

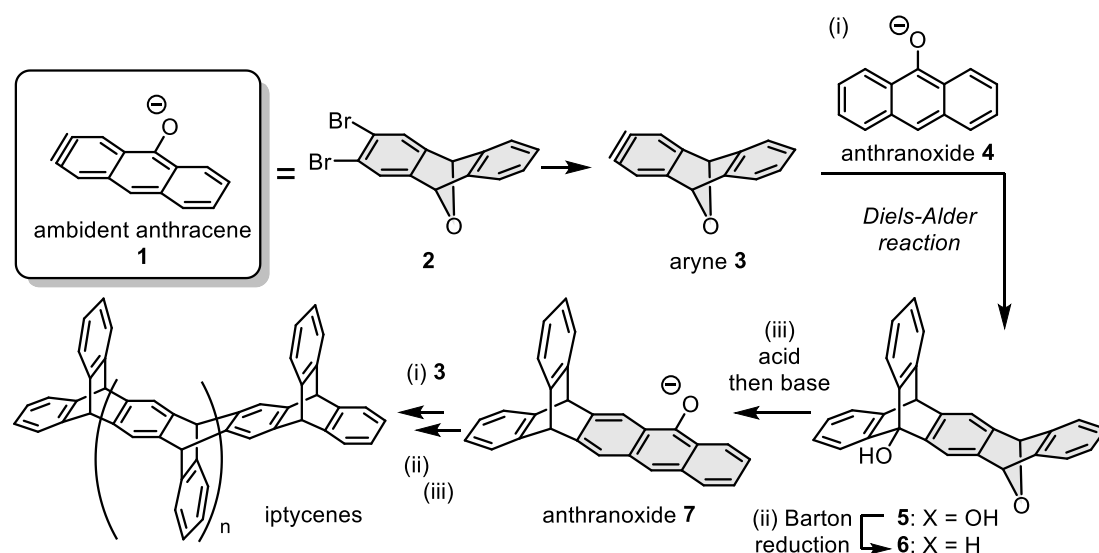
## ▪ Synthesis of Iptycenes Using Ambident Anthracene

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Iptycenes are aromatic compounds in which arenes are fused with barrelene scaffold. Based on the unique and rigid structure, iptycenes have been used in the fields of supramolecular chemistry, molecular machine, materials science, etc. However synthetic methods of iptycenes, in particular large iptycenes which have more than seven benzene rings, are very limited. We have recently developed a novel synthetic methods of triptycenes utilizing Diels-Alder reaction between arynes and electron-rich anthranoxides derived from anthrones.<sup>1</sup> In this presentation, we will report synthesis of iptycenes using “ambident anthracene **1**”, which has both aryne and arynophile moieties.

2,3-Dibromo-9,10-dihydro-9,10-epoxyanthracene (**2**) was used as an equivalent of ambident anthracene **1**. The strategy to synthesize iptycenes comprises of three steps; (i) formation of aryne **3** and *in situ* Diels-Alder reaction with anthranoxide **4** to construct triptycene scaffold, (ii) removal of the bridgehead hydroxy group by Barton deoxygenation (**5** to **6**), and (iii) formation of anthranoxide **7** by ring-opening of the ether ring system and subsequent deprotonation. Arynophile **7** was further treated with aryne **3** and repeating these steps successfully provided large undeciptycene bearing up to eleven benzene rings.



(1) T. Iwata, M. Hyodo, T. Fukami, Y. Shiota, K. Yoshizawa, M. Shindo, *Chem. Eur. J.* **2020**, *26*, 8506.