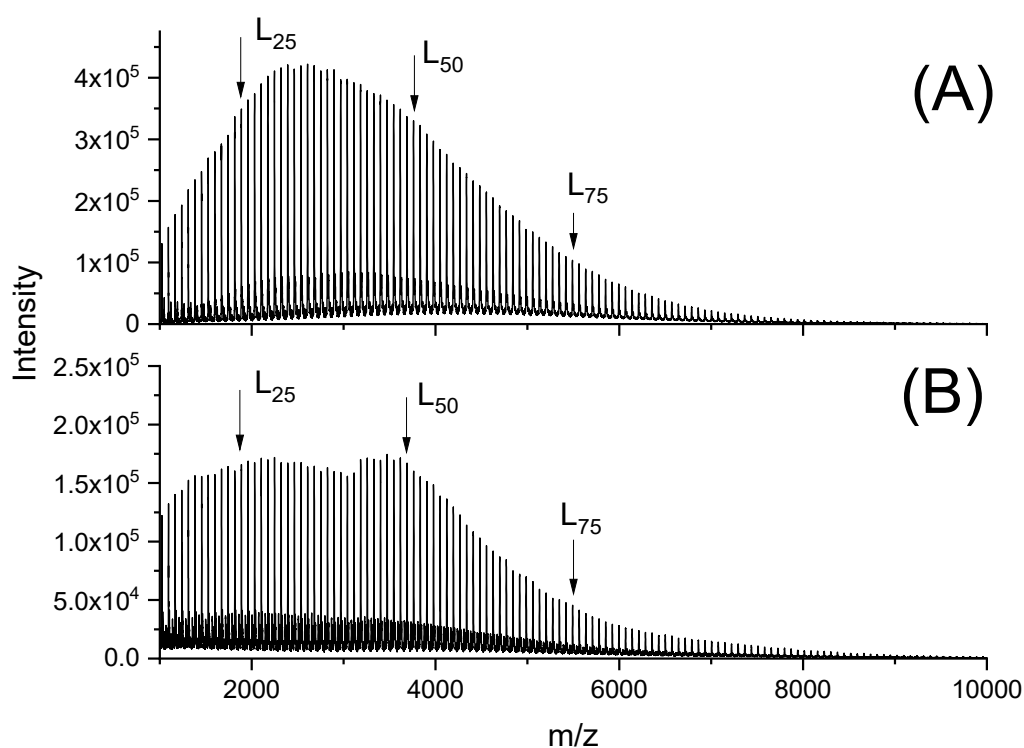


## Supplemental Information

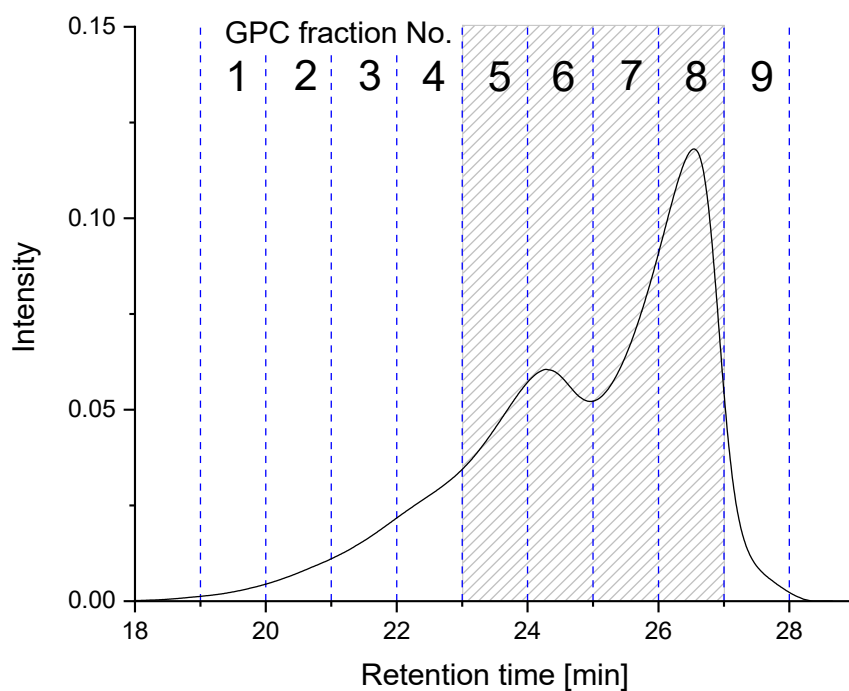
to

### Polycondensations and Cyclization of