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 Synthesis and Evaluation of a 1,3a,6a-Triazapentalene (TAP)-Bonded System  
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# 1,3a,6a-Triazapentalene Systems: Towards Extended Planar Materials

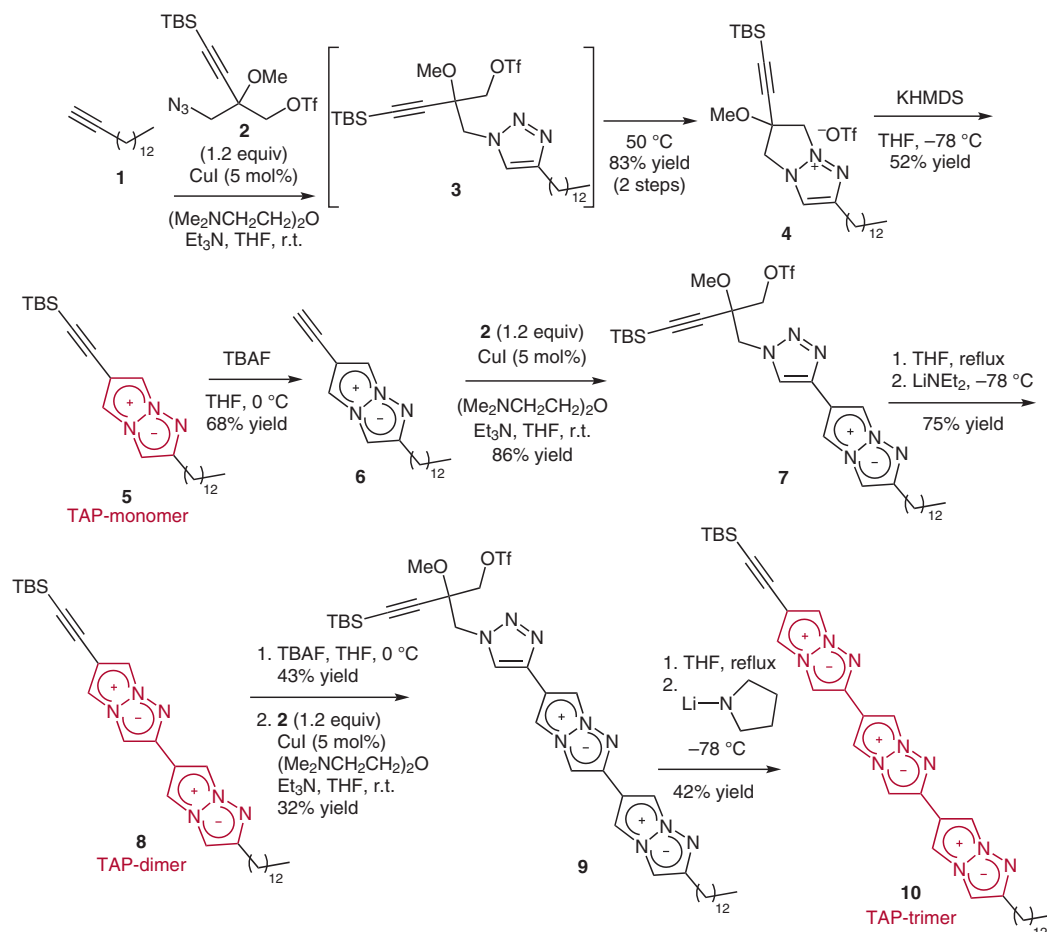
Category

Synthesis of  
Materials and  
Unnatural Products

Key words

nitrogen  
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Synfact  
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**Significance:** Designing linearly bonded aromatic systems with a planar form introduces new materials with highly conductive properties for potential applications in molecular wires. A recently developed 1,3a,6a-triazapentalene (TAP) has been developed as a novel fluorescent chromophore with a  $10\pi$ -electron system in a compact bicyclo[3.3.0]-octane skeleton (highlighted core of **5**). The dimer and trimer (**8** and **10**, respectively) were synthesized sequentially and characterized by a linear connection in planar form with alternating charges between the linked monomers.

**Comment:** Tap units were synthesized by click reactions of alkynes (**1**) with azidotriflate (**2**), which could be extended by sequential reactions repeating the same procedure. The alternating charge led to unique fluorescence properties derived from changes in the aggregation state under concentrated conditions. Extension of the bonded systems also resulted in increased fluorescence in the solid state and fluorescence change upon mechanical grinding.

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