Electronic Supplementary Material (ESI) for Polymer Chemistry.

Establishing α-bromo-γ-butyrolactone as a platform for functional aliphatic polyesters — bridging the gap between ROP and SET-LRP

Peter Olsén, Jenny Undin, Karin Odelius, and Ann-Christine Albertsson *

Department of Fibre and Polymer Technology, KTH Royal Institute of Technology, SE-100 44, Stockholm, Sweden

*Corresponding author:aila@polymer.kth.se

Tel. +46-8-790 82 74 Fax: +46-8-20 84 77

Supporting Information

Equations for calculating conversion and composition from ^{1}H-NMR

$$Conversion_{nBuAc} = \frac{\int (Poly(nBuAc)(0{,}99ppm - 0{,}91ppm)) \; - 3 * \int (nBuAc)(5{,}87ppm))}{\int (Poly(nBuAc)(0{,}99ppm - 0{,}91ppm))}$$

$$Conversion_{MMA} = \frac{\int (Poly(MMA)(0{,}75ppm - 1{,}05ppm))}{2 * \int (MMA(5{,}62\ ppm)) \; + \int (Poly(MMA)(0{,}75ppm - 1{,}05ppm))}$$

$$Conversion_{HEMA} = \frac{\int (Poly(HEMA)(0{,}83ppm - 1{,}13ppm))}{2 * \int (HEMA(5{,}65\ ppm)) \; + \int (Poly(HEMA)(0{,}83ppm - 1{,}13ppm))}$$

$$Conversion_{\propto Br\gamma BL} = \frac{\int (\propto Br\gamma BL(4{,}34\ ppm))}{\int (\propto Br\gamma BL(4{,}55\ ppm)) \; + \int (\propto Br\gamma BL(4{,}34\ ppm))}$$

$$Composition_{\propto Br\gamma BL(\varepsilon CL)} = \frac{\int (\propto Br\gamma BL(4{,}34\ ppm))}{(\int (\varepsilon CL(4{,}05\ ppm)))/2 \; + \int (\propto Br\gamma BL(4{,}34\ ppm))}$$

$$Composition_{\propto Br\gamma BL(LLA)} = \frac{\int (\propto Br\gamma BL(4{,}34\ ppm))}{(\int (\varepsilon CL(5{,}17\ ppm)))/2 \; + \int (\propto Br\gamma BL(4{,}34\ ppm))}$$

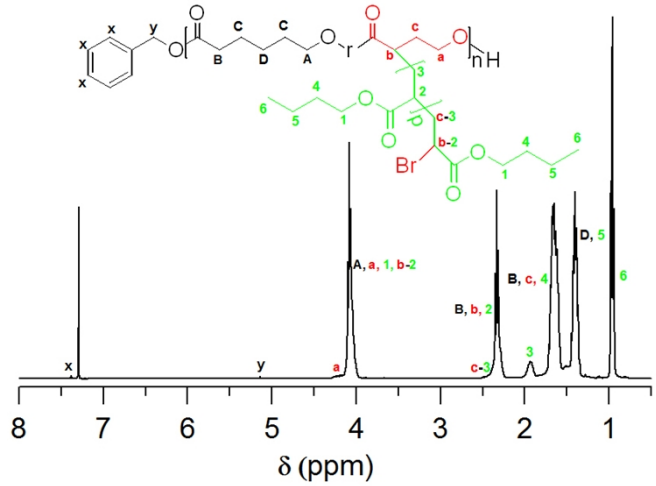

Figure S1.

^{1}H-NMR spectrum in $CDCl_3$ of poly(εCL-*r*-αBrγBL) grafted with n-butylacrylate via SET-LRP with $CHCl_3$ as internal standard.

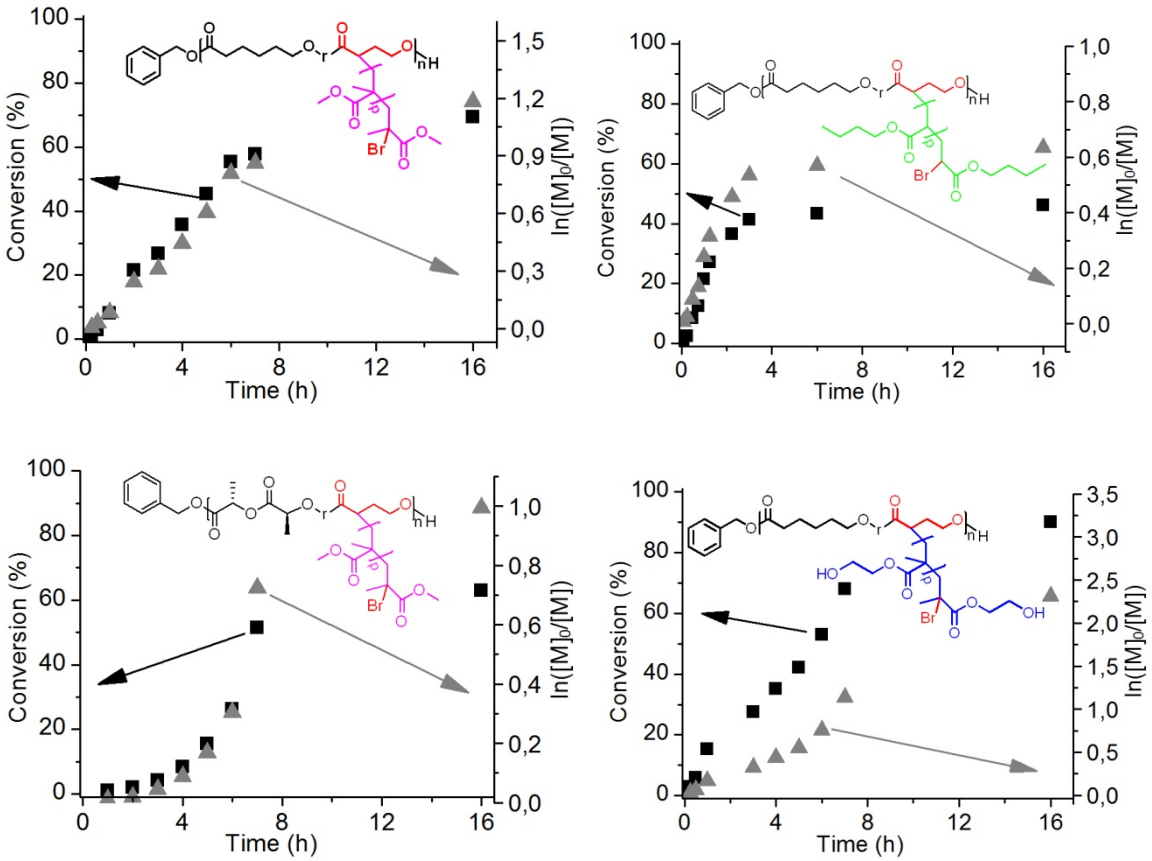

Figure S2. Depicts the conversion against time during the grafting via SET-LRP showing a linear dependence for grafting from poly(εCL-*r*-αBrγBL) whereas poly(LLA-*r*- αBrγBL) showed a deviation from this. The experimental conditions used are same as given in the experimental of the article.