RADICAL MIGRATION FOR SYNTHESIS OF MEDIUM-SIZED RINGS

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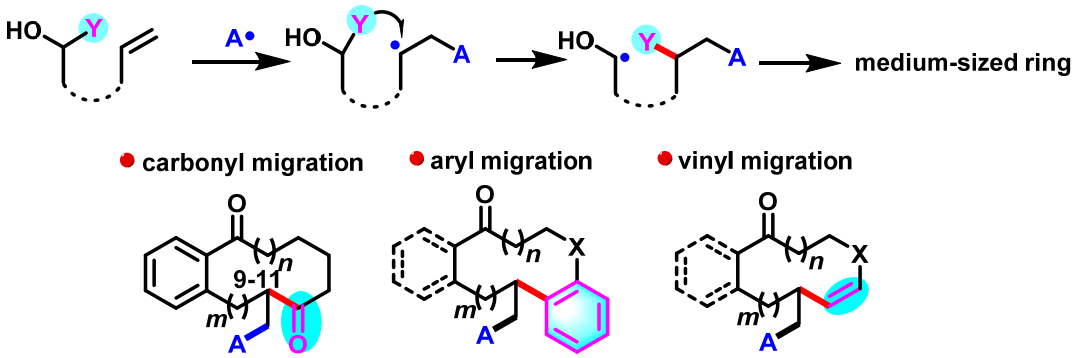
Medium-sized and medium-bridged rings are important structural motifs in natural products and bioactive molecules. Due to the unfavorable entropic and/or enthalpic factors with these ring systems, their efficient construction remains a great challenge. Unactivated alkenes are one of the most abundant and cheap feedstocks and thus represent excellent building blocks for chemical synthesis. We herein designed a radical-based approach for synthesis of medium-sized ring systems via radical carbonyl, aryl and vinyl migration process.[1-3] The reaction is initiated by the addition of radical A to alkenes to generate a alkyl radical, followed by remote carbonyl, aryl and vinyl migration to provide a relatively stable ketyl radical intermediate. A further single electron oxidation of ketyl radical affords the final ketone product (Scheme 1). A range of skeletally diverse medium-sized rings are obtained via these strategies.



Scheme 1 Radical migration for synthesis of medium-sized rings

[1] **Li, Z.-L.;** Li, X.-H.; Wang, N.; Yang, N.-Y.; Liu, X.-Y. *Angew. Chem., Int. Ed.* **2016**, *55*, 15100.

[2] Li, L.;[+] **Li, Z.-L.;**[+] Wang, F.-L.; Guo, Z. Cheng, Y.-F.; Wang, N.; Fang, C.; Liu, J.; Hou, C.; Tan, B. Liu, X.-Y. *Nat. Commun.* **2016**, *7*, 13852.

[3] Li, L.;[+] **Li, Z.-L.;**[+] Gu, Q.-S.; Wang, N.; Liu, X.-Y. *Sci. Adv.* **2017**, *3*, e1701487.