Synthesis of Aliphatic Polyesters by “Click” Chemistry and Ring-Opening Polymerization

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During the last decade, a wide range of biodegradable and biocompatible aliphatic polyesters have been synthesized by ring-opening polymerization (ROP) of lactides and lactones. In parallel, extension of the “click” copper-mediated Huisgen 1,3-cycloaddition reaction of azides and alkynes to macromolecular chemistry has proved to be successful. 1,2 This lecture aims at reporting the recent progress made in our laboratory in the synthesis of new aliphatic polyesters by ring-opening polymerization and assistance of “click” chemistry. A special attention will be paid on the synthesis of high molecular weight tadpolye-, sun- and height-shaped polyesters by an original method based on the intramolecular cross-linking of unsaturated end-groups of chains precyclic by the initiation.3

1) R. Riva, S. Schmeits, F. Stoffelbach, Ch. Jérôme, R. Jérôme, Ph. Lecomte, Chem. Commun. 5334-5336