Electronic Supplementary Material (ESI) for RSC Advances.

Electron Supplementary Information to the Manuscript "Nanostructured Films by the Self-Assembly of Bioactive Copolymer"

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Content:

Table S1 Roughness parameters for the surfaces inside and outside the typical cavity: R_{max} is the maximum height difference, R_q and R_a are the root-mean-square and arithmetic average roughness, R_{sk} is skewness, and R_{ku} is kurtosis.

Parameters	R_{max}, nm	R_q, nm	R_a, nm	R_{sk}	R_{ku}
Inside	23.2	1.7	1.2	-1.2	9.4
Outside	11.45	1.3	1.0	-0.2	3.2

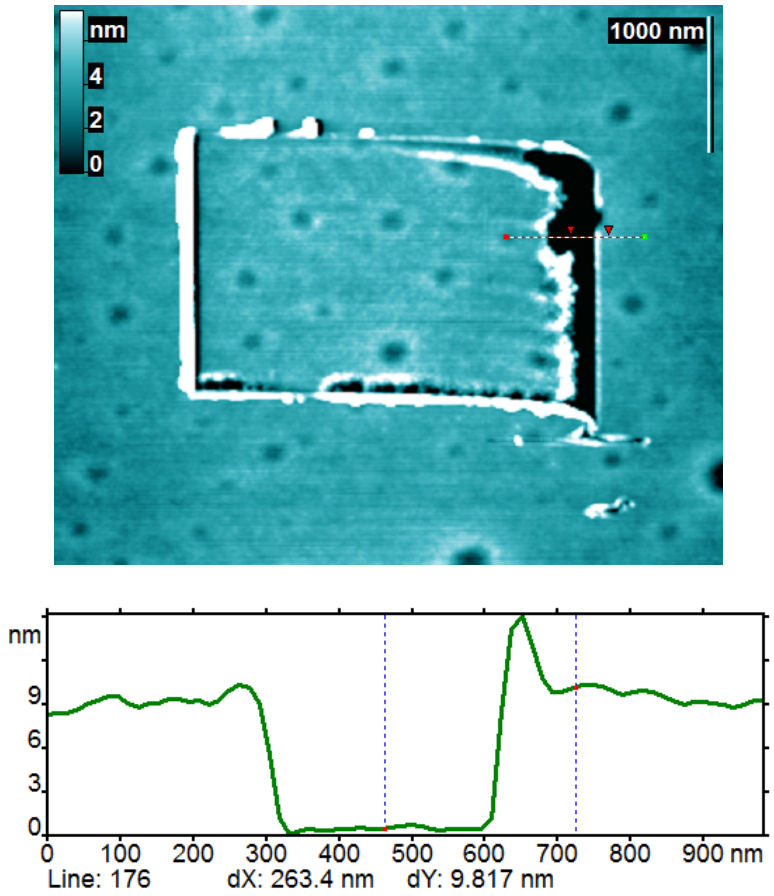

Figure S1 AFM image of the area of film B where a small piece of the film was removed from the mica crystal using AFM tip for the purpose of the film thickness measurement (the frame size is 4.2x4.8 μm^2). The profile of a cut through the scratch is shown below. The depth of the scratch is about 10 nm.

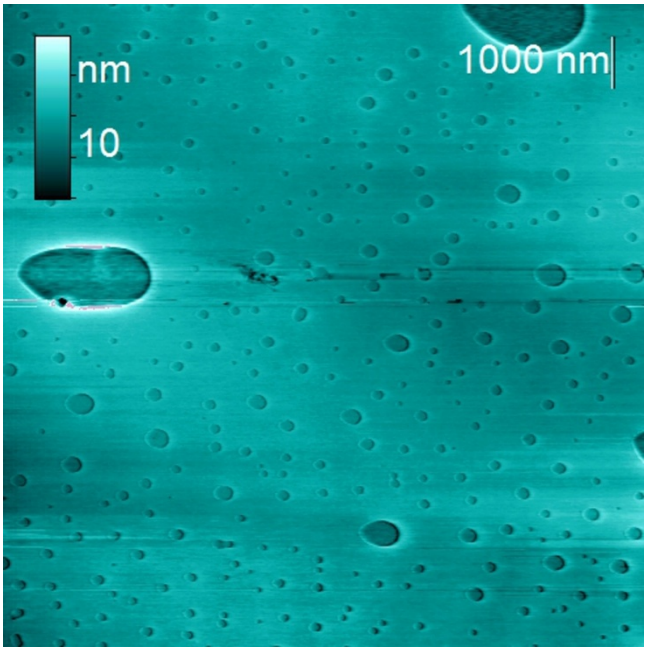

Figure S2 Typical AFM image of the surface of the film B cast over a mica crystal showing large cavities formed at the film surface (the frame size is 11.2x11.2 μm^2).

