

Electronic Supplementary Information

Multifunctional poly(glycolic acid-co-propylene fumarate) electrospun fibers reinforced with graphene oxide and hydroxyapatite nanorods

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Differential Scanning Calorimetry (DSC)

The glycolide monomer (GA), PPF and the synthesized PGA-co-PPF copolymer were characterized by DSC on a Mettler DSC 30 with a TC15 TA controller using N₂ as the purging gas. Samples were heated from -120 to 130 °C, held at 130 °C for 5 min, cooled down to -120 °C and then heated again up to 130 °C. The heating and cooling rate was 10 °C/min and the sample weight was ~12 mg. The second-run DSC curve was the reference for determining the glass transition temperature (T_g) and melting temperature (T_m).

As shown in Fig. S1, GA monomer shows a T_m value of ~80°C, consistent with previous works¹ and the semicrystalline nature of PGA polymer. Conversely, the absence of a melting transition phase in the DSC curve of PPF confirms its amorphous character, and it exhibits a T_g of -25 °C, also in agreement with former studies.² Regarding the copolymer, a single broad glass transition is found at about 12 °C, implying the miscibility of PPF and GA. The lack of melting peak corroborates the amorphous nature of PGA-co-PPF, as inferred from XRD. The comparison of the DSC curves in Fig. S1 indicates the absence of residual monomer or PPF in the copolymer, hence it can be concluded that the synthesis reaction was complete.

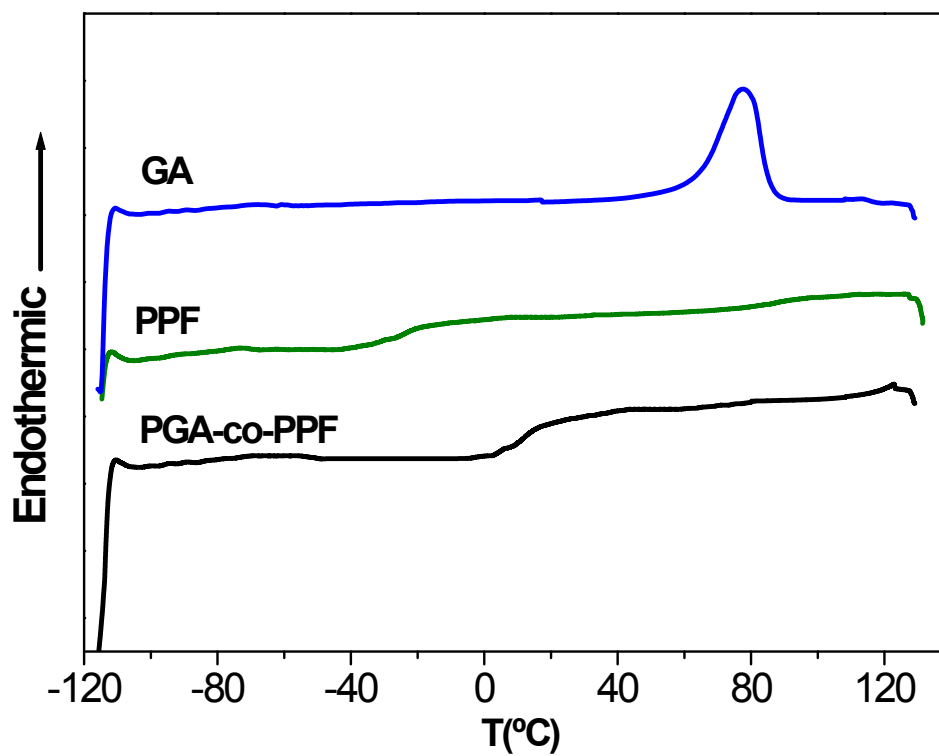


Fig. S1. DSC curves of GA monomer, PPF and PGA-co-PPF copolymer.

References

- (1) C. A. C. Erbetta, R. J. Alves, J. M. Resende, R. F. S. Freitas and R. G. de Sousa, *J. Biomater. Nanobiotechnol.*, 2012, **3**, 208-225.
- (2) S. Wang, L. Lu and M. J. Yaszemski, *Biomacromolecules*, 2006, **7**, 1976-1982.