

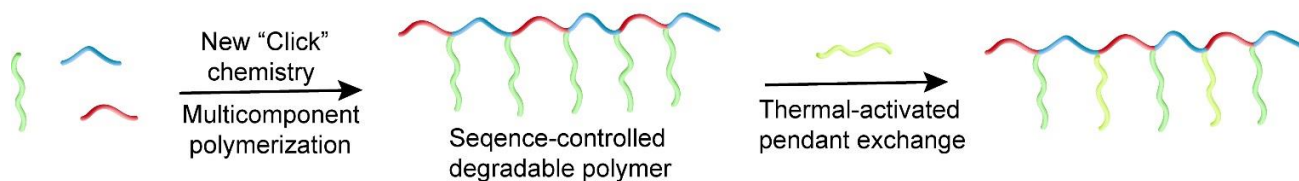
## Multicomponent polymerization for the synthesis of degradable polymers with a thermal-activated dynamic covalent behavior

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Recently, multicomponent reactions (MCRs) were introduced into polymerizations which have been efficient and robust strategies for the construction of polymer architectures with unique and distinct properties. However, the number of MCRs suitable for multicomponent polymerizations (MCPs) is still limited. Herein, we report a new MCR which happens in a “Click” chemistry manner without any catalyst needed. This MCR has been applied for polymerization, generating sequence-controlled polymers with excellent degradability in phosphate buffer. More interestingly, the synthesized polymer demonstrates an interesting thermal-activated dynamic covalent behavior, which makes this chemistry a good candidate for the construction of thermal-controlled chemical switch. To the best of our knowledge, this is the first report about a polymer obtained from a multicomponent reaction, which exhibits a thermal-activated dynamic covalent behavior. We expect this chemistry can be applied into materials coating and modification in the future. The multicomponent nature of this chemistry brings opportunities to precisely tune materials properties from structural aspects.

### Polymers from a Multicomponent Polymerization and the Dynamic Covalent Behavior



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