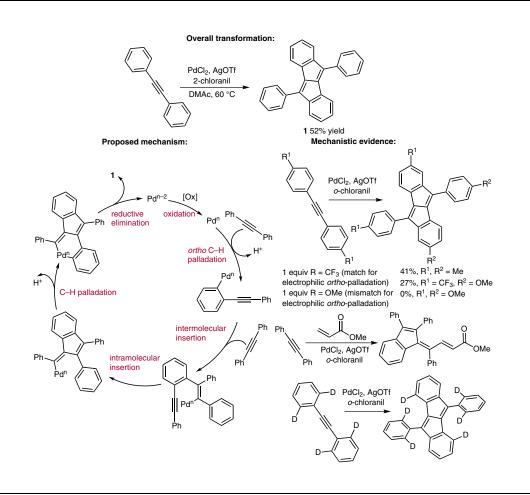
T. MAEKAWA, Y. SEGAWA, K. ITAMI\* (NAGOYA UNIVERSITY, JAPAN) C-H Activation Route to Dibenzo[*a,e*]pentalenes: Annulation of Arylacetylenes Promoted by PdCl<sub>2</sub>-AgOTf-*o*-Chloranil *Chem. Sci.* **2013**, *4*, 2369–2373.

## Dibenzo[a,e]pentalenes by ortho C-H Activation



**Significance:** Itami and co-workers have devised an elegant synthesis of dibenzo[*a*,*e*]pentalene (**1**), a classic  $\pi$ -conjugated polycyclic hydrocarbon, through the dimerization of aryl acetylenes. Unlike other approaches to **1**, this method does not require *ortho* functionalization of the aryl group. Instead, this position is activated through an electrophilic palladation/C–H activation. The *ortho* selectivity was demonstrated by a deuterium-labeling experiment and an analysis of substituents effects supports the proposed electrophilic palladation mechanism.

**SYNFACTS Contributors:** Timothy M. Swager, Ellen M. Sletten Synfacts 2013, 9(8), 0833 Published online: 18.07.2013 **DOI:** 10.1055/s-0033-1339400; **Reg-No.:** S07013SF **Comment:** Following the *ortho* C–H activation, a catalytic cycle is proposed involving two insertion steps (intermolecular followed by intramolecular), another C–H palladation, and reductive elimination to yield the desired dibenzo[*a*,*e*]pentalenes. The cycle is completed by re-oxidation of the palladium. Trapping and cross-dimerization experiments support the hypothesized catalytic cycle. The authors also demonstrate this method is effective with asymmetric aryl acetylenes.

## Category

Synthesis of Materials and Unnatural Products

## Key words

C-H activation

palladium catalysis

annulation

