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CASE STUDY

Featured scientist: Sean Villasana

How an FAS from Thermo Fisher Scientific solved a mystery about using OpenArray technology, leading to an almost 900% scale-up in production

Laboratory mission and values

Livingston Med Lab provides a wide variety of lab services in and around central Texas. The company offers superior, white-glove customer service and support based on the key values of integrity, discipline, tenacity, perseverance, and innovation.

Introduction

- **What types of laboratory services does Livingston Med Lab specialize in?**

We currently run moderate- to high-complexity tests in the areas of molecular medicine, hematology, immunology, chemistry, and blood allergies. We are bringing on full toxicology and next-generation sequencing (NGS) in 2021.

We also provide COVID-19 vaccinations and soon we will offer provider services.

- **What challenges are you trying to address?**

Our current challenge is to find the most beneficial tests for our region and clients.

- **What made you look for guidance outside of your lab?**

I first like to do a lot of research and then narrow down the takeaway to key questions. Once I reach a wall or an impasse in an area that I am unsure about and where I need clarification, I start to reach out to the colleagues in my network, including mentors and experts in the field.



Sean Villasana is molecular lab supervisor technical representative at Livingston Med Lab.

- **What made you want to partner with Thermo Fisher?**

Since I was in high school, I have been aware of Thermo Fisher and the product brands within Thermo Fisher. I have always considered Thermo Fisher the industry leader, and felt comfortable partnering with a company like that. I always strive to do my best, so who better to partner with than one of the best in the field?

The value of a Thermo Fisher FAS

- Please elaborate on the experience you had with your Thermo Fisher field application scientist (FAS). How did they help you through the troubleshooting process and provide a solution?

My experience with our Thermo Fisher FAS has always been the best, and has provided myself and the lab with a wealth of knowledge. Typically, my troubleshooting will be with a technology or application that I am not very familiar with. Our FAS, John Pfeifer, and his team always have a solution or advice to help me work through my issue. Sometimes it has to do with advanced PCR equipment, such as the Applied Biosystems™ QuantStudio™ 12K Flex Real-Time PCR System, or optimal extraction, methodology setup, or even just a question to confirm something to help reduce my stress.

- Would you recommend Thermo Fisher services and support solutions in the future?

Absolutely. I always tell my team and others about Thermo Fisher, and if they have questions I encourage them to just reach out because the support is just phenomenal and always more timely than expected.

- What are the benefits you've seen from remote support?

It typically takes 2–3 weeks to facilitate a contractor to come into your lab and perform tests. With John providing remote support, solutions are provided within hours or 1–2 days. This has provided us with a cost savings for the lab of \$60K–\$80K this year alone for our HIV testing workflow vs. what it would cost with third-party contractors.



The team at Livingston Med Lab.

A problem solved by the FAS

- What is a specific issue you faced in the lab where your FAS helped? What were you trying to accomplish?

We had issues when trying to implement microarray technology and methodologies such as array cards and Applied Biosystems™ OpenArray™ technology on the QuantStudio 12K Flex system. Specifically, we were trying to figure out when one technology should be used over the other. I had worked with array cards in the past, but they have limitations. John came to our lab and guided me through microarrays in great detail.

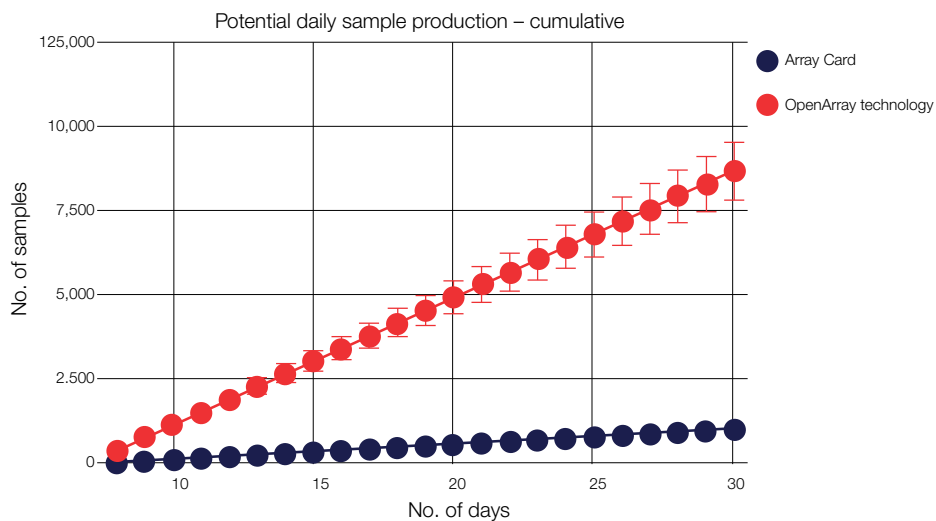


Figure 1. By improving their use of OpenArray technology, Livingston Med Lab has been able to maximize their sample throughput daily, resulting in an increase in production of ~900%, since 4 open array plates can be run at a time.

- **How did John address your issue and provide a solution?**

John explained the indications for when one technology would be better suited than the other and how the methods differ. He explained how high throughput could be achieved on OpenArray technology. Essentially, we could go from running 7 samples on an array card to 23 samples by utilizing OpenArray technology in roughly the same amount of time. The cost is essentially the same, yet we can maximize our sample throughput (Figure 1). He also walked us through the method step-by-step from start to finish. He shared all of the tips and tricks he has learned over time as well.

- **How did you implement/introduce our solution?**

We moved forward with certain infectious disease panels on the OpenArray platform where we have a high volume, and with some other panels where we see smaller volumes. We used array cards to save money versus the expense of an OpenArray plate, consumables, and reagents.

- **How has our solution helped since implementation?**

We now have a clear understanding of the different indicators for choosing OpenArray technology vs. array cards. It helps us make better decisions as to what custom panels we bring into the lab.

- **Has this solution saved money and/or increased lab productivity?**

We can maximize our sample throughput daily when utilizing OpenArray technology properly. We had started out putting everything on the OpenArray platform, but now we avoid that spending waste and instead use array cards when it makes sense.

- **Can you share any metrics around that success?**

We have been able to scale up our production by almost 900%, proving highly beneficial to our company's success.

- **What plans do you have to use this solution in the future?**

With every new panel we bring on, we now always leverage everything John has taught us to help make informed, economic, and efficient decisions as to what we bring on board as well as which technology we will use to run the prospective panel on. In addition, this now allows us to service new high-volume accounts that will require this type of production.

Find out more at [thermofisher.com/instrumentservices](https://www.thermofisher.com/instrumentservices)

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