Optimizing LCs During a Pandemic

Agilent InfinityLab LC Solutions

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Preface

The World Expects a Lot from You

Almost 20 years ago, in my first "real job," I was running LC tests on a therapeutic candidate to treat lupus nephritis—a terrible disease where the human body attacks itself using its own immune system. The honor and responsibility I felt working to find a treatment to prevent these horrible effects was very real to my 23-year-old brain, and I was devastated when the clinical trial results were not as we had hoped. I have since moved on to work for LC and LC/MS vendors, and I have felt immense satisfaction for 14 years now from being a part of creating and implementing novel technologies that assist all of you in your work developing and manufacturing not just one potential treatment, but thousands of them. Informed by these experiences, I know the demands on you in the pharmaceutical industry have never been higher, given the COVID-19 pandemic. The global community expects vaccines to be readily available in mere months, when the shortest development time previously observed was four years.

At the same time, (bio-)pharmaceutical laboratory efficiencies have been severely hampered by split schedules, social distancing and formal virtual meetings replacing those wonderfully spontaneous hallway discussions that always seemed to make collaboration and planning easier. While each of us is worrying about our families and friends and exhausted from the fatigue of constant decision making (Should I go to the grocery store today? Should I send my child to school?), people worldwide continue to suffer from cancer and other illnesses, millions of people in all geographies continue to require medicine to manage their existing conditions like diabetes and heart disease (among others), and low- to middle-income countries continue to need vaccinations against other deadly diseases like tuberculosis.

It is therefore more important than ever for each of us to use every capability possible to get the most out of those precious minutes where access to the laboratory is feasible. That is what this eBook is really about—there are many unique and elegant technologies embedded in the Agilent InfinityLab LCs that are designed to free up experts for more challenging tasks and to provide versatility while delivering excellent results in a robust way. We understand from our users that these valuable features are often underutilized and we know they can make a difference, especially now. We therefore felt compelled to compile this special set of application notes, user testimonials, and educational content in one place to do our part in supporting you in your efforts to improve the human condition.

Thank you for all you do for me and my loved ones in providing new and existing treatment options. I wish all of you safety, good health, and success in these unprecedented times.

– **Jade C. Byrd**
Director of Industry Marketing,
Agilent Technologies, Inc.

Jade has worked with laboratory-driven organizations implementing LC and LC/MS solutions for 14 years, first as an applications chemist and then as a product manager. Prior to working for LC vendors, Jade worked in the pharmaceutical space doing routine analysis and software-assisted chromatographic method development and validation. Today, Jade works to ensure that Agilent InfinityLab LC Solutions meet both the technical and business needs of her user communities, which include the (bio-) pharmaceutical, environmental, research, food, chemical, and energy markets and she is passionate about LC and LC/MS.

Chapter 1

Ensuring a Safe **and Content** Lab Environment

Ensuring a safe **and content** lab environment

Safety First

Clearly, the safest choice for your staff is to telecommute. However, for (bio-)pharmaceutical organizations, operations are largely laboratory driven and require work that can only be achieved with access to the laboratory.

In addition to the “big three” (washing hands, wearing a mask, and keeping distance), instituting shifts, relocating data analysis stations, and dedicating instruments to certain shifts or staff members (instead of dedicating instruments to methods) can allow for continuation of lab operations while still ensuring the safety of lab personnel.[1] Indeed, LCs can be quickly upgraded to run multiple different methods (similar to the **Agilent 1290 Infinity II Multimethod System**).

Agilent 1290 Infinity II Multimethod System

Switching from a 2 mL vial to 364-well plate sample format can enable up to 4 days of continuous unattended run times (at a UHPLC scale of ~1 minute run time per injection) using the Agilent InfinityLab multisamplers. With four Agilent InfinityLab multicolumn thermostats, two external solvent selection valves, and eight temperature zones, as in the **Agilent 1290 Infinity II Method Development System**, up to 5,400 different chromatographic methods can be explored.

Agilent 1290 Infinity II Method Development System

"Method development is not easy. We bought the 1290 Infinity II LC because of its good integration with ChromSword."

– Keiko Yamane,
Researcher,
Taiho Pharmaceutical Co, Ltd.

