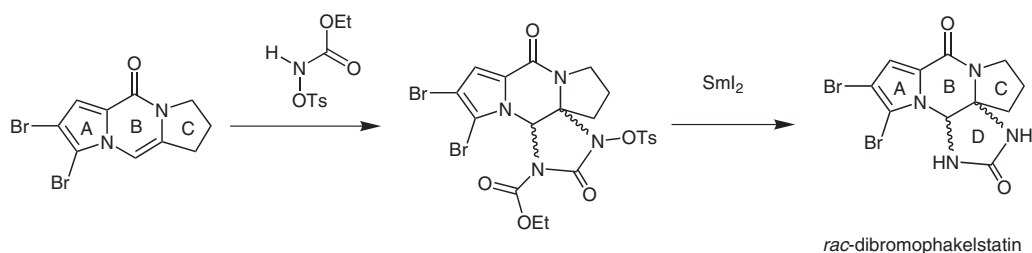


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Total Synthesis of the Marine Natural Product *rac*-Dibromophakellstatin

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## Total Synthesis of the Marine Natural Product *rac*-Dibromophakellstatin



**Significance:** A synthesis of *rac*-dibromophakellstatin in five steps with unknown overall yield is reported. The crucial synthetic step is the unusual D-ring formation, which involves the reaction of the electron-rich enamine (B-ring) with a nitrogen electrophile. An NMR study and X-ray crystallographic analysis are reported.

**Comment:** Pyrrole-imidazole alkaloids constitute a family of over 100 natural products with interesting pharmacological activities, including cytotoxicity and immunosuppressive activity. The current synthesis may be compared to previous multi-steps routes (up to 15 steps for enantiomerically pure compounds) (L. H. Foley, G. Büchi *J. Am. Chem. Soc.* **1982**, *104*, 1776-1777; K. J. Wiese, K. Yakushijin, D. A. Horne *Tetrahedron Lett.* **2002**, *43*, 5135-5136; K. G. Poullennec, D. Romo *J. Am. Chem. Soc.* **2003**, *125*, 6344-6345). The unusual ring D construction step may find application in other systems for imidazolidinone annulations.

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