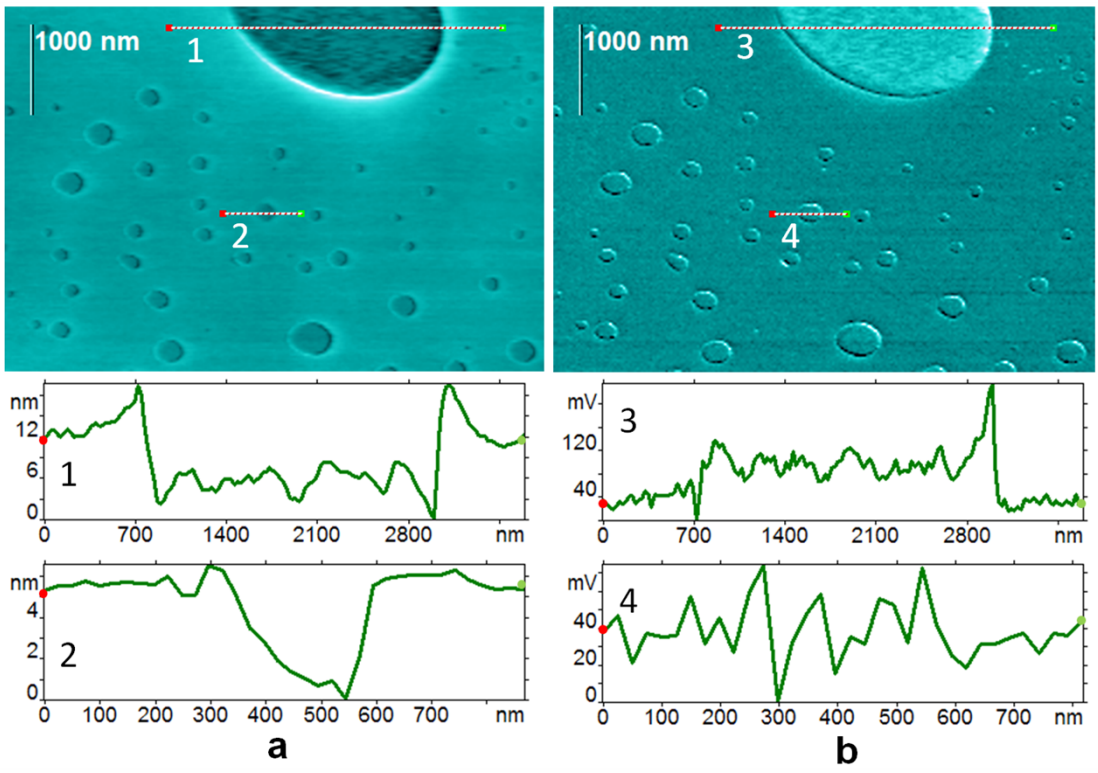

Figure S3 Images of topography (**a**) and lateral force distribution (**b**) on film B cast over a mica crystal: the frame size is 6x4 μm^2 and four surface cuts (1-, 2-, 3-, 4-) are shown.

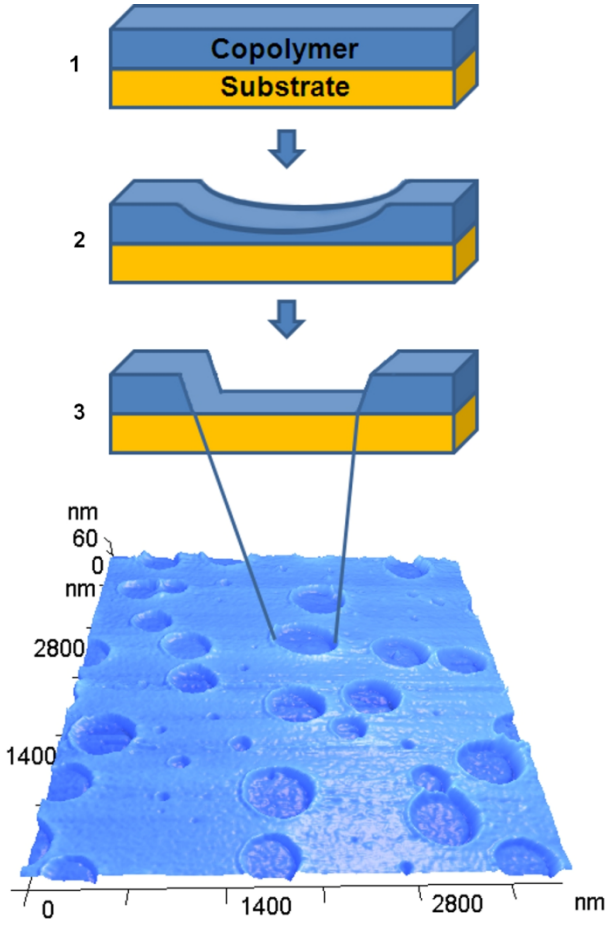

Figure S4 Scheme of the cavity formation in film B: 1 – unstable thin copolymer film on the mica surface (substrate), 2 – a cavity formation stage, 3 – the cavity with a thin wetting layer inside.

