Flexible and Practical Synthesis of Anthracenes through Gold-Catalyzed Cyclization of $o$-Alkynyl(diarylmethanes)

**Gold-Catalyzed Synthesis of Anthracenes**

Significance: The gold-catalyzed synthesis of anthracene derivatives from their corresponding $o$-alkynyl(diarylmethanes) is reported. Compared to previously reported syntheses, the presented method is a mild and atom-economic approach that enables access to functionalized anthracenes from a wide substrate scope in good yields.

Comment: In addition to anthracenes, the authors report the synthesis of a tetracene derivative (see above) from a naphthalene-containing substrate, thus demonstrating the potential of this synthetic strategy in the synthesis of functionalized extended acenes.

**Proposed mechanistic pathways:**

Substrate: $R_1 R_2 R_3 R_4$  
Product: $R_1 R_2 R_3 R_4$

**Selected examples:**

- Substrate: $\text{Ph} \quad \text{Ph} \quad \text{Et}_3 \text{PAuNTf}_2 (5 \text{ mol\%})$  
  Product: $\text{Ph} \quad \text{Ph} \quad \text{OH} \quad \text{OH}$  
  Yield: $62\%$  
  Yield: $68\%$  
  Yield: $71\%$  
  Yield: $80\%$

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**Key words:** anthracenes, gold-catalyzed cyclization