Poly(L-lactide) Ethyl Esters in the Solid State

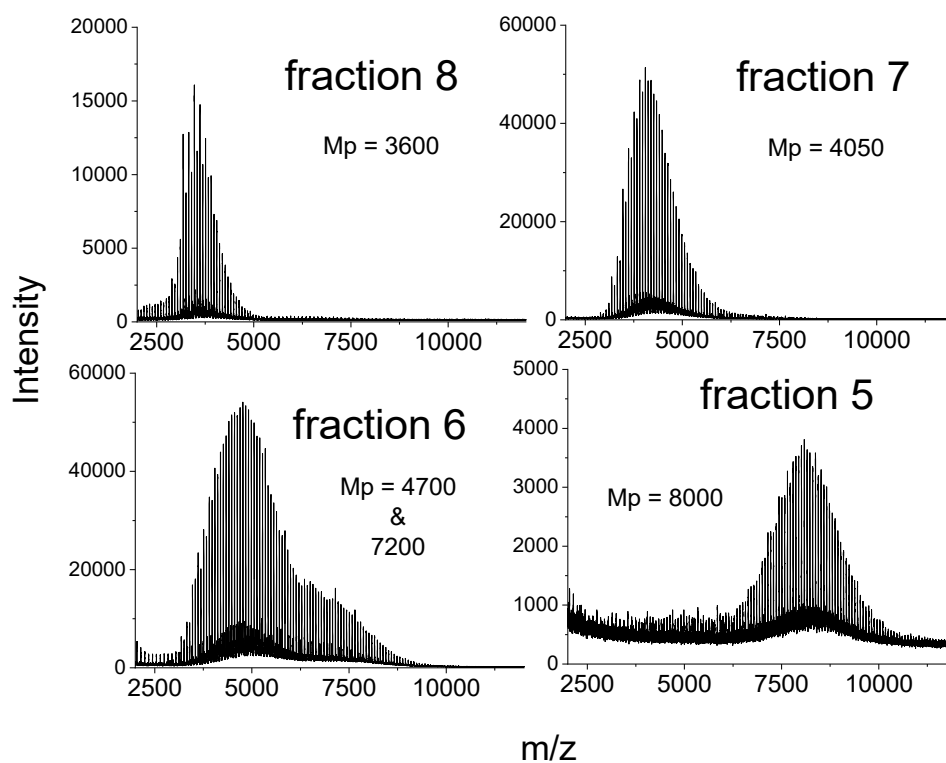
Steffen M. Weidner, Andreas Meyer, Jana Falkenhagen and Hans R. Kricheldorf