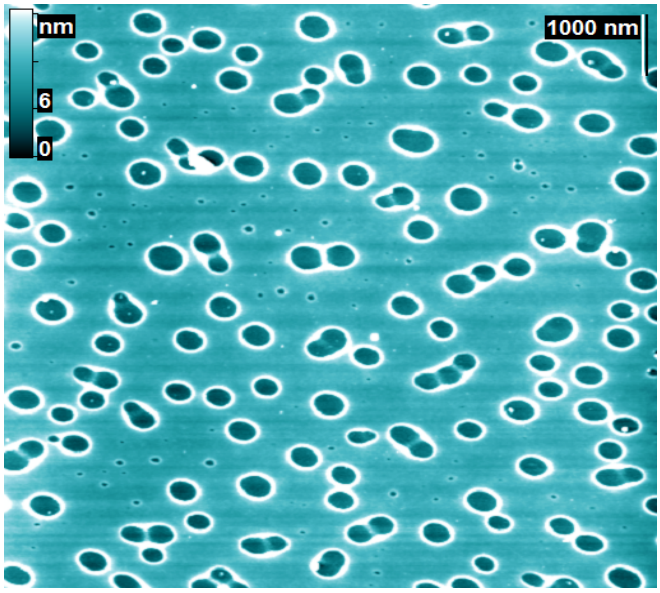

Figure S5 Typical AFM image of the surface of film B stored six months under ambient conditions (the frame size is 9.8x9.8 μm^2).

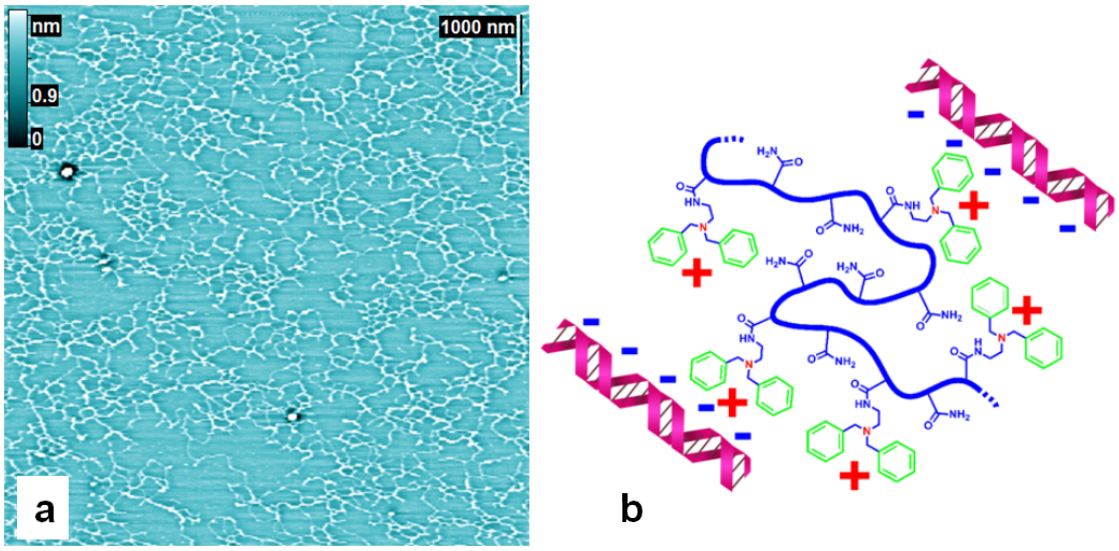

Figure S6 Typical AFM image of the complex between λ-phage DNA and copolymer **1** formed on the mica surface (the frame size is 6.9x6.9 μm^2, **a**). The sample of copolymer **1** was synthesized six month before the DNA trapping experiment; the sample was stored under ambient conditions. Schematic view of one dimensional structures showed in (**a**) that might be formed via electrostatic interactions between copolymer **1** and double-stranded DNA molecules (**b**).

