The miscibility and spatial distribution of the components in electrospun polymer-protein mats

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Supplementary information

Table SI1. Morphological features of different types of electrospun mats made of PLA, BSA and PLA-BSA blends

Although the morphologies that we observed in this study were obtained under particular experimental conditions (solution feed rate, acceleration voltage, the distance between the tip and the collector, needle parameters etc), the tendencies described in section "Morphology of single-component and blended electrospun mats" do not depend on a particular experimental setup.

Type of mats	Beads	Cylindrical fibers	Ribbons
1,5% PLA	Separate smooth round and elliptical beads (0,5 μm ≤ d ≤ 3,0 μm)	Mean = 120 nm, SD = 40 nm, Median = 120 nm	None
3% PLA	Smooth mostly elliptical beads (0,8 μm ≤ d ≤ 4,5 μm)	Mean = 200 nm, SD = 70 nm, Median = 210 nm	None
4,5%PLA	Elliptical fiber thickening beads (1,5 μm ≤ d ≤ 7,0 μm)	Mean = 510 nm, SD = 240 nm, Median = 540 nm	None
6%PLA	None	Mean = 570 nm, SD = 260 nm, Median = 560 nm	None
7% PLA	None	Mean = 790 nm, SD = 390 nm, Median = 710 nm	None
8%PLA	None	Mean = 820 nm, SD = 430 nm, Median = 800 nm	None
9%PLA	None	Mean = 860 nm, SD = 620 nm, Median = 810 nm	None
10%PLA	None	Mean = 780 nm, SD = 480 nm, Median = 820 nm	None
11%PLA	None	Mean = 1020 nm, SD = 440 nm, Median = 1100 nm	Single ribbons
12%PLA	None	Mean = 1600 nm, SD = 850 nm, Median = 1720 nm	Single ribbons
1,5%BSA	Beads with "deflated balls" morphology (0,1 μm ≤ d ≤ 2,5)	None	None

3%BSA	Beads with “deflated balls” morphology (0,1 μm ≤ d ≤ 4,0)	None	None
4,5%BSA	Beads with “deflated balls” morphology (0,1 μm ≤ d ≤ 10,0)	Single fine fibers	Short ribbons with length no more than 100 μm
6%BSA	Single beads with “deflated balls” morphology	Single fine fibers	Short ribbons with length no more than 100 μm
7%BSA	None	Single fine fibers	Short ribbons with length no more than 500 μm
8%BSA	None	Single fine fibers	Short ribbons with length no more than 600 μm
9%BSA	None	None	Ribbons + short ribbons
10%BSA	None	None	Ribbons + short ribbons
11%BSA	None	None	Ribbons + short ribbons
12%BSA	None	None	Ribbons + short ribbons
1% (BSA+PLA)	Single beads with “deflated balls” morphology and fiber thickening (0,1 μm ≤ d ≤ 2,5)	Mean = 30 nm, SD = 10 nm, Median = 30 nm	None
2% (BSA+PLA)	Single beads with “deflated balls” morphology and fiber thickening (0,2 μm ≤ d ≤ 5,5)	Mean = 80 nm, SD = 30 nm, Median = 80 nm	None
3% (BSA+PLA)	Single beads with “deflated balls” morphology and fiber thickening (0,2 μm ≤ d ≤ 6,0)	Mean = 100 nm , SD = 50 nm , Median = 110 nm	None
6% (BSA+PLA)	None	Mean = 210 nm , SD = 150 nm , Median = 200 nm	Ribbons
9% (BSA+PLA)	None	Mean = 250 nm , SD = 140 nm , Median = 240 nm	Ribbons
12% (BSA+PLA)	None	Mean = 270 nm , SD =200 nm , Median = 250 nm	Ribbons

Fig. SI1 – The two conjugated solutions obtained from the 6% blend (3% PLA, 3% BSA, 94% HFIP)