

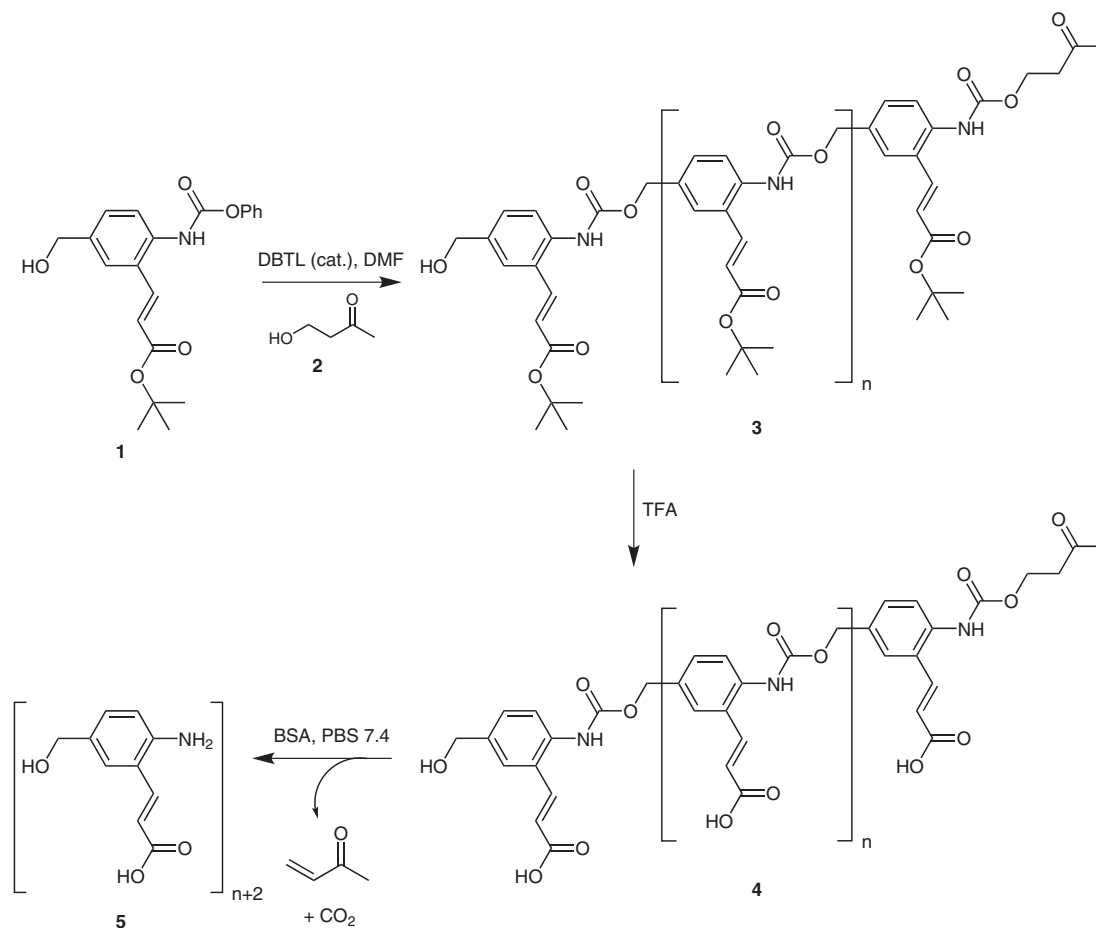
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Self-Immolative Polymers

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## A Self-Immolative Polymer



**Significance:** Self-immolative polymers incorporate triggers which, when cleaved, initiate fragmentation of the polymer into simple subunits. Self-immolative polymer **4** was synthesized by polymerization of phenyl carbamate **1** followed by capping of the terminal isocyanate with 4-hydroxy-2-butanone (**2**) and cleavage of the *tert*-butoxy protecting groups with TFA. The trigger formed by **2** can be catalytically removed by the protein bovine serum albumin (BSA, in phosphate-buffered saline, pH 7.4) through  $\beta$ -elimination. This initiates decomposition of the polymer into CO<sub>2</sub> and 4-aminobenzyl alcohol **5**.

**Comment:** The decomposition of polymer **4** can be monitored by spectrophotometry. Amino-benzylalcohol **5** has a strong fluorescence emission at 510 nm, while the amine-protected monomer **1** and polymer **4** are much less fluorescent. Thus, polymer **4** is the prototype for a new class of self-immolative polymers that may serve as signal-amplifying biocatalytic activity sensors.

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