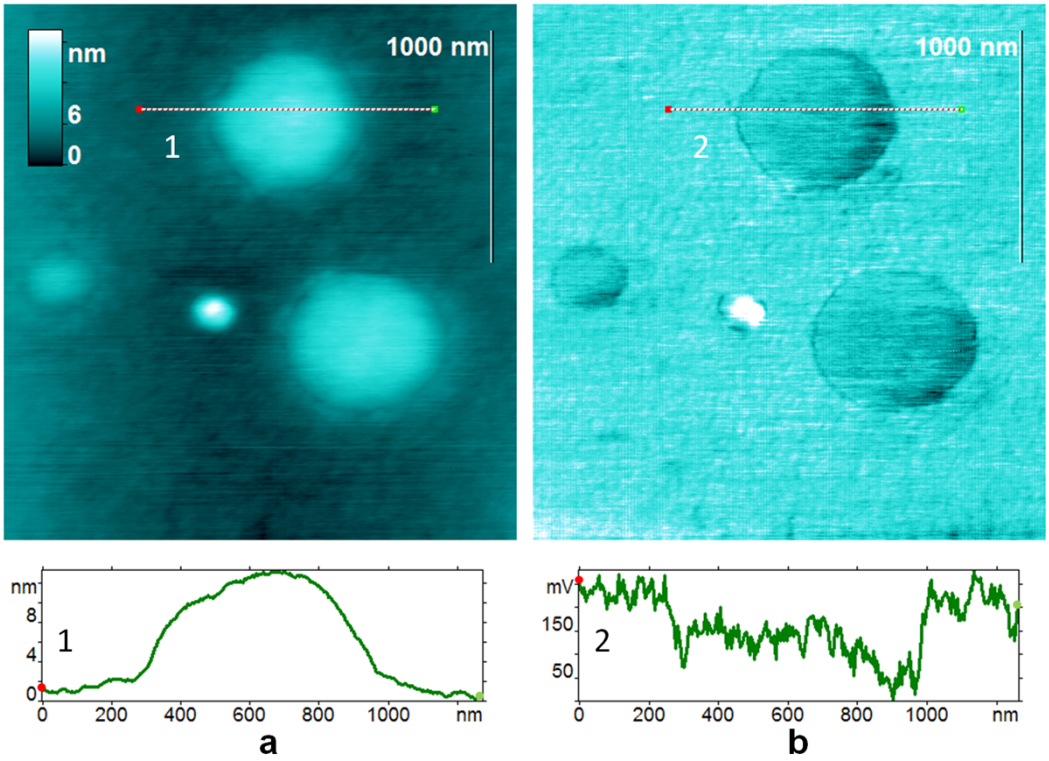

Figure S7 Images of topography (**a**) and lateral force distribution (**b**) on film B with trapped DNA (the frames size is 2.2x2.3 μm^2); two surface cuts (1-, 2-) are shown.

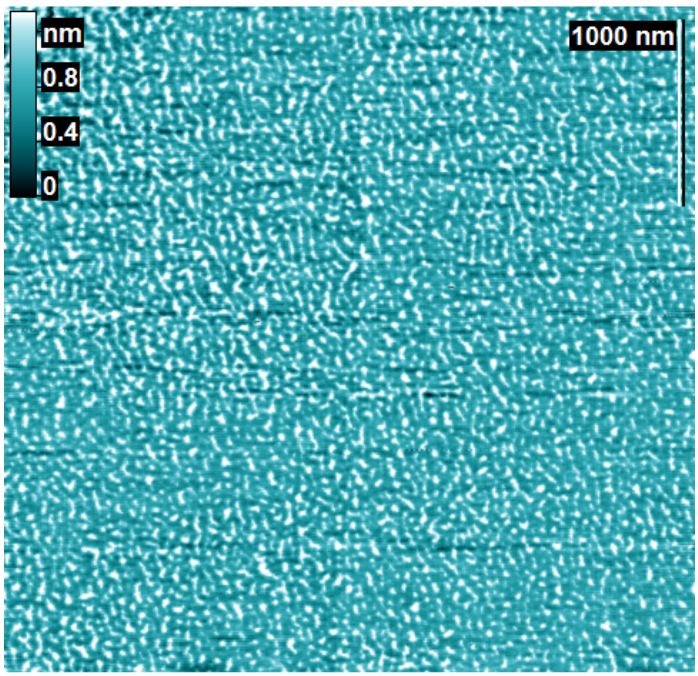

Figure S8 Typical AFM image of "islands", which are formed on a mica crystal from a very diluted water solution of copolymer **1** (the frame size is 3.8x3.8 μm^2). The height of the "islands" is less than 1 nm.