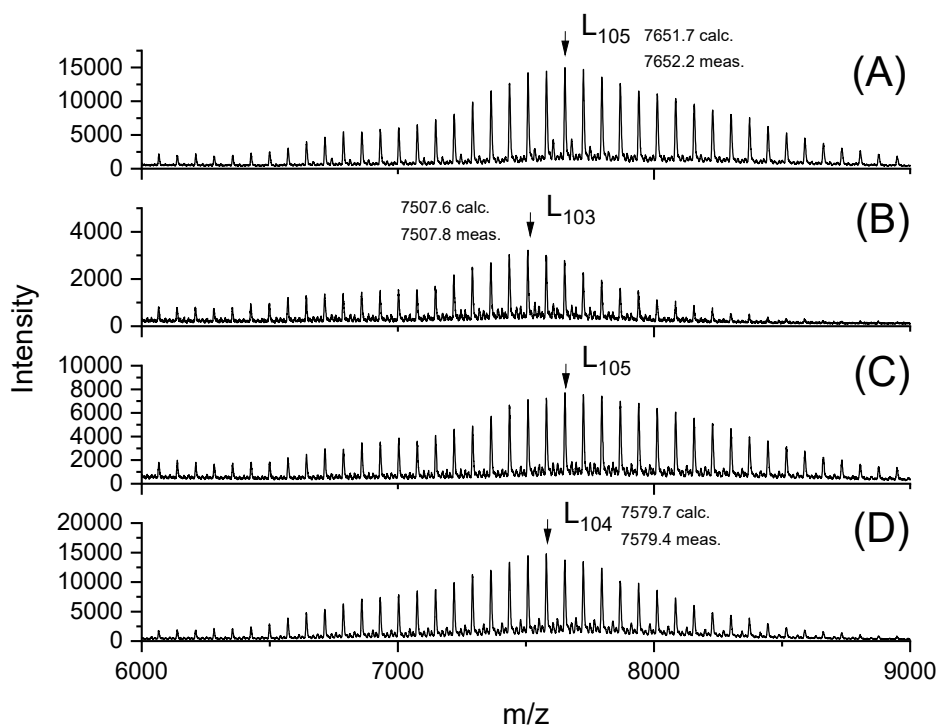
**Figure S1:** MALDI-TOF mass spectra of PLAs prepared by co-polycondensation of ELA in bulk  $T=150\text{ }^\circ\text{C}/6\text{ d}$ : (A) with  $\text{SnCl}_2$  (1, Table 1), (B) with  $\text{BuSnPhF}$  (7, Table 1)



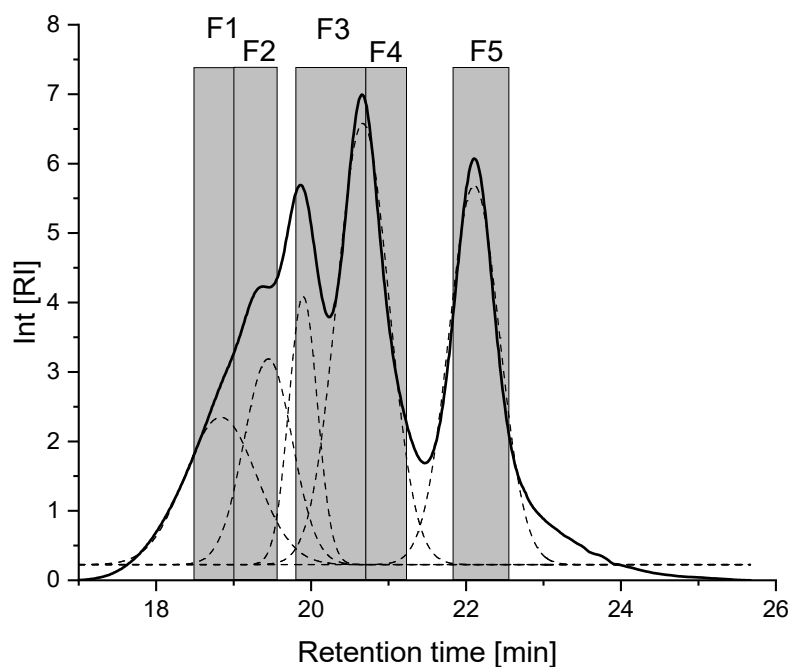
**Figure S2** GPC elution curve of a PLA prepared with BuSnPhF at 140 °C and annealed for 1 d, with indication of fractions (4BX, Table 2)



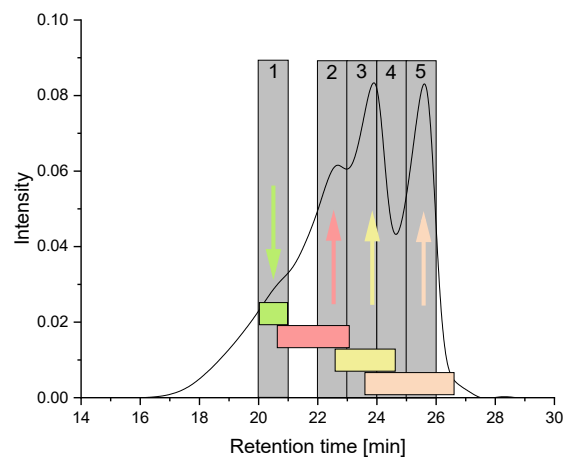
**Figure S3** MALDI TOF mass spectra of 4 GPC fractions recorded from the PLA prepared with BuSnPhF at 140 °C/ 1 d (4BX, Table 2, GPC elugram see Figure S2)



