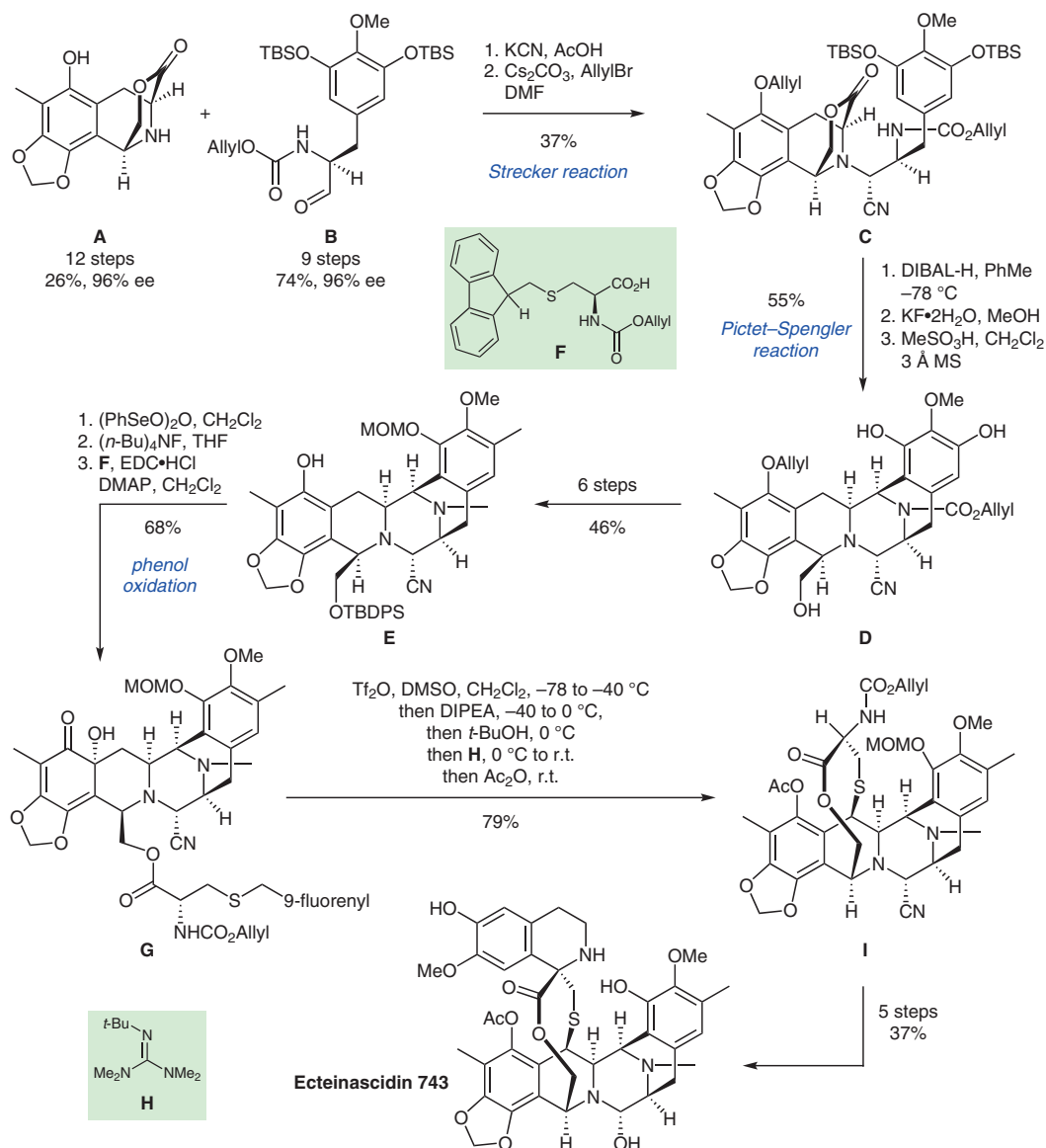


Total Synthesis of Ecteinascidin 743



Significance: In 1996, Corey and co-workers reported the first total synthesis of ecteinascidin 743. This rare marine-derived natural product showed potent anti-tumor activities and is now used in the clinic under the name Trabectedin for the treatment of soft tissue sarcoma and ovarian cancer.

Comment: Fragment coupling between **A** and **B** was achieved by the Strecker reaction. The piperazine in **D** is assembled by the Pictet-Spengler reaction. After oxidation of phenol **E**, the ten-membered lactone is constructed by a one-pot sequence consisting of elimination, deprotection, conjugate addition, and acylation to afford **I**.