Application of Natural Resources to Drug Discovery in Eisai

Research and Development of Eribulin mesylate

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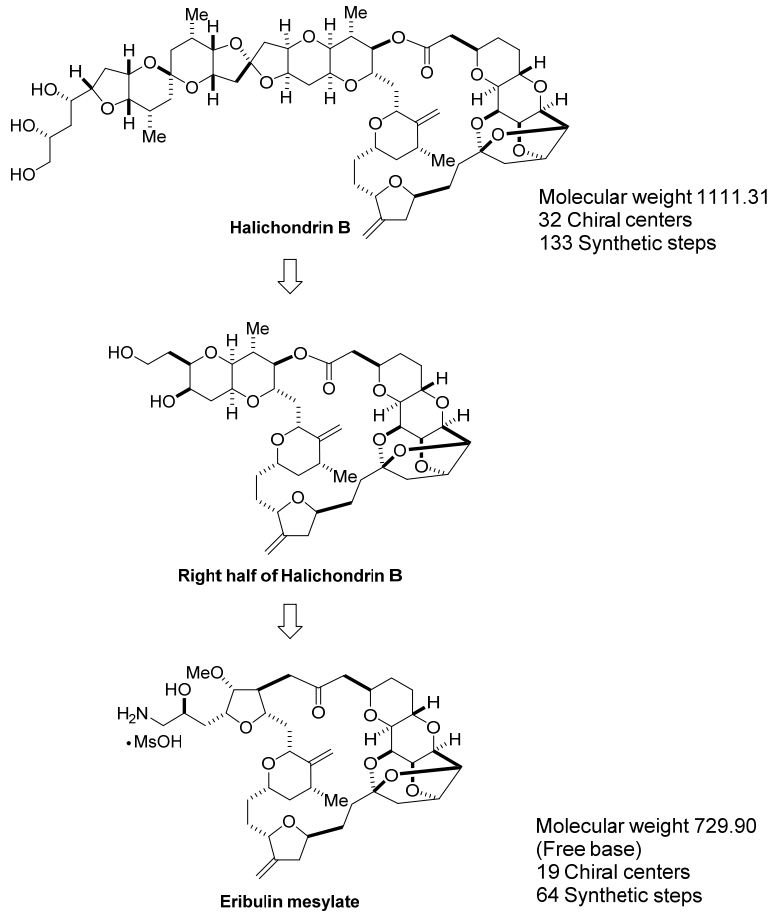
Eribuin mesylate is a first-in class, non-taxane microtubule dynamics inhibitor that is currently approved for clinical use in more than 60 countries for treatment of certain patients with previously treated metastatic breast cancer. Recently, eribulin mesylate has been approved for use in the treatment of soft tissue sarcoma.

Eribulin mesylate is a fully synthetic analogue of marine natural product halichondrin B that was isolated from marine sponge Halichondria Okadai.[1] After development of the total synthesis and discovery of pharmacophore, [2] medicinal chemistry work led to the discovery of the "simplified" analogue eribulin. Eribulin still has 19 chiral centers, requiring more than 60 steps of synthesis. Was this a challenge? Or was this a gamble?



1) Y. Hirata, D. Uemura, *Pure Appl. Chem.*, ***58,*** 701 (1986)

2) a) Y. Kishi, et al., *J. Am. Chem. Soc.*, ***114,*** 3162 (1992); b) Y. Kishi, et al., *US Patent*, 5338865 (1994)