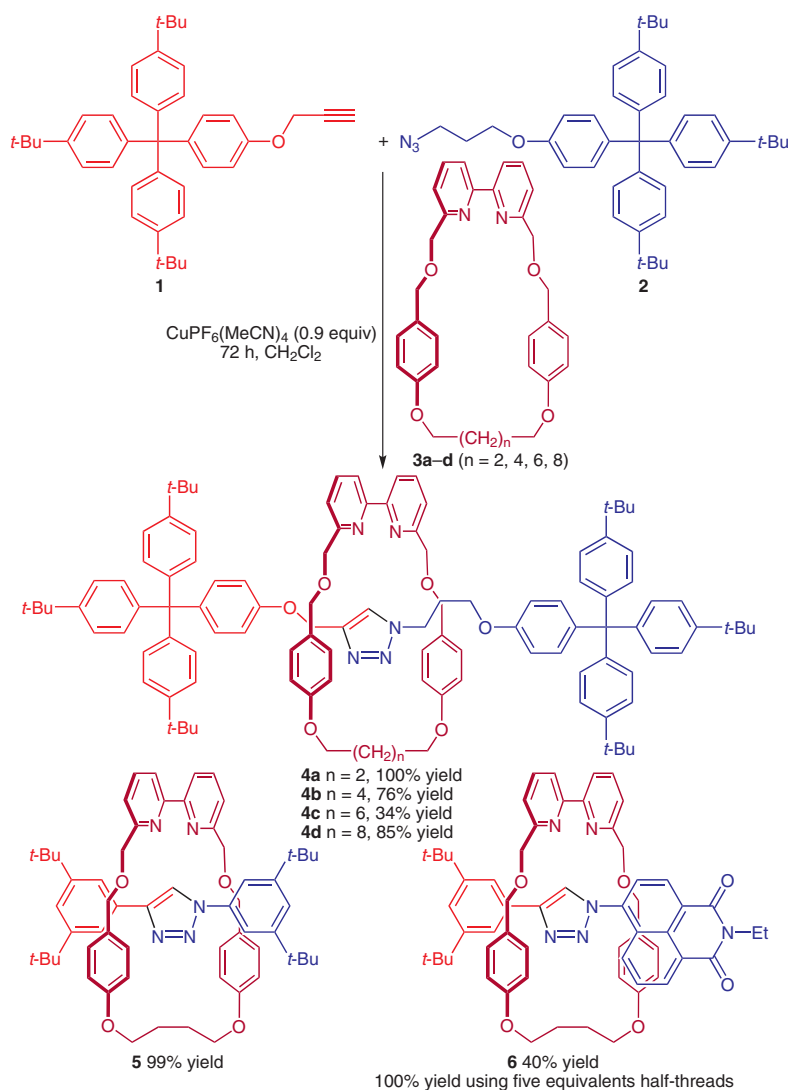


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Macrocycle Size Matters: 'Small' Functionalized Rotaxanes in Excellent Yield Using the CuAAC Active Template Approach

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## Small Macrocycle Rotaxanes in High Yields



**Significance:** Rotaxanes with tightly fitting macrocycles are interesting for applications that require the thread to be shielded by the macrocycle (for example, mechanically protected dyes) or that involve interaction between thread and macrocycle. The authors present an efficient synthetic route to this type of rotaxanes (**4–6**), using an active template approach.

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**Comment:** Using the smallest of the presented macrocycles, this route is particularly successful, and rotaxane **4a** was obtained in quantitative yield. Using the same macrocycle, several rotaxanes, such as **5** and **6**, were synthesized in excellent yield. It has to be noted, however, that in the case of **6** five equivalents of the half-threads had to be used in order to achieve quantitative rotaxane formation.

Category

Synthesis of  
Materials and  
Unnatural Products

Key words

rotaxanes

click chemistry

template synthesis

**SYNFACT**  
*of the month*