Total synthesis of manginoid D

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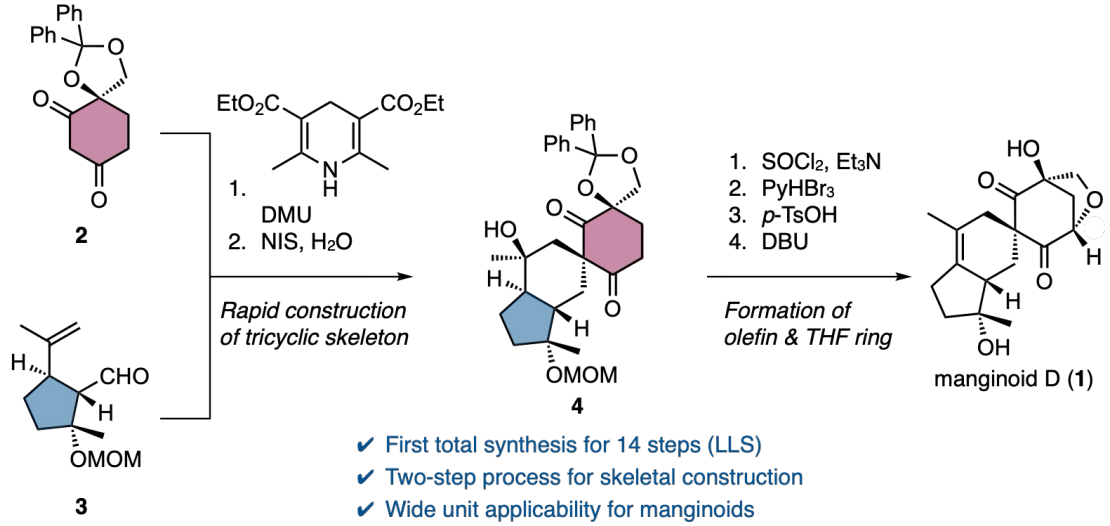
Meroterpenoids are a class of natural products produced mainly by plants and fungi and typically represent significant biological activities. However, their complex and diverse molecular structures composed of partial terpenoids demand multistep synthetic processes, posing substantial challenges in organic synthesis. In 2017, manginoid meroterpenoids were isolated from *Guignardia mangiferae* and identified as the first example of spiro meroterpenoids with a tricyclic carbon skeleton, the spiro[cyclohexane-1,5'-indene] ring.[1] While the two elegant syntheses of manginoids A and C have been accomplished,[2,3] the formation of the complex skeleton required the multistep procedure.

In this study, our rapid skeletal construction strategy enabled the total synthesis of manginoid D (**1**). This strategy is a convergent approach that connects two units in a short sequence previously established.[4] Specifically, Knoevenagel condensation/reduction between diketone **2** and meroterpenoid **3** and subsequent the intramolecular cyclization with NIS constructed the tricyclic carbon skeleton to afford **4** successfully. Dehydration of **4** with thionyl chloride, followed by three conversions, formed the olefin and the THF ring, respectively, to achieve the first synthesis of manginoid D (**1**). The synthetic strategy offers the short-step synthesis of other manginoid analogues, addressing key challenges in the synthesis of meroterpenoids.



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