

# Living supramolecular polymerization as a tool for the syntheses of mesoscopic structures

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Supramolecular polymers are expected in a variety of applications; nevertheless, its synthetic methodology had remained unestablished. In 2014, we demonstrated living supramolecular polymerization, a method to control supramolecular polymerization in a way similar to living polymerization [1]. Since then, we have achieved a variety of mesoscopic supramolecular structures with controlled size and shape [2].

During the course of this study, we discovered a unique mesoscopic structures: concentric toroids (Figure 1) [3]. Mechanistic insight into the propagation of concentric toroids suggested that it involves secondary nucleation as a rate-determining step. With this understanding, we succeeded in the synthesis of multi-component concentric toroids, which can be considered as two-dimensional block polymers, with tailored composition and sequence [4].

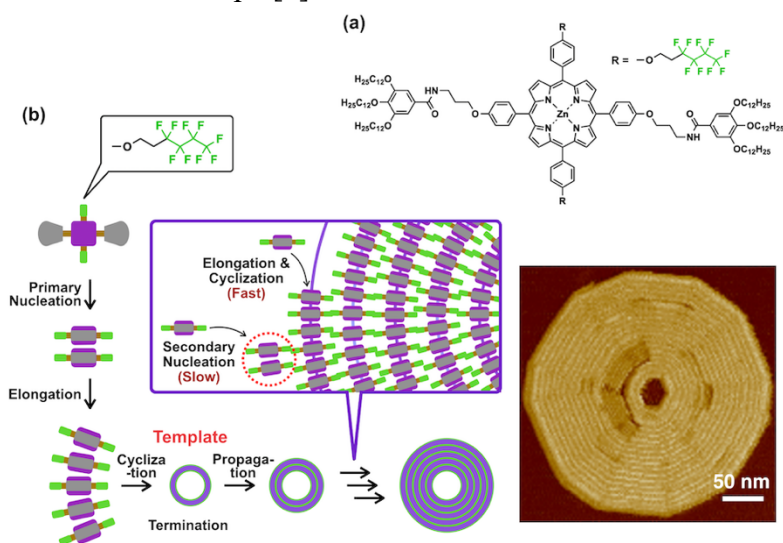


Figure 1. Propagation of supramolecular concentric toroids.

## References

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