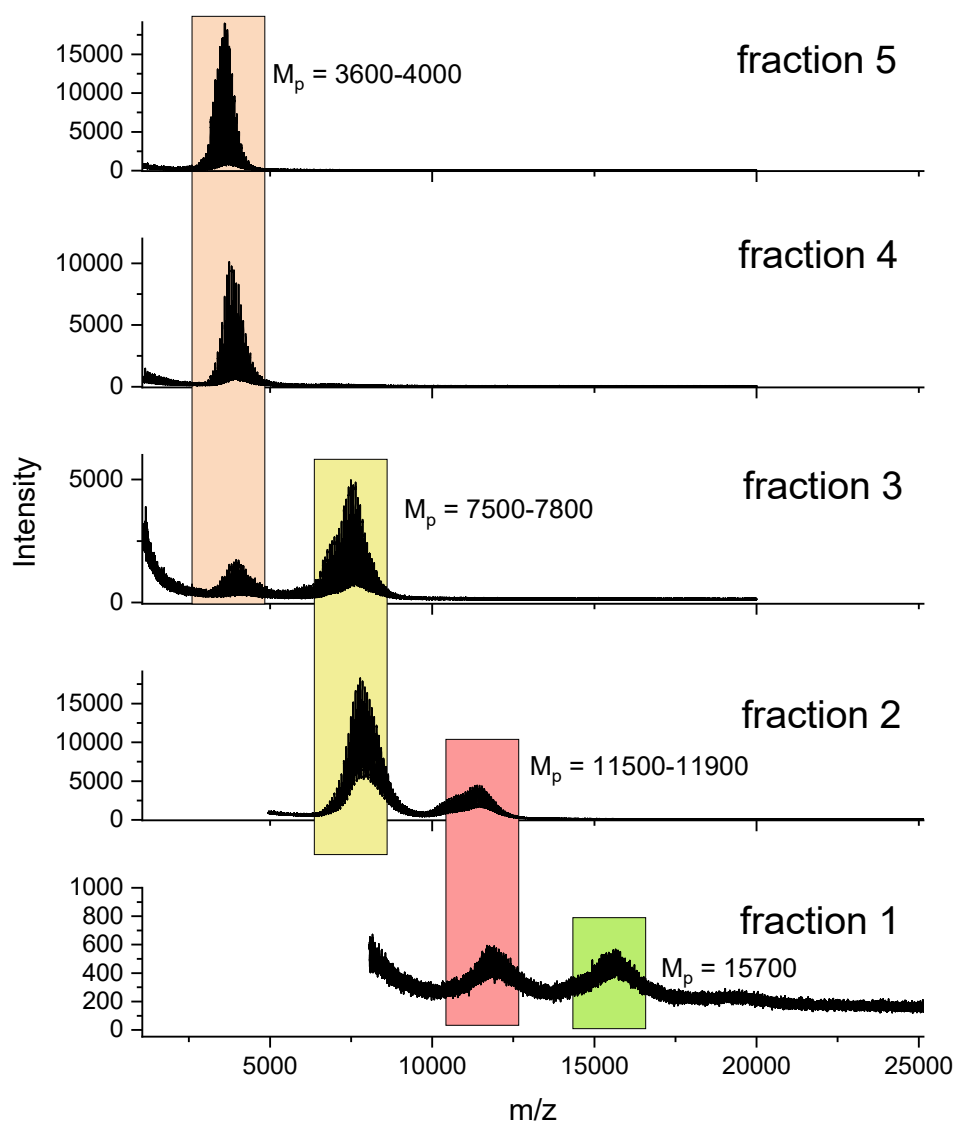
**Figure S4** MALDI-TOF mass spectra (segments) of PLAs annealed at 140 °C for 28 d: (A)  $\text{SnOct}_2$ , (B)  $\text{SnCl}_2$ , (C)  $\text{BuSnPhCl}$  and (D)  $\text{BuSnOPF}$



