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Evolution of Synthetic Routes Leading to the Commercial Manufacturing Process for Belzutifan

a talk by

L.-C. Campeau, PhD

Associate Vice President, Head of Small Molecule Process R&D at Merck,
and co-host of the “Pharm to Table” podcast

Thursday May 9, 2024, 6-9 PM

Venue: Science Research & Technology Center
at Portland State University
1719 SW 10th Ave
Portland, OR 97201
Room 247

Schedule

6:00 pm social (no-host bar with soda / beer / wine)

6:45 pm Hawaiian buffet dinner (chicken or tofu)

7:30 speaker presentation

Dinner Reservations

Dinner Reservation Deadline Tuesday 7 May, 5 PM

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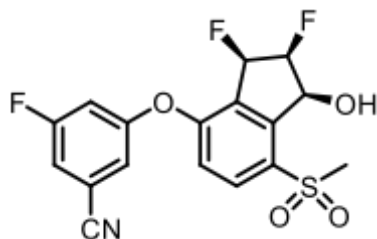
Abstract



Evolution of Synthetic Routes Leading to the Commercial Manufacturing Process for Belzutifan

The Nobel Prize in Physiology or Medicine 2019 was awarded for the discovery of how cells sense and adapt to oxygen availability which uncovered a critical link with hypoxia-inducible factor 2 α (HIF-2 α) and its potential role as a therapeutic target for Von Hippel-Lindau (VHL) disease and certain types of cancers. These insights eventually led to the discovery of belzutifan, a small molecule inhibitor of HIF-2 α that achieved FDA breakthrough designation in 2020 and was approved in 2021 for VHL associated tumors and in 2023 for advanced renal cell carcinoma. Belzutifan has a unique stereochemical triad on the indanone ring featuring two secondary alkyl fluorides which posed significant challenges for its synthesis. This presentation will cover how the manufacturing process evolved from its initial scale-up route through to the final commercial manufacturing process, as well as highlight key innovations which enabled the manufacture and launch in 2021 of belzutifan including

the development of a photo-flow bromination, direct enantioselective biocatalytic hydroxylation and a uniquely selective dehydrofluorination.



Speaker Bio

L.-C. Campeau obtained his Ph. D. degree in 2007 with the late Professor Keith Fagnou at the University of Ottawa in Canada as an NSERC Doctoral Fellow, after completing his B.Sc. in Biopharmaceutical Sciences. He was the recipient of the Pierre Laberge Prize for the best Ph.D. thesis in the Science Faculty. The Faculty of Science awarded him the inaugural Young Alumni Award in 2016 and in 2022 he received the inaugural Department of Chemistry and Biomolecular Sciences Distinguished Alumni Award.

L.-C. first joined Merck Research Laboratories at Merck-Frosst in Montreal in 2007 making key contributions to the discovery of Doravirine (MK-1439), for which he received a Merck Special Achievement Award. In 2010, he moved from Quebec to New Jersey, where he has served in roles of increasing responsibility: Head of Catalysis & Automation, Head of Discovery Process Chemistry and Head of Process Chemistry. L.-C. currently is Associate Vice President and the Head of Small Molecule Process Research and Development, leading a team of smart, creative scientists and engineers developing innovative solutions in support of all discovery, pre-clinical and clinical active pharmaceutical ingredient deliveries for the entire Merck portfolio for small-molecule therapeutics. His passion for scientific excellence is exemplified by more than 80 publications and patents, several successful collaborations with key academics, and more than 85 invited lectures worldwide.

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