and interest from potential industrial partners, reflecting confidence in our vision and ability to deliver innovative solutions to the most pressing medical challenges. I am convinced that industry recognizes the potential of our approach to make a real difference to patients' lives.

© SeaBeLife

Morgane Rousselot,
co-founder and CEO, SeaBeLife

Personal Profile

As co-founder and CEO since 2019, and boasting a strong scientific background, including a PhD in biochemistry and a degree in chemical engineering, **Morgane Rousselot** brings to SeaBeLife over 20 years of entrepreneurial experience in biotechnology. Her career is marked by numerous publications and patents while her passion for entrepreneurship has earned her multiple awards. Her career reflects her commitment to scientific research, innovation and leadership in the search for innovative healthcare solutions.

Business Idea

Saving Lives from Within by Protecting Cells

SeaBeLife's business model is based on licensing agreements or strategic co-development & marketing agreements with pharmaceutical companies, by candidate and potentially by indication. As part of this strategy, SeaBeLife will develop and take its candidates from proprietary programs through to preclinical or clinical phase 1, 2 or 3, and then enter into agreements with pharmaceutical companies who will take charge of the candidate's further development (clinical development, regulatory affairs, marketing). SeaBeLife will have the opportunity to evaluate in-licensing or co-development agreements at the time it deems most appropriate for each of its proprietary programs. These agreements will enable SeaBeLife to generate revenues based on upfronts, milestones and royalties.

The exit options will depend on SeaBeLife's future performance, its product pipeline, potential partnerships, and the evolving biotechnology and healthcare market. However, several options exist:

- Acquisition by a large pharmaceutical or biotechnology company: SeaBeLife could attract the attention of major players in the pharmaceutical or biotechnology industry, who may be interested in acquiring the company for its promising pipeline and innovative technologies.
- Strategic partnership: SeaBeLife could enter into strategic partnerships with established pharmaceutical or biotechnology companies, providing investors with the opportunity to realize profits through licensing, co-development or commercialization agreements.
- Acquisition by an investment fund: A life sciences-focused investment fund may consider acquiring SeaBeLife, offering investors an exit through a buyout transaction.
- Initial Public Offering (IPO): Going public could be an attractive option for SeaBeLife, providing investors with the opportunity to exit their investments while allowing the company to raise additional funds to finance its research and development activities and expansion.

- SeaBeLife Biotech, Roscoff, France
- www.seabelife.com

SeaBeLife
SEA INSPIRED & LIFE ORIENTED
BIOTECH

Elevator Pitch

Preclinical Development

SeaBeLife develops first-in-class drugs to block cellular necrosis, protecting and regenerating major organs affected by severe pathologies. The French start-up pioneers a revolutionary therapeutic paradigm aimed at halving the medical burden, including mortality rates, of severe pathologies lacking effective treatments. Its strategy focuses on developing first-in-class drugs, rooted in a proprietary platform technology comprising of small molecules that halt cellular death and forestall organ failure. With a robust pipeline boasting 150 patented molecules exclusively licensed to SeaBeLife, its innovative approach targets critical medical needs. Currently, the company is advancing two assets through preclinical development: SBL01, designed to address life-threatening orphan and Acute Liver Injuries / Failures (ALI/ALF), and SBL03, aiming to preserve vision in Dry-AMD patients, globally a leading cause of blindness among the elderly. These initiatives promise to transform patient outcomes, addressing significant social, economic and healthcare challenges.

Milestones & Roadmap

- SeaBeLife has achieved compelling in vivo Proof of Concept (POC) in hepatotoxicity models with its lead compound SBL01. All IND-enabling studies are currently underway, with clinical development anticipated to start by early 2025, initiating Phase 1 trials on healthy volunteers. For the ALI/ALF program, clinical safety and preliminary efficacy data are projected for 2026.
- The second lead compound, SBL03, is in early preclinical development with promising in vivo POC results in Dry-AMD models. We have formulated a slow-release formulation for intravitreal administration and an ophthalmic gel for instillation, both currently undergoing in vivo investigation. Preclinical development will continue throughout 2024 and 2025, with clinical development slated to commence in 2026.

Awards

2019, 2021, 2023
- AAP Transfert de technologies from the Région Bretagne

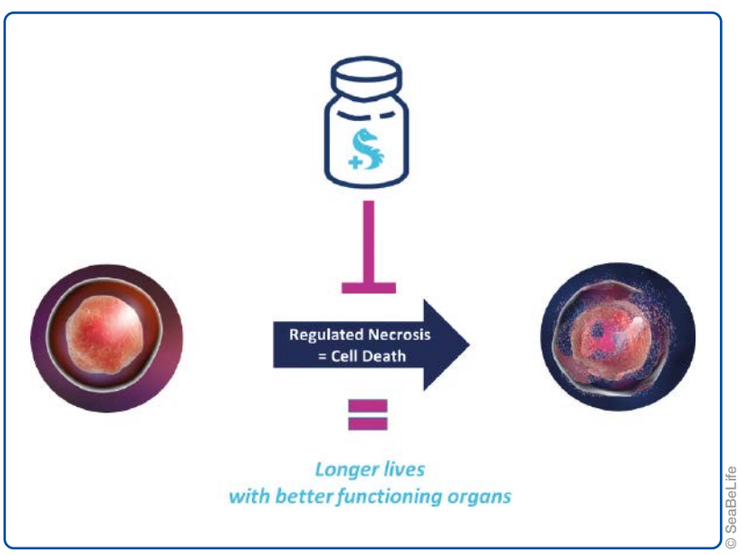
2021
- Aide à l'innovation DeepTech

2022
- Bourse French Tech Emergence grant, Concours i-Lab

2023
- WomenTech EU grant

© SeaBeLife

Co-founders (from left to right): Claire Delehouzé, chief technical officer; Morgane Rousselot, CEO; Stéphane Bach, IR-HC CNRS and inventor, Marie-Thérèse Dimanche Boitrel, INSERM and inventor



© SeaBeLife

SeaBeLife's technology platform enables the development and production of first-in-class drugs designed to block regulated necrosis (or regulated cell death) for the treatment of acute pathologies affecting vital organs.