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**Effects of O<sub>2</sub> plasma treatment of PDMS on the deposition of electrospun PVA nanofibers** NATSUMI KOBAYASHI, NORIHISA MIKI, KOICHI HISHIDA, ATSUSHI HOTTA, Keio Univ. — A new polymeric nanofiber-alignment technique with the selective deposition of the nanofibers using oxygen (O<sub>2</sub>) plasma treatment on a base material for the electrospinning was introduced. Generally, without any pretreatments, electrospun fibers are deposited randomly on the collector. In this work, we focused on the O<sub>2</sub> plasma treatment of the surface of the base material to modify the surface morphology and to add polar groups to the surface. O<sub>2</sub> plasma-treated and untreated surface of poly (dimethylsiloxane) (PDMS) was prepared by masking a part of PDMS film by another PDMS film. The polyvinyl alcohol (PVA) fibers were then deposited onto the PDMS film. The surface structure of the PDMS film with PVA nanofibers was analyzed by scanning electron microscopy, water contact angle measurements, and X-ray photon spectroscopy. Only a few PVA nanofibers were deposited randomly on the untreated area of the PDMS film, while a number of PVA nanofibers were selectively deposited onto the O<sub>2</sub> plasma-treated area. Intriguingly, PVA nanofibers were neatly aligned along the border of the untreated and the treated areas. The contact angle of the plasma-treated surface of PDMS decreased from 105 to 22 degree and the atomic ratio of O/Si was 1.7 times higher than that of the untreated PDMS.

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