

Automating Homogenization to Increase Sample Throughput

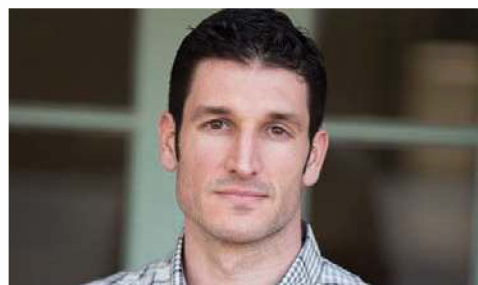
Noah Post at Ionis Pharmaceuticals saves time and fatigue from hand-grinding with the Omni LH96 Automated Homogenizing and Liquid Handling Workstation

Introduction

Noah Post is a Research Associate in the Bioanalytical Group at Ionis Pharmaceuticals. Working under the larger umbrella of toxicology and pharmacokinetics (PK), his group is charged with determining drug concentrations in various matrices, such as tissues or fluids. Noah uses the Omni LH96 Automated Homogenizing and Liquid Handling Workstation to homogenize samples in preparation for quantification. They generate PK profiles to show how much of the drug goes where, what it gets metabolized into, and how fast it gets excreted.

Q. Describe your experience with the Omni LH96.

A. The best thing about the LH96 is it saves time. We approached it cautiously because our data is a very important factor in deciding which compounds move forward into development. We wanted to make sure it was generating the same quality of data as our other methods we know work. We brought in a demo instrument to make sure it jived with our other methods and it did.



Noah Post is a Research Associate in bioanalytics in the TOX/PK Research Group at Ionis Pharmaceuticals.

Q. What technologies did you previously rely upon and how did they compare to the Omni LH96?

A. Before the Omni LH96 our options for working with tissues were rather limited and very laborious. We typically relied on mechanical methods for disruption, including physical shearing, using a bead ruptor, or the use of liquid nitrogen. For this type of disruption we would either have to work with each sample individually, which was very time consuming, or rely on a method that would use a much smaller sample size, leading to greater sample variability. While these processes were acceptable, a better method could greatly improve our ability to analyze samples in a timelier manner. This would be especially beneficial when working on one of our major studies, which could easily have over 250 samples. We did a head-to-head comparison of our current methods to the Omni LH96, and the results from the two methods were within 15% of each other, which is great. We are very pleased with the quality of data from the LH96.

“The best thing about the LH96 is it saves time, cutting our processing time in half.”

Q. What problems does the Omni LH96 solve?

A. The best thing about the Omni LH96 is it saves time, cutting our processing time in half. It makes sample prep faster and easier. It would take approximately 3 days to prep a 96-well plate of samples. Not only is this a long time per plate, but it requires repetitive hand movement,



Omni LH96 Automated Homogenizing and Liquid Handling Workstation

which makes you quite sore the next day. It's kind of like if you spent two entire days pipetting, your hands get very tired, and you're susceptible to getting carpal tunnel.

Q. How does the Omni LH96 improve your workflow?

A. With the Omni LH96, I can just eyeball the size of tissue that I'm using instead of weighing it myself. I just place my sample in each tube, and let the machine do the rest. As long as I put in a sample within the appropriate range—one that I set by the way—the Omni LH96 will do the rest. I always use the tare weigh function, which will weigh each individual tube before I use it, so I can get the most accurate sample weight data possible. Once the Omni LH96 generates the weight data, it will add the appropriate amount of buffer to each sample, and then homogenize them all. The Omni LH96 has significantly reduced our time to do sample prep—weighing, spiking, and homogenizing—from 3 days to about 1.5 days. Now we have time to do other activities like preparing for additional runs, completing paperwork/notebook entries, and generating data summaries.

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Q. How easy was it to integrate the Omni LH96 into your workflow?

A. One of our biggest concerns was carryover between samples. However, Omni actually gave us two ways to circumvent this problem. We could either use an individual homogenizer tip for each sample, or have the stainless steel probes be washed after each row of samples. We opted for the latter option, and it works perfect. I have run several tests and have seen that there is no carryover between samples. The Omni LH96 handles just about all of the samples we need it to.

Q. What features led you to choose the LH96?

A. When I was first hired, I brought up my experience using robots to automate sample prep, which helped improve workflow. Because the number of projects that we support kept increasing, we decided to explore the possibility of automation in order to keep up with our increasing workload. We liked the Omni LH96 over the

competition because it not only homogenizes tissues, but it also does the weighing, buffer addition, and pipetting. The LH96 does the entire front end of our sample prep. We can just walk away while it works. It's pretty amazing.

Q. What other applications can the Omni LH96 be used for?

A. You could use it to prepare drug samples to take absorbance readings and check viscosity. It could be used to weigh out drugs and reconstitute in varying volumes of buffer for further analysis. It could basically be used for anything where you need to add an appropriate volume of fluid/buffer based on the weight of a sample.

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Q. What do you like about working with Omni?

A. The team at Omni is really nice and very friendly. They are responsive to my needs and concerns. They try to make any changes that I request. They really do try to make my life easier and our work move along faster.

Q. What advice do you have for others considering automation?

A. It depends on the application. If someone is in a similar situation to us, where they are getting a lot of samples, and want to improve their turnaround time, I'd say give it a shot. It really will make your workload a lot easier, and you won't want to go back to your old methods.

Learn more about the Omni LH96 at www.lh96.com

