



Biolingus

BioLingus, a privately owned Swiss biotech company, is spearheading the development of non-invasive delivery of biological drugs, making oral versions of drugs that are typically taken by injection. This revolutionary technology is a breakthrough innovation in for instance treatments of diabetes and inflammatory diseases, but also a social innovation for third world countries, enabling the development of novel low-cost oral vaccines or diabetes products. Yves Decadt, CEO of BioLingus in Switzerland, offers us perspective on the historical context in which his company is operating.



BioLingus focuses on the development of products for treatment of metabolic diseases and various immuno-therapies. The firm's current work explores the development of oral (sublingual) delivery of peptides and proteins for chronic diseases and immuno-therapy via its innovative technology. Yves discusses how the firm is taking a natural approach to drug developments, drawing on nature's unique processes

to find previously undiscovered solutions that could help millions of patients around the world.

"Focusing on natural solutions to modern problems, at BioLingus we have worked hard to use nature as a tool to create something truly unique and visionary. The seeds of plants contain a high concentration of proteins, which have to survive and remain intact for years, sometimes in extreme conditions of temperature, moisture or drought etc. The most extreme example is the sacred lotus plant, in which seeds are preserved intact over 1000 years, meaning the proteins inside are remaining stable and bioactive for such extremely long period."

"The BioLingus Technology is mimicking some of these mechanisms, and BioLingus has through advanced "bio-engineering" been able to come up with a way to preserve and stabilize proteins for a very long time at room temperature. Over the past year, BioLingus has also developed a 'liquid' formulation, which is very effective for individual dose adjustments."

This unusual formulation is designed for ease of administration, and has the potential to treat a myriad of different health conditions, as Yves is keen to highlight.

"One key benefit of sublingual delivery is ease of administration. The sublingual area is not a very common, but a very good place to deliver drugs. It has a thin layer of epithelial cells and a strong blood flow, so very good if you want the drugs taken up quickly into the body. It is also a very good place to deliver immuno-active drugs, because of the presence of mucosal immune receptor cells."

"This ease of administration will allow for expansion into more 'mild' uses. For instance, our oral diabetes treatments will be

preferentially used in related indications such as pre-diabetes, obesity and 'fatty liver' disease. While there are more than 400 million diabetes patients in the world, there are more than 1.5 billion obesity patients in the world, which offers us many potential users."

Additionally, the solution will enable a cost reduction for payors (governments) and patients, which will help make drugs more accessible to low-income patients, as Yves explains.

"In general, biological drugs are very expensive, and as such the health economic impact of our technology is that, for some of those drugs, we may enable more low-cost solutions to administer them. For other drugs, especially in the immunology space, we might increase the efficacy and safety, in addition to improving the convenience."

"In particular for third-world countries, organizations like the WHO are calling this 'broadening access': our technology can give more people access to medicines they may otherwise not have access to."

Ultimately, BioLingus has a unique and proprietary technology in the strong and growing market of the biologicals. Looking ahead, the firm will leverage this solution to expand its service offering and grow in this burgeoning market, as Yves is proud to conclude.

"With regards to the future, our breakthrough technology platform allows for different types of innovation to happen in parallel, from 'incremental innovation', through to 'social innovation' and even 'disruptive innovation'."

"In terms of incremental innovation, we are developing oral versions of the diabetes drugs exenatide and liraglutide. Alongside this, with regards to disruptive innovation, we have a project on the treatment of early onset of diabetes type 1 and lupus, with very low dose oral IL-2."

"To enhance these developments, we are open to work with other innovative partners to develop additional treatments that can benefit from our technology. Combining all these different kinds of innovation, we are aiming to create a truly unique business model focused around innovation that will help drive our industry forward and support patients around the world to live a better, more fulfilled life."

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