Synthesis of Norhalichondrin B

Significance: Norhalichondrin B is a marine polyether with potent cytotoxicity. Key to this synthetic approach are the Nozaki–Hiyama–Kishi reactions and the tandem Achmatowicz oxidation–ionic hydrogenation which form the pyranopyran systems.

Comment: The Nozaki–Hiyama–Kishi reactions were run in the presence of chiral ligand I where R was either methyl or naphthyl. The Achmatowicz oxidation–hydrogenation was highly diastereoselective (dr > 20:1).