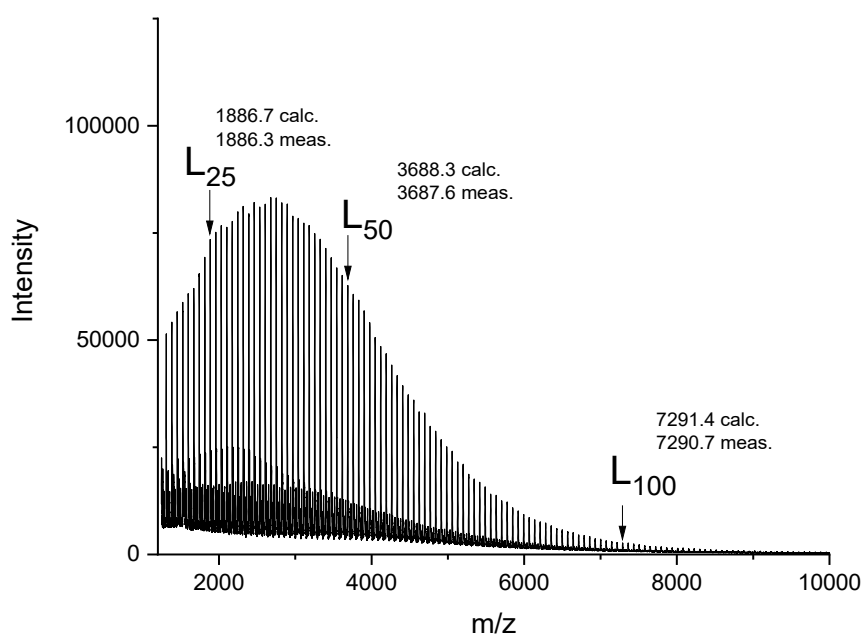
**Figure S5** GPC elution curve of a PLA prepared with  $\text{SnCl}_2$  at 140 °C/28 d (2D, Table 2) with indication of fractions taken for MALDI TOF MS



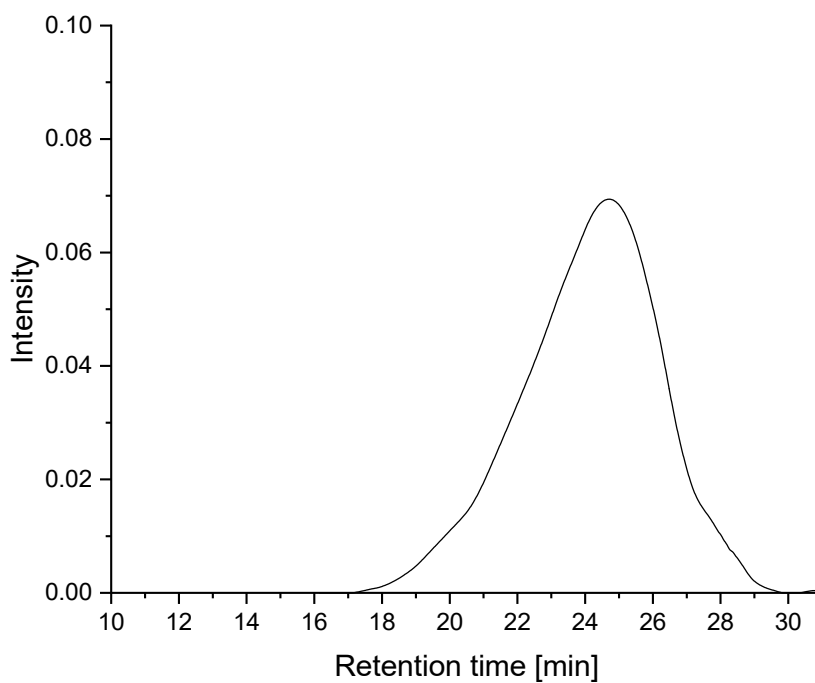
**Figure S6** SEC elution curve of a PLA prepared with BuSnPhF (4D, Table 2) with indication of fractions taken for MALDI TOF MS



