



Supporting Information

for *Macromol. Rapid Commun.*, DOI: 10.1002/marc.201500342

From Nanofibrous Hollow Microspheres to Nanofibrous
Hollow Discs and Nanofibrous Shells

Zhanpeng Zhang, Peter X. Ma*

Supporting Information

Title: From Nanofibrous Hollow Microspheres to Nanofibrous Hollow Discs and Nanofibrous Shells

*Zhanpeng Zhang and Peter X. Ma**

Investigation of phase separation of PLLA in the emulsification process

1. Phase separation of PLLA in liquid N₂ with solvent exchange

PLLA was dissolved in THF at 50°C with a concentration of 2.0% (wt/v) and poured into liquid N₂ under rigorous mechanical stirring (speed 7, MAXIMA, Fisher Scientific Inc.). After 10 min, ice/water mixture was added for solvent exchange for 24 h. The micro-particles were then collected and lyophilized for 1 day.

SEM observation showed the same nanofibrous structure (**Fig. S1**) as that formed within the polymer solution/glycerol emulsions (**Fig. 1** in the main document). Therefore, the presence of glycerol during phase separation did not affect the nanofiber formation.

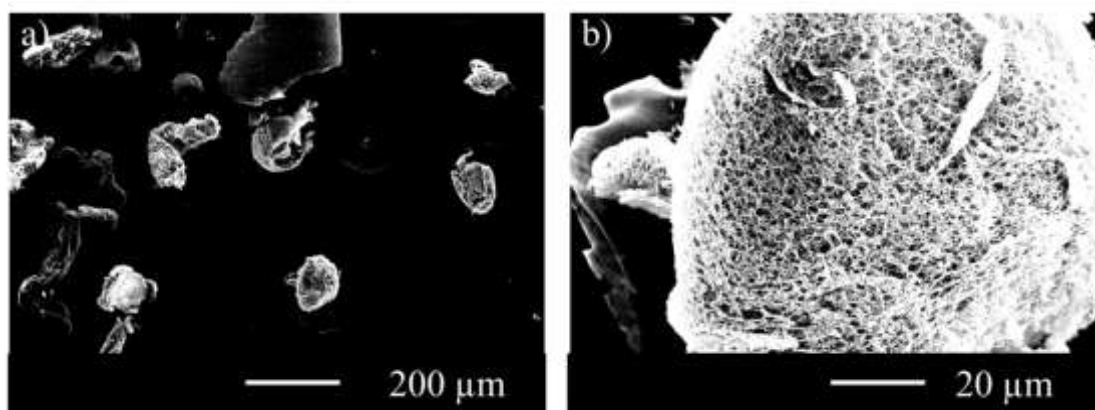


Fig. S1. SEM micrographs of nanofibrous micro-particles prepared by stirring PLLA/THF solution in liquid N₂ and subsequent solvent exchange with ice water and freeze-drying.

2. Phase separation of PLLA in liquid N₂ without solvent exchange

PLLA was dissolved in THF at 50°C with a concentration of 2.0% (wt/v) and poured into liquid N₂ under rigorous mechanical stirring (speed 7, MAXIMA, Fisher Scientific Inc.). After 10 min, the frozen polymer gels were lyophilized for 1 day.

SEM observation revealed the formation of the same nanofibrous structure without the solvent exchange step (**Fig. S2**) as that with the solvent exchange step (**Fig. S1**), which is also the same nanofibrous structure as from the polymer solution/glycerol emulsion (**Fig. 1** in the main document). These results showed that the solvent exchange process did not affect the nanofiber formation.

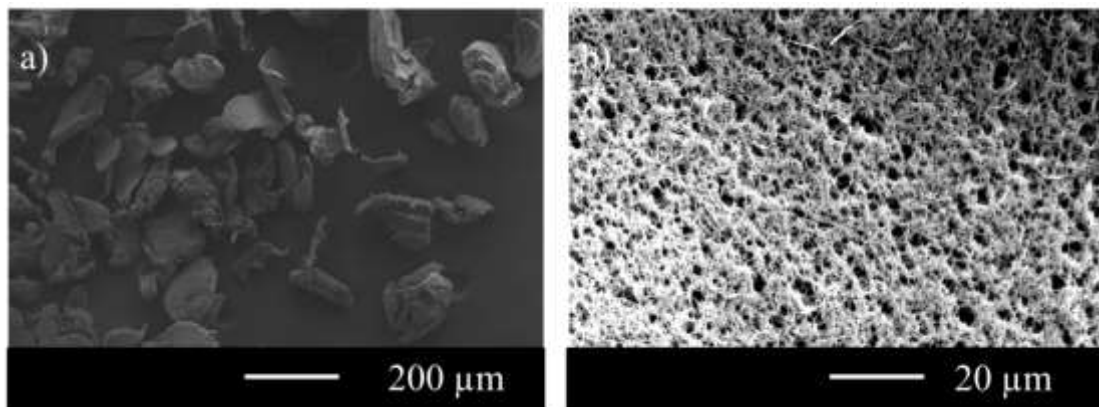


Fig. S2. SEM micrographs of nanofibrous micro-particles prepared by stirring PLLA/THF solution in liquid N₂ and subsequent freeze-drying.