Josua Jordi – CEO & Co-Founder, EraCal Therapeutics



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Josua Jordi of Swiss biotech EraCal explains the company's technology platform, their work with zebrafish larvae to find a biologic mechanism to control appetite, and how it compares with the new generation of obesity treatments coming from Big Pharma. Moreover, he discusses EraCal's development strategy and the Swiss biotech ecosystem.

Josua, you emigrated from Switzerland to the US and came back. Can you talk about your trajectory and experience in the sector?

I studied biochemistry at ETH in Switzerland and followed the classic scientific career of a PhD and postdoc. I went from the University of Zurich to Harvard, where we developed a new technology platform which, after three years of hard work, convinced me to hold great potential and deserve a real shot. At that point, I thought about launching a company and moving back to Switzerland because it made sense to take advantage of scientific synergies. The science ran very well here in Zurich, which led us to launch EraCal in 2018.

Why did it make sense to launch EraCal in Switzerland?

In Boston, I worked primarily with zebrafish larvae, which is the core of our technology, but in order to create disruptive medicine, we had to move forward. I had the necessary network here in

Switzerland thanks to my PhD-work to make the next step or kill the idea fast based on high-quality science. We were able to benchmark EraCal's ideas thoroughly here in Zurich before launching the company. At that stage, we evaluated various options and selected the Swiss ecosystem due to its founder-friendly mentality. Boston is a different environment, and I am not saying one is better than the other. Zurich was a good fit for EraCal's novel platform idea. There is more room for error here and the Swiss ecosystem truly has fantastic initiatives to push first-time entrepreneurs, not to mention the non-dilutive funding availability.

What is the idea behind EraCal's technology?

We are developing a therapy for obesity, a disease with an enormous patient population around the world. It is important to understand that obesity is, in fact, a disease, confirmed by the leading medical societies. Obesity is a silent killer that significantly reduces people's life expectancy and causes serious complications such as type 2 diabetes, NASH, cancer, among many others. The challenge is that most companies that have tried to solve obesity have faced enormous hurdles.

We entered the obesity arena with a completely novel mindset. We intended to find a new biologic mechanism to control appetite. All of the molecules that interact with your brains, such as nicotine or cannabinoids, have a positive side but also a very negative one, consequently, you need to find the perfect balance.

We pioneered the idea of looking at hundreds of thousands of zebrafish larvae and quantify, how much they eat, how they move, how they learn, how they listen, and how they see the world. The big numbers give EraCal incredible statistical power, which we use as a discovery tool to screen compounds for their impact on brain output. The technology is a unique discovery tool to find compounds that modulate a single intended behaviour.

It is worth mentioning is that we are not the first to use larval zebrafish fish in drug discovery. Novartis, for example, did studies led by Mark Fishman to look at cardiovascular function using zebrafish and found new mechanisms to control heart function. EraCal uses zebrafish to identify molecules that control appetite and is the only company able to do so on a massive scale. We now have molecules that work in fish, mice, rats, and are probably two years away from entering the human stage.

How does your technology compare to the new wave of obesity treatments such as Novo Nordisk's Saxenda, which already obtained reimbursement in Switzerland?

Today's pharmaceutical interventions, such as Novo's Liraglutide, help patients lose around four percent or less of their body weight in a year; a relatively small and cosmetic impact. You need to lose five percent of your body weight to improve your blood sugar levels and cardiovascular function; none of the current drugs achieve that convincingly. I agree that Novo's Semaglutide, which will probably be approved this summer, will be the new benchmark in obesity treatment due to the phase 3 studies showing patients losing 15-16 percent of their weight. Semaglutide will pave the way and show the industry the road to reimbursement and market uptake. We see it as an opportunity to learn and have a clear cornerstone for comparison, and combinatorial treatment.

Continuing with EraCal's journey, what is your current stage of development and how has your funding evolved?

Our funding has gone very well. We closed a CHF six million seed round in 2019 and supplemented this with roughly two million CHF in non-dilutive money from grants and awards. We plan to select EraCal's first clinical candidate by the spring of next year and close our series A next summer. We will look for CHF 15-20 million to finance the early clinical development of our obesity asset and expand our platform towards new disease arenas.

Are you looking at commercializing your platform or will you focus on your own development?

That is the big question for many biotech companies and an ongoing debate. We do not do money deals; there is no CRO service from EraCal. We do industry collaborations with an IP upside. EraCal's technology is unique, consequently, we want to select our partners carefully and they need to bring something unique to the table as well beyond simple cash.

Small molecules are our core focus because Simon's team (my co-founder and partner) is fantastic with them. Peptides are less prominent as we do not have a world-leading know-how in-house today. Naturally, we expand the platform to additional "intelligent" phenotypes, which in a nutshell, are functional readouts that cannot be mimicked by cellular or organoid systems. Eating is an obvious example.

One other novel arena is appetite induction. The reason for our interest is that EraCal found molecules that made animals extremely hungry. Therefore, an area of interest is anorexia nervosa as recent research shows that this serious disease is not solely brain-driven but also strongly catalyzed by metabolic dysfunction. One may consider treating anorexia nervosa as a metabolic disease by creating a compound that drives appetite and EraCal launched an early-stage program together with the University of Zurich to explore this controversial concept. Time and hard work will tell how successful this new idea is.

What is your intention, are you looking to remain a drug discovery company or become a pharma company?

The answer is that we build options. Clearly, we want to move to Phase I, and maybe Phase II in the obesity indication. The reason is, that if we can show that a molecule found in zebrafish works in humans, the platform would be fully validated and a massive achievement for the team.

The way forward remains a planning document. We are looking at different options for Phase I trials. For a standard small molecule like ours, the question is where we can do the best science and about speed. There are three to five labs worldwide that can precisely measure food intake in humans and these are likely the places, where we want to do our Phase I.

What is your message to a wider pharma industry that is investing heavily in rare diseases, perhaps at the expense of more widespread problems such as obesity?

I understand that today there is plenty of money to be made with rare diseases. However, I personally think that this rare focus is wrong in one way because that amount of investment could be used to treat diseases that affect hundreds of millions of people. The exception of the above is naturally when the scientific rationale enables a faster validation of the concept in the rare disease space. The switch to rare diseases made sense from a business perspective with the reform of the FDA more than a decade ago, but I expect that in ten or fifteen years the ecosystem may re-evaluate the situation due to the extreme market fragmentation. We will see – success stories will originate from both sides of the table. Ultimately, what EraCal tries to do: solve big problems with a differentiated scientific approach.

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