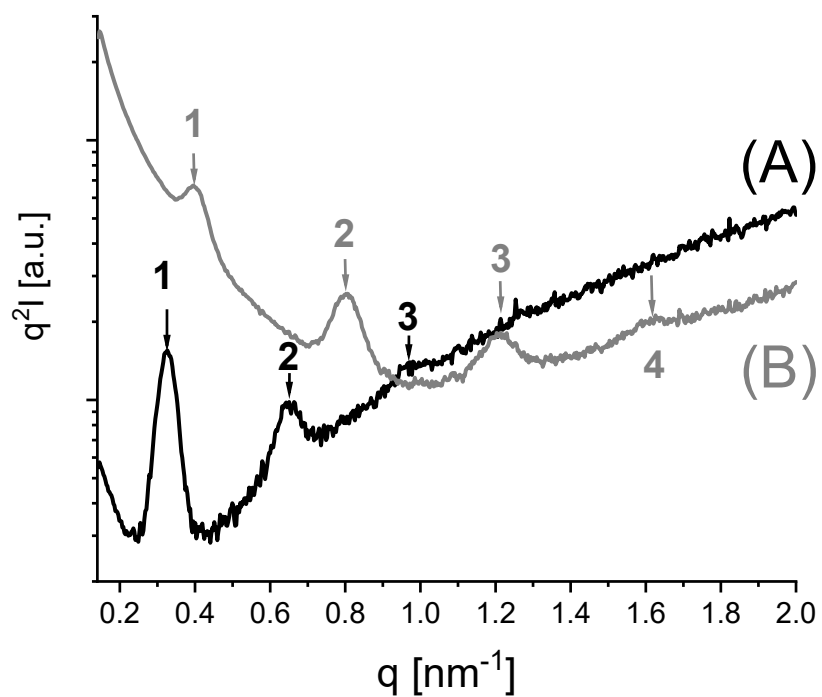
**Figure S7** MALDI TOF mass spectra of 5 GPC fractions recorded from the fractionated PLA (see Figure S6) prepared with BuSnPhF (4D, Table 2)



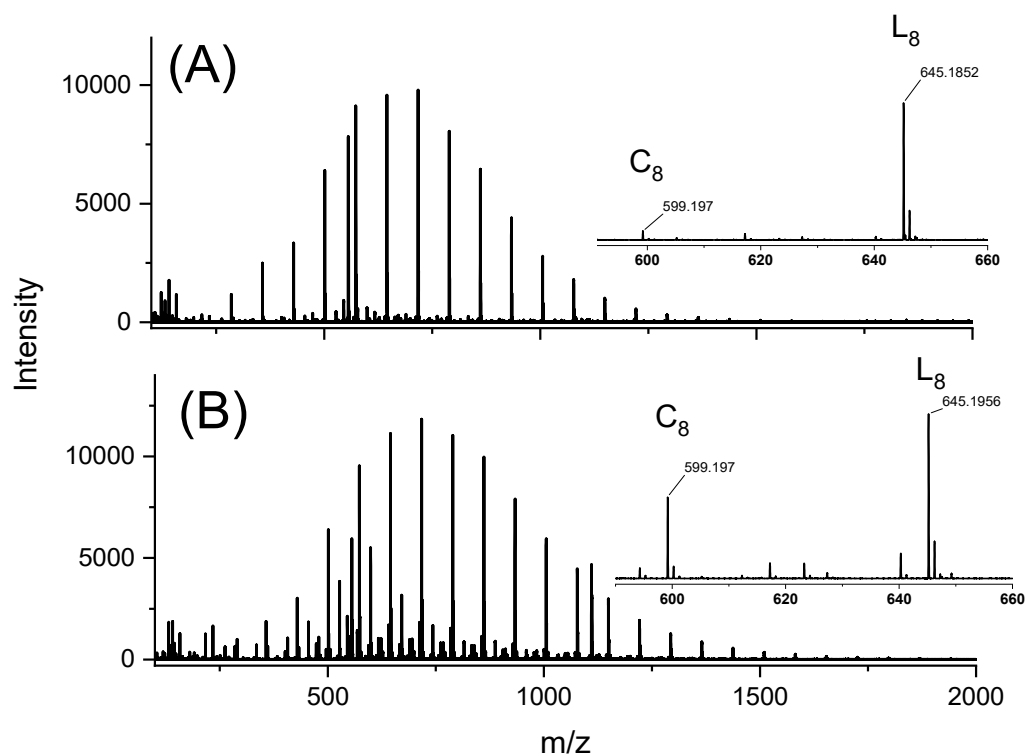
**Figure S8** MALDI TOF mass spectrum of a ELA-initiated PLA equilibrated with BuSnPhF (LA/Cat = 400/1) in anisole at 140°C/28d



