



2nd CREATE-CFS Symposium

September 16, 2016

1:45 p.m.

Université de Montréal

J.A. Bombardier Building - 1035

Keynote Speaker



JOEL HAWKINS, Ph.D.

Senior Research Fellow

Pfizer Global Research and Development

Flow Chemistry for Pharmaceutical Synthesis

Flow chemistry and continuous processing offer advantages for the synthesis and manufacture of active pharmaceutical ingredients (APIs) from chemistry, engineering, and business perspectives. These are exemplified by the synthesis of an H₃ antagonist where excellent mixing, stoichiometry control, and heat removal increased the chemoselectivity of a tubo-Grignard addition, and the synthesis of tafamidis where a flow oxidation route improved the environmental or E-factor by tenfold relative to the original route. Additionally, the development of flow hydrogenations using small particle catalysts are described which improve the stereoselectivity, chemoselectivity, and efficiency of the reduction of intermediates in API syntheses relative to batch hydrogenations. And lastly, simple processes flowing through metal oxide catalysts are described for efficient oxidations, reductions, and hydrolyses.