PXX Divergent Syntheses of Leuconodine B, Melodinine E, Leuconoxine, Leuconolam and Mersicarpine alkaloid

Naifeng Hu, Zining Li, Zhe Lv and Guangxin Liang\*

*State Key Laboratory of Elemento-Organic Chemistry, Nankai University; Collaborative Innovation Center of Chemical Science and Engineering (Tianjin), Tianjin 300071, China*

*E-mail: lianggx@nankai.edu.cn*

Leuconolam, leuconoxine, and mersicarpine alkaloids showcase the incredible structural diversity of natural products. These monoterpene indole alkaloid families, though sharing the same biogenetic origin, present distinctive skeletons with three completely different polycyclic patterns. We have developed a programmed cyclization sequences through Staudinger reactions for construction of different polycyclic frameworks from a common intermediate. Another different strategy for total synthesis of these molecules were achieved by exploiting a cyclic carbamate for generation of a tertiary carbocation to undergo an intramolecular Friedel−Crafts alkylation to construct the all-carbon quaternary center in the molecules. The new chemistry and strategies allowed for two different routes for divergent total syntheses of leuconodine B, melodinine E, leuconoxine, leuconolam and mersicarpine.



**Scheme 1**. Divergent Syntheses of monoterpene indole alkaloids

**References**

1. Goh, S. H.; Ali, A. R. M. *Tetrahedron Lett*. **1986**, *27*, 2501–2504.
2. Kam, T.-S.; Subramaniam, G.; Lim, K.-H.; Choo, Y.-M. *Tetrahedron Lett*. **2004**,*45*, 5995–5998.
3. Li, Z.; Liang, G. *Tetrahedron Lett*. **2013**, *54*, 242−244.
4. Lv, Z.; Li, Z.; Liang, G. *Org. Lett*. **2014**, *16*, 1653–1655.
5. Li, Z.; Geng, Q.; Lv, Z.; Pritchett B. ; Baba, K.; Numajiri, Y.; Stoltz, B. M.; Liang, G.;Submitted.

**CURRICULUM VITAE −Prof. Dr. Guangxin Liang**

Since 2009 Professor of Chemistry (SKLEOC), Nankai University, Tianjin, China.

2007-2009 Senior Research Scientist, Global Pharmaceutical R&D center, Abbott Laboratory, USA

2002-2007 PhD, Organic Chemistry, University of California, Berkeley, USA.

2000-2002 MS, Organic Chemistry, The Ohio State University, USA.

1993-1997 BS, Chemistry, Nankai University, Tianjin, China.

Email： [lianggx@nankai.edu.cn](mailto:cmcui@nankai.edu.cn)