If your lab is not able to quickly change autosamplers or sample containers, the simple addition of a column selection valve can ensure that many samples and methods can be queued up to run overnight (see Figure 1).

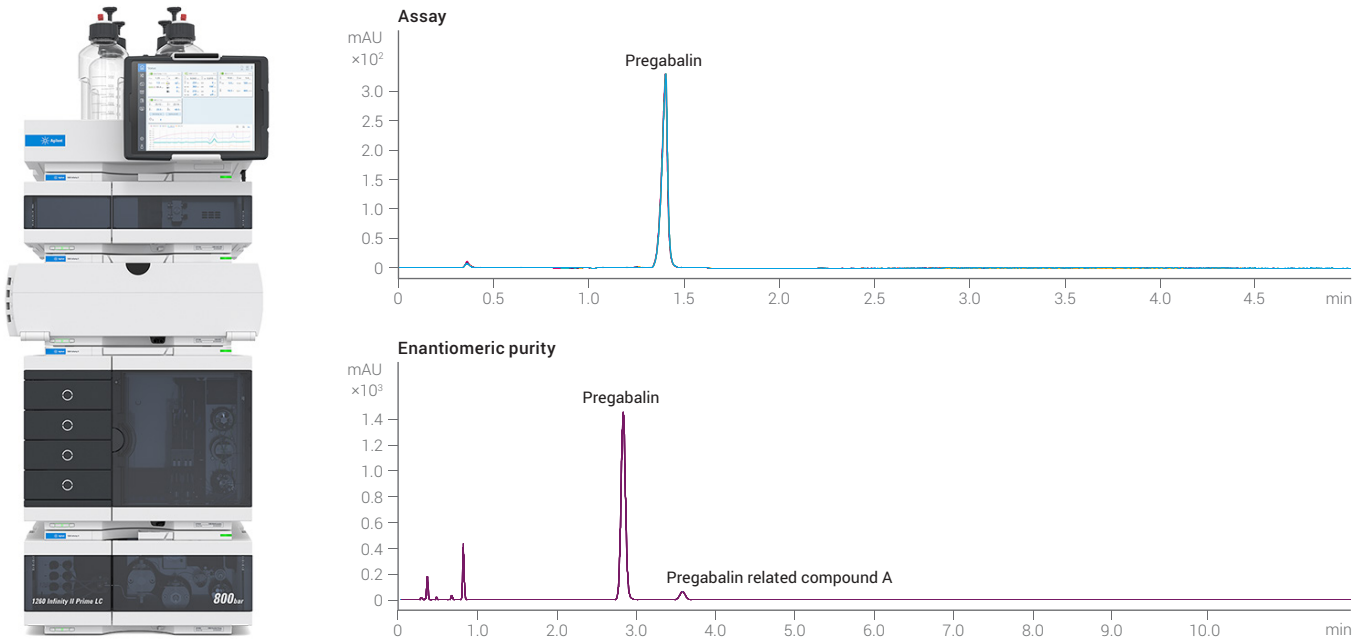

Figure 1. The two USP methods required for the analysis of pregabalin—assay and enantiomeric purity—are run on a single Agilent 1260 Infinity II Prime LC instrument, which contains technology from the Agilent 1290 Infinity II LC System. The methods use different columns, so a column selection valve was employed so that no manual method switchover of the LC was required.

PDF

Download application note
Learn how the 1260 Infinity II Prime LC can run two USP methods on one system.

Mind behind the science

"Thinking about the multisampler, what I am most proud of is that 6,144 samples can be run unattended within the same spatial geometry as what previously could only handle two well plates of 384 samples each. It is purely very astonishing and is very unique in the marketplace."

– **Matthias Wetzel,**
Senior Engineering Director,
Agilent Technologies, Inc.

Agilent InfinityLab LC Solutions - Reliable, Efficient, Always Innovating for Your Best Result

From routine analysis through cutting-edge research, the Agilent InfinityLab LC Family provides the broadest portfolio of liquid chromatography solutions. You can rely on InfinityLab LC instruments, columns, and supplies to deliver rugged quality and robust analytical results. Every component is uniquely designed to work together, and to help you continuously improve your workflow.

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