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### Microfluidics: An advanced platform for pharmaceutical protein formulation

Protein-based therapies hold an enormous potential for treating many terminal diseases. Nevertheless, the lack of universal technological approaches that enable development of protein formulations with the targeted attributes significantly impedes clinical translation of these advanced therapies. This presentation will overview the use of droplet based microfluidic technology for developing protein formulations with pre-programmed functional characteristics, including size and internal morphology, encapsulation efficiency, and protein release profile.

#### Biography

Sabiruddin Mirza is currently a Senior Research Fellow at the School of Engineering and Applied Sciences at Harvard University, Cambridge, MA, USA, and also an Adjunct Professor at the University of Helsinki, Helsinki, Finland. After several years in full-time industry, he escaped to academia and earned his PhD degree in pharmaceutical technology from the University of Helsinki in 2007. His dissertation research has been awarded the 2008 American Association of Pharmaceutical Scientist's Outstanding Graduate Research Award in Pharmaceutical Technologies. His current research is focused on engineering of advanced nanosystems for drug delivery applications. In addition, his areas of expertise include pharmaceutical crystallization, cocrystallization and nanocrystallization, droplet-based microfluidics, and solid-state characterization, preformulation and formulation. Overall, his research has attracted around \$550 000 in sustained funding from the Academy of Finland, private foundations, and industries. He is the author/coauthor of over 50 peer-reviewed articles and conference proceedings.

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