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9ᵗʰ World Drug Delivery Summit

June 30-July 02, 2016 New Orleans, USA

The use of high throughput experimentation to enable a deeper understanding of drug behavior

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Performing drug discovery and research on a pharmaceutical compound is a labor-intensive, costly and time-consuming process. A large portion of that work involves investigating drug behavior in various liquid media. Through the implementation of high throughput experimentation, we are able to deploy robotic automation systems to manage screening of a wide variety of experimental conditions with multiple replicates. The conditions allow a researcher to broaden the understanding of the drug's behavior, and the replicates provide statistical significance. In this talk, we will discuss how automation systems can improve our understanding of drug solubility in a wide variety of liquid systems. These experiments will highlight how a great deal of information can be gained by using a small amount of material. The experiments are performed under various temperature conditions and the use of replicates helps to target when outliers need to be further investigated. These experiments have also been used to investigate how an active pharmaceutical ingredient interacts with excipient in bio-relevant media to aid in formulation development decisions. Because these experiments are conducted with an automation system, the robot performs the majority of the work, which allows the researcher to focus on data analysis. And because a 96-well plate format is used, a large volume of experimental conditions can be studied in a relatively short period of time.

Biography

Matthew N Bahr has completed his Master of Engineering in Pharmaceutical Manufacturing from Stevens Institute of Technology. He is currently pursuing a part-time PhD in Pharmaceutics from the University of the Sciences in Philadelphia, PA. He is an Investigator at GlaxoSmithKline in King of Prussia PA and specializes in pharmaceutical research using high throughput automation platforms. He has published several papers and has presented posters and presentations at various conferences.

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J Pharm Drug Deliv Res 2016
ISSN: 2325-9604, JPDDR an open access journal

Drug Delivery 2016
June 30-July 02, 2016

Volume 5, Issue 3(Suppl)

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