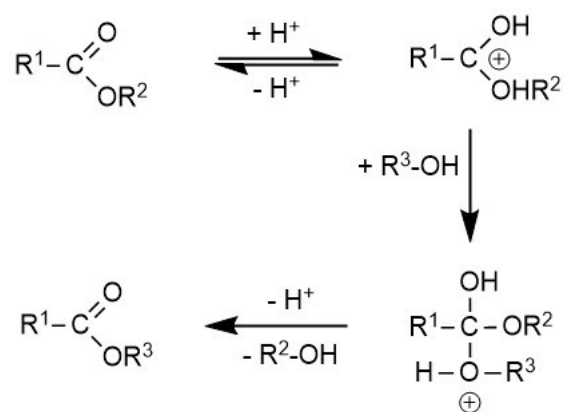
**Figure S9** GPC elution curve of an ELA-initiated PLA equilibrated with BuSnPhF (LA/Cat = 400/1) in anisole at 140 °C/28d



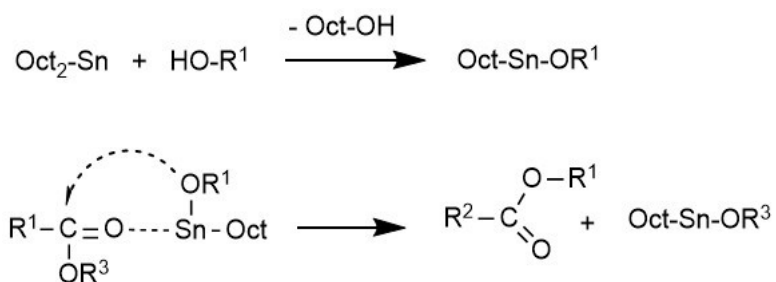
**Figure S10** SAXS curves of PLAs prepared at 140 °C with SnCl<sub>2</sub>: (A) after 1 d (2B, Table 2), (B) after 28 d (2D, Table 2)



