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 InVivo Biosystems

Customer story: Longevity studies using *C. elegans* to identify potential anti-aging compounds

Dr. Vollmer shares his experience in working with InVivo Biosystems and how the Longevity Platform delivers the results he needs within his timeline and budget.



Summary



As we talked through the data and I understood all the controls in place, it became clear that the study was done very well and that we should trust what data we got. And that trust extends to if I wanted to do another study; I'd certainly have no problem coming back.

~Dr. David Vollmer

Overview

Dr. David Vollmer, Chief Scientific Officer at the dietary supplement company 4Life Research, needs to understand whether a particular ingredient in a new supplement product has anti-aging effects, and to examine the mechanism and science behind the effects.

Challenge

Dr. Vollmer's team had two years to develop this new product. They had already spent one year identifying the key ingredient, which left his team with only one year to complete product development. Relying on traditional rodent models would take at least two years and would not fit within the timeline his team had. In addition, product development would require the use of thousands of mice. Both the associated costs and time-frame precluded his team from being able to utilize rodents as a model to study longevity and anti-aging products.

Solution

Working with InVivo Biosystems and using the model organism of *C. elegans*, Dr. Vollmer was able to get the data he needed to proceed with product development within his timeline and budget.

Benefits

InVivo Biosystems' Longevity Platform is able to determine whether a compound can extend lifespan or promote a longer healthspan, and test the effects of a compound on signaling pathways and cellular mechanisms of action, all within four months.



Introduction

Dr. David Vollmer is Chief Scientific Officer at 4Life Research, a dietary supplement company that serves twenty-five different markets around the world and provides products focused on improving immunity. Dr. Vollmer and his team are charged with finding new ingredients, developing new products, and more importantly, developing the science around those products. 4Life's Transfer Factor® products include a key ingredient called ultra-filtered bovine colostrum that provides immune benefits.

"About two years ago we came across a product that has a number of benefits that have been [reported] in the research by universities. We started to look at what those benefits were. And one of the benefits that came up was anti-aging/healthy aging, or longevity," says Dr. Vollmer, "so we started to look at what sort of models we could use to demonstrate healthy aging."

Why *C. elegans*?

"There are a number of different models [available], depending on what you're looking at," explains Dr. Vollmer, "the rodent models are well validated and have been used by a number of different organizations and universities."

"However, the issue with any rodent model is that it takes a while. And the models that we were looking at, would essentially take two to three years." The normal product development cycle at 4Life Research is about two years, which includes developing not just a product and ingredients, but also developing the science around the product. The team had already been working on the development for a year. "The rodent model that we were looking at didn't really fit with the timelines we had. Another drawback of the rodents, is that to do these types of studies in these models, you were talking about thousands of mice," adds Dr. Vollmer. "So the expense and the time really precluded us from being able to utilize that model as a longevity, anti-aging model."

The team started to look at other models that would help examine aspects of longevity and serve to demonstrate evidence of anti-aging effects. "We always start our research by reviewing what's been published. There were a number of articles looking at *C. elegans* and how they have purported benefits in [analyzing] anti-aging or longevity. The beauty of *C. elegans* is that their lifespan is only around 20 to 30 days. So that was another good aspect for this particular model - it didn't take years," states Dr. Vollmer. "It became pretty clear¹ that it was a model that a lot of people have studied. It made perfect sense to look at *C. elegans* as an appropriate model and try to demonstrate the [longevity] benefits of our product."

Why InVivo Biosystems?

"It was important for us to find a lab that could start right away and where we wouldn't have to wait weeks or months to be able to start studying our compounds." After reviewing the website, "it became pretty clear that you did have the capabilities in terms of what we were looking for," says Dr. Vollmer. "Really from the beginning of our communications until we actually started this study, it was only a matter of a few weeks. That allowed us to be able to do this study in a timely manner, get results that would help us support or potentially support the anti-aging aspects of the supplement," says Dr. Vollmer.

How was your experience working with InVivo Biosystems?

"[The biggest concern] was whether my team would be able to work with the lab, get them to understand what we wanted, and have enough collaboration so that we were sure that the study would be done in the manner that we needed it to be done," says Dr. Vollmer.

"From a communication standpoint, from a collaborative standpoint, I think it was as good as anything I've been a part of. I never felt like this was a study that I wasn't sure about. I always had good feelings about it because of the communication and the collaboration we had not just at the beginning but throughout the entire study."

"It's been a good overall experience, great communication, great explanations on the results and good follow up," says Dr. Vollmer. "I really felt that InVivo Biosystems did pretty much everything that they said they would do. It was done in a manner that gave me confidence in the results."

What impressed you the most?

Understand client needs

"Oftentimes when you work with labs, you think you're on the same page, but -- once you get the results -- you then find out that there was some key information that was missing," says Dr. Vollmer. "I really appreciate that InVivo Biosystems made sure that everything was done properly so that we could trust what the results were and then decide what the next steps might be."

4Life Research works with customers, distributors and their customers. As to the data, "a lot of our customers and distributors have to be able to understand it. We have to put it in layman's terms. One of the more difficult aspects of my job is to take this highly technical data and really present it in terms that people can not only understand, but also be able to talk about with their own customers," says Dr. Vollmer.

We made sure that the final data from this study can be easily interpreted. “That was one of the nice things. It really didn't take a lot of time to interpret the data and then present it in a way that would allow people to understand it on a very layman's terms level.”

Frequent and meaningful communication

“The communication was as good as I've ever been a part of. I'm not used to getting emails from people every two weeks saying, 'Here's the status of your study.' I mean, usually it's me reaching out to them saying, 'Hey, what's going on?’” Dr. Vollmer chuckles.

These timely updates in the form of emails with spreadsheets and graphs were important because “people within our company were wanting to know what's going on in these studies. It was easy for me to let them know without having to go back to the lab,” explains Dr. Vollmer. “We could really see almost on a real-time basis what was happening.”

Technical expertise & transparency

The data was straightforward to look at and Dr. Vollmer understood what the results were. However, the actual treatment did not show any benefits.

“It's important for me to really know that the study was done properly. I really wanted to hear it from the scientists who were actually performing the studies. I had to ask the chief scientist if there was anything else he would have done differently,” says Dr. Vollmer.

“So we had this meeting. I asked all those questions that would help me understand that the study was done appropriately and there were no outlying issues that would preclude us from saying that the study wasn't done properly.”

“I got to understand all the nitty-gritty, the nuance of these studies, how they were conducted, what maybe some of the challenges were,” says Dr. Vollmer. “Having gone through it and [the chief scientist] saying, 'No, [they] followed the procedure as well as they could.' That was really reassuring to me that the study was done properly. I really appreciate that if the lab saw a problem, [they] alerted us immediately and took action, and that saved us time.”

“I really felt that InVivo Biosystems did pretty much everything that they said they would do. It was done in a manner that gave me confidence in the results. It's been a good overall experience, great communication, great explanations on the results. Good follow up.”

Learn more about InVivo Biosystems' Longevity Platform:

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