Base-Triggered Self-Amplifying Degradable Polymer

Yanhua Xu and Steven C. Zimmerman

Herein, a base-triggered, base generating, and base amplifying degradable polymer has been developed to obtain highly sensitive linear and crosslinked material. The polymer is made through a polycondensation reaction between a base-sensitive Fmoc diol and hexamethylene diisocyanate to obtain polyurethane with increased sensitivity *via* amine amplification that enables an autocatalytic degradation mechanism. The ^{1}H NMR spectra show a sigmoidal degradation curve for the linear polymer, suggesting a self-amplifying degradation effect. In a proof of concept study, we utilized a trifunctional monomer with three hydroxyl groups to make polymeric films which showed that a trace amount of base added in a local area could trigger the degradation and propagation to distant areas and eventually to the entire material. This type of polymer may find applications in precise sensing technologies or degradable microcapsules in the future.

Stereodivergent Synthesis of Anti- and Syn-1,3 Amino Alcohols

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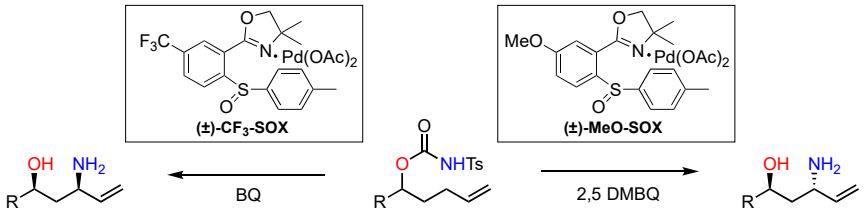
A general catalytic method for diastereoselective synthesis of both anti- and syn- 1,3 amino alcohols is elusive. Herein, we disclose a stereodivergent synthesis of *anti-* and *syn-* 1,3 amino alcohol motifs via Pd(II)/SOX (sulfoxide-oxazoline) catalyzed intramolecular allylic C-H amination of *N*-tosyl carbamate. Diastereoselectivity is tunable by switching the SOX ligand and quinone oxidant. Mechanistic studies reveal that a Pd(0)/SOX isomerization process is involved in the formation of anti-1,3 amino alcohol isomer.



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