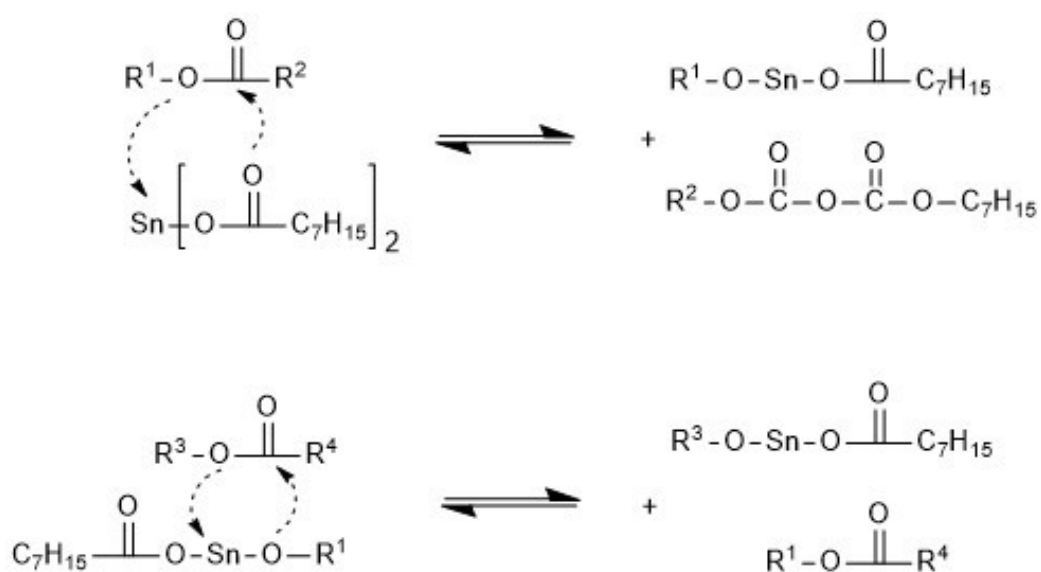
**Figure S11** ESI TOF mass spectra of PLAs annealed with SnOct<sub>2</sub>: (A) at 140 °C/7d (1C, Table 2), (B) at 160 °C/6d (1B, Table 3)



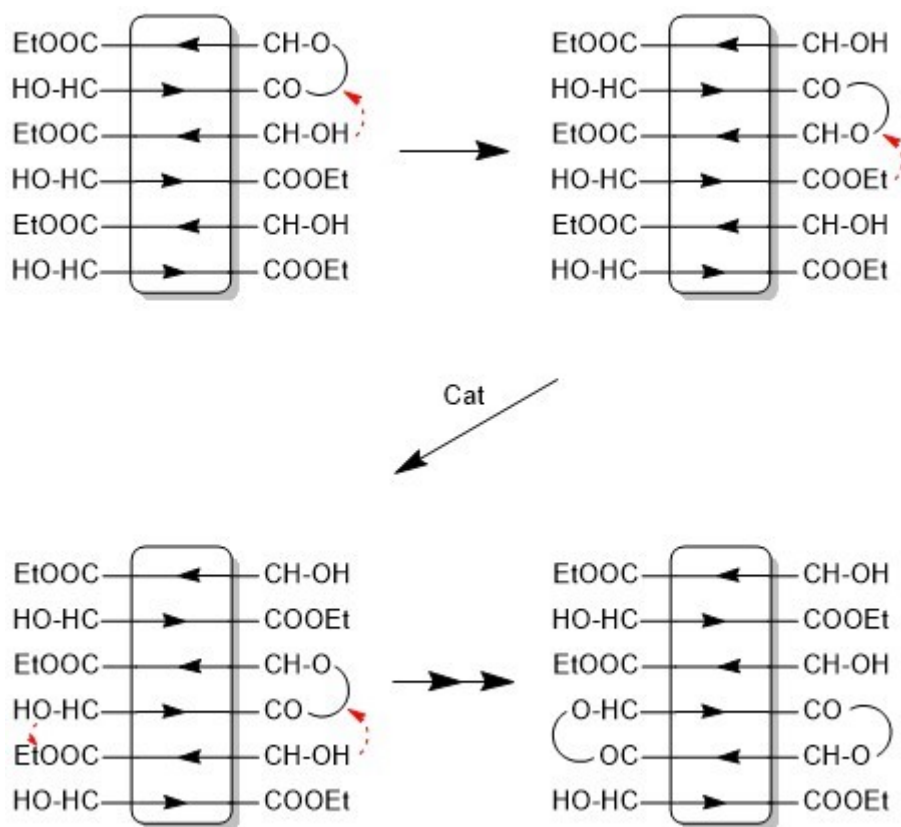
**Scheme S1** Proton-catalyzed esterification of a carboxylic acid



**Scheme S2** SnOct<sub>2</sub>-catalyzed alcoholytic transesterification



**Scheme S3** SnOct<sub>2</sub> catalyzed ester-ester interchange reaction



**Scheme S4** Schematic illustration of the “wandering loop mechanism”.