

Supporting information

Waterborne Biodegradable Polyurethane 3-Dimensional Porous Scaffold For Rat Cerebral Tissue Regeneration

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Synthetic method of Waterborne Biodegradable Polyurethane 3-Dimensional porous scaffold

Firstly, L-lysine diisocyanate(LDI) and 1% of organic bismuth was added in to the stirred poly ethylene glycol (PEG, molecular weight 1450) and poly ϵ -caprolactone (PCL, molecular weight 2000) at 80 °C under a dry nitrogen atmosphere. The 1, 3-propanediol (PDO) was added to melting reaction mixture for 2h at 65°C as a chain extender. Secondly the prepolymer was mixed with L-lysine solution to emulsify, meanwhile, adjusting the PH of system to 8.0 by using dilute sodium hydroxide solution for 3h. Then emulsion was dropped into a 48wells plate the diameter of each well is about 1.0 cm to form the scaffold with thickness around 3.0mm. The 48wells plate with emulsion were kept in refrigerator at 4°C for 4h, then it transferred to -25°C for 24h as pre-freezing before freeze-drying. The pre-frozen emulsion in 48wells plate was lyophilized in a freeze-dryer (Boyikang, Beijing) for 24h to dry sample completely (Fig1)¹. To synthesis WBPU 17 and WBPU25 we changed mole content of PEG in soft segment as 17% and 25%.

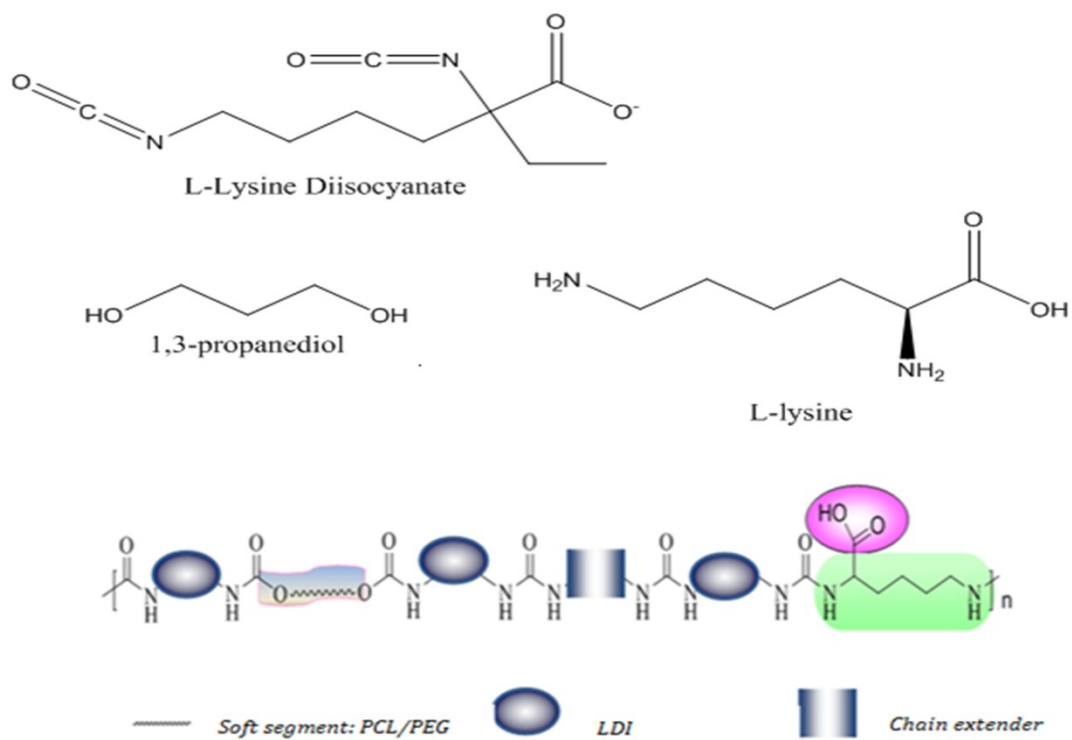


Fig S1: Schematic diagram of Waterborne Biodegradable Polyurethane (WBPU) 3-Dimensional porous scaffold

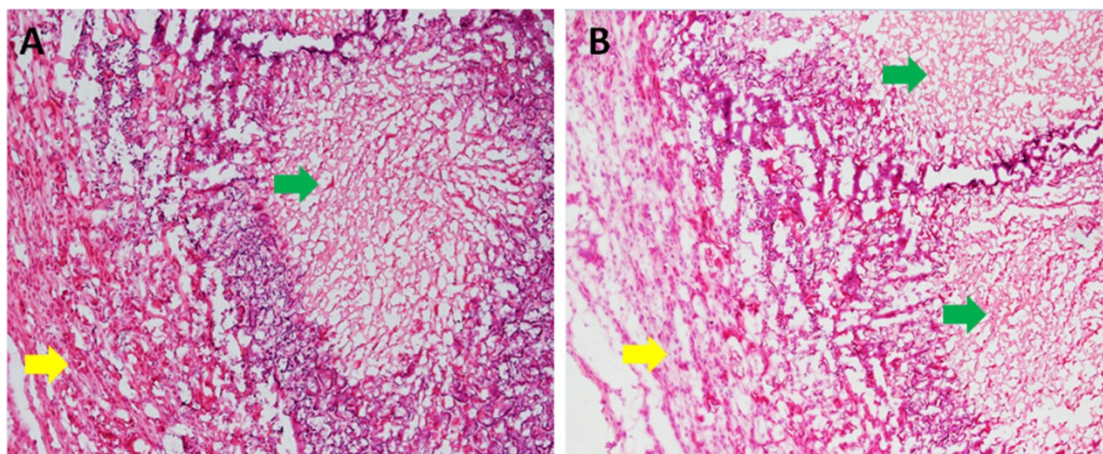


Fig S2: HE stain of WBPU25 treated rat's brain tissue at magnification of 100X (A) and 200 X (B) shows the infiltration of cells into the WBPU25 (Yellow arrow) and scaffold (Green arrow) at eight weeks postoperative *in vivo*.

Reference:

1. X. Jiang, F. Yu, Z. Wang, J. Li, H. Tan, M. Ding and Q. Fu, *Journal of Biomaterials Science, Polymer Edition*, 2010, **21**, 1637-1652.