Abstract

Isolated in 2005, gymnocin B is the second largest contiguous marine ladder polyether, comprising one THF, nine THPs, and five oxepanes. Herein, we report the first total synthesis of gymnocin B based on a two-phase strategy. In Phase I, inspired by the proposed biosynthesis, four epoxide-opening cascades assemble 10 out of 15 cyclic ether rings making up the molecular core. In the subsequent Phase II, coalescence elevates the molecular complexity further by coupling of these subunits. As demonstrated by a 45-step longest-linear-sequence synthesis of gymnocin B, our two-phase synthetic approach significantly improved the step efficiency of the synthesis of this class of natural products.

About Professor Satapanawat Sittihan

Professor Sittihan obtained his Bachelor degree in Chemistry and Chemical Biology and in Biological Sciences from Cornell University, USA in 2009. He continued his postgraduate study in Organic Chemistry in Massachusetts Institute of Technology, USA and obtained his doctorate degree in 2017. After graduation, he went back to Thailand and became one of the Faculty members in the Department of Chemical Biology of Chulabhorn Graduate Institute, Bangkok, Thailand. Throughout his study and career, Professor Sittihan has published several papers in international scientific journals and wrote a book chapter in *Science of Synthesis* Thieme: Stuttgart, in 2015.