

Carbon Isotope Labeling Techniques Involving Organometallic Intermediates

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In this talk, I provide a short overview on the use of carbon monoxide surrogates for performing safe and stoichiometric carbonylation chemistry applying transition metal chemistry. Examples are given for the adaptation of this chemistry for efficient late-stage introduction of carbon isotopes into bioactive molecules, aiding drug metabolism and pharmacokinetic (DMPK) studies in drug development programs. I will also discuss our efforts to develop a molecular surgery strategy involving a sequence of C–C bond cleaving and bond forming events for the insertion of a carbon label [1-8].

Reference

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Short CV: Troels Skrydstrup is currently a Professor at the Department of Chemistry, Aarhus University and Villum Investigator devoted to research in plastic recycling. He is a former center leader of the Carbon Dioxide Activation Center at Aarhus University, funded by the Danish National Research Foundation, and is currently theme leader at the Novo Nordisk Foundation CO₂ Research Center. He is an elected fellow of the Royal Danish Academy of Sciences and Letters and was knighted by the Queen of Denmark in 2012. His awards include the Melvin Calvin Award 2018, the Bjerrum, Brønsted, Lang award in 2022, and recently also the prestigious Chinese Governmental Friendship Award (2024). Troels Skrydstrup has over 300 publications.

Research and Innovation: Recent efforts have been focused on the development of innovative isotope labeling techniques, methods for polymer disassembly and carbon dioxide capture and conversion, all through the application of transition metal chemistry.