

Diverse Catalytic Reactions in the Development of Commercial Manufacturing Routes for Nemtabrutinib and MK-7845

Aiming to fulfill on our mission of delivering innovative, green, and robust commercial manufacturing routes for our cutting-edge medicines, the small molecule process research and development group at Merck has recently developed novel approaches to Nemtabrutinib, our non-covalent BTK inhibitor and MK-7845, an investigational protease inhibitor for the treatment of COVID-19.

This presentation will describe salient features of both the initial route scouting and development of the final process, in addition to our progress toward translating this innovative science into the commercial manufacturing setting. The strategic use of enabling technologies, including biocatalysis, transition-metal catalysis and flow chemistry, as well as process analytical technology (PAT) tools, which permitted key disconnections and mechanistic understanding respectively, will also be highlighted.

Speaker Biography

Ben W. H. Turnbull obtained an M.Chem (Hons) degree in Chemistry from Northumbria University (UK) in 2012. In 2016, he received a Ph.D. in organic chemistry from Queen's University (Canada) under the mentorship of Professor P. Andrew Evans where he worked on rhodium-catalyzed allylic alkylation reactions using nitrile-stabilized carbanions. Following a postdoctoral fellowship in the laboratory of Professor Michael J. Krische at the University of Texas at Austin, where he studied ruthenium-catalyzed transfer hydrogenative coupling, he joined the process chemistry group at Merck in Rahway, NJ in 2018, where he is currently an Associate Principal Scientist working on a variety of both early and late-stage programs in the small molecule pipeline.