C. S. HARTLEY, J. S. MOORE* (UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN, USA)
 Programmed Dynamic Covalent Assembly of Unsymmetrical Macrocycles
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A Dynamic Covalent Approach

Significance: The authors demonstrated the first sequence-directed, dynamic covalent approach to unsymmetrical macrocycles like **A₆**, **(AB)₃**, **A₅B**, **A₄B₂**, and **A₃B₃** using imine formation and exchange. Formation of macrocycle **A₆** was carried out by treating **1^{AA}** with $\text{Sc}(\text{OTf})_3$ in 1,2,4-trichlorobenzene at 75 °C for 3 hours, followed by stirring under reduced pressure (1 mmHg) at room temperature for 5 hours. By combining corresponding monomer(s), **(AB)₃**, **A₅B**, **A₄B₂**, and **A₃B₃** were also obtained in similar manner.

Comment: This paper describes the first examples of sequence-directed dynamic covalent chemistry and offers a thermodynamically controlled route to unsymmetrical shape-persistent macrocycles as well as basic tools for the self-assembly of complex organic nanostructures.

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