Supporting Information

Improving Mechanical Properties and Biocompatibilities by Highly Oriented Long Chain Branching Poly(lactic acid) with Bionic Surface Structures

Jiafeng Li\textsuperscript{a, 1}, Qian Chen \textsuperscript{b, 1}, Qin Zhang \textsuperscript{a}, Tiantang Fan \textsuperscript{a}, Li Gong \textsuperscript{a}, Wuyou Ye \textsuperscript{a}, Zhongyong Fan \textsuperscript{a,*}, Lu Cao \textsuperscript{b,*}

\textsuperscript{1} These authors contributed equally to this work

\textsuperscript{a} Department of Materials Science, Fudan University, Shanghai, P. R. China

\textsuperscript{b} Department of Orthopedic Surgery, Zhongshan Hospital, Fudan University, Shanghai, P. R. China

Corresponding author:

* zyfan@fudan.edu.cn (Fan Zhongyong)

* caolu922@126.com (Cao Lu)
**Preparation of b-PLAs**

PLA pellets heat treated at 70°C in vacuum for 5h were added with PDMA in a single screw extruder at 180°C with a rotating speed of 90 rpm. The extruded samples were chopped and then mixed with PFE, and the mixture was loaded in the extruder and allowed to react for about 15 minutes. The samples were collected after the reaction was completed. The topology structures of b-PLAs samples are composed of linear, symmetric-star, asymmetric-star, H-type, pom-pom, comb, and tree-like chains.

**REFERENCES**