

Summary

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Research Article

Development of a high-speed, multiplexed sample-delivery instrument for LC–MS/MS bioanalysis

*John Janiszewski**, Richard Schneider, Brendon Kapinos, Mike West, Carrie Funk, James Federico, John Umland, Mary Piotrowski, Walter Mitchell, Hui Zhang, Veronica Zelesky, Jason Gobey, Kevin Whalen, Theodore Liston & Matthew Troutman

* Author for correspondence

Background: The number of new chemical entities and types of *in vitro* and *in vivo* samples that require bioanalysis in drug discovery is large and diverse. In addition, method development time is limited as data turnaround is the highest priority. These circumstances require that a well-defined set of bioanalysis options be available in short timeframes to triage samples for analysis. **Method:** The Apricot Designs Dual Arm (ADDA) instrument is an LC–MS/MS sample delivery system that features a flexible hardware design coupled with software automation to enhance throughput in LC–MS/MS bioanalysis drug discovery. The instrument can perform high-throughput LC–MS/MS (8–10 s/sample) for screening and *in vitro* bioanalysis, as well as multiplexed LC for traditional gradient or isocratic LC approaches. The instrument control software is designed to integrate with DiscoveryQuant™ software (AB Sciex) and a global database of MS/MS conditions. **Conclusion:** Development of the sample delivery platform and its application in high-throughput and gradient LC will be described.