Supplementary Information

Imaging and structural studies of DNA-protein complexes and membrane ion channels

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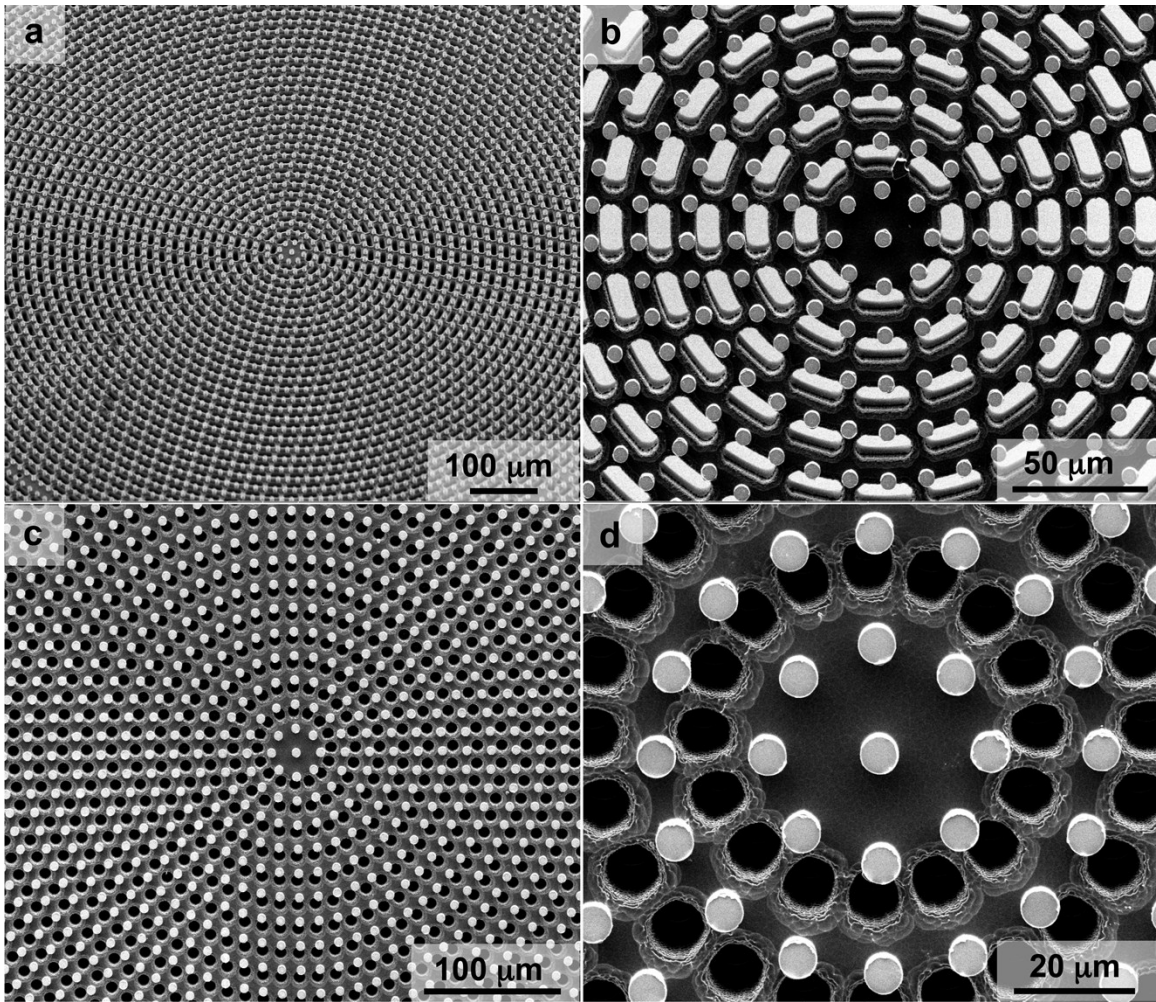

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Fig. S1. Superhydrophobic devices. Two different architectures of micro fabricated devices with elliptical (a-b) and circular (c-d) holes for imaging, tomography, and diffraction analysis.
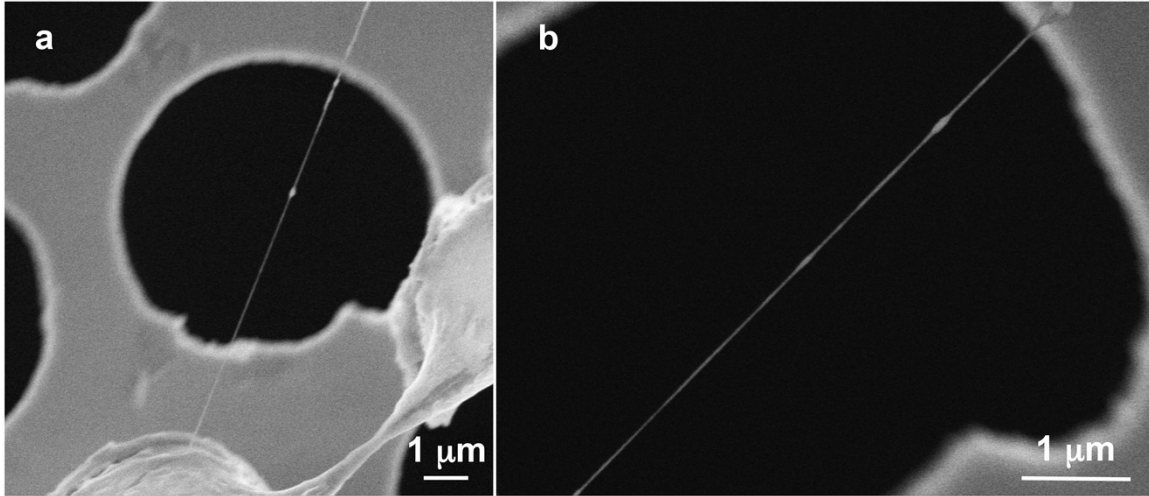
Fig. S2. SEM preliminary imaging of ssDNA/Rad51 protein (a,b) Low magnification SEM images of ssDNA/Rad51 complex suspended over the holes of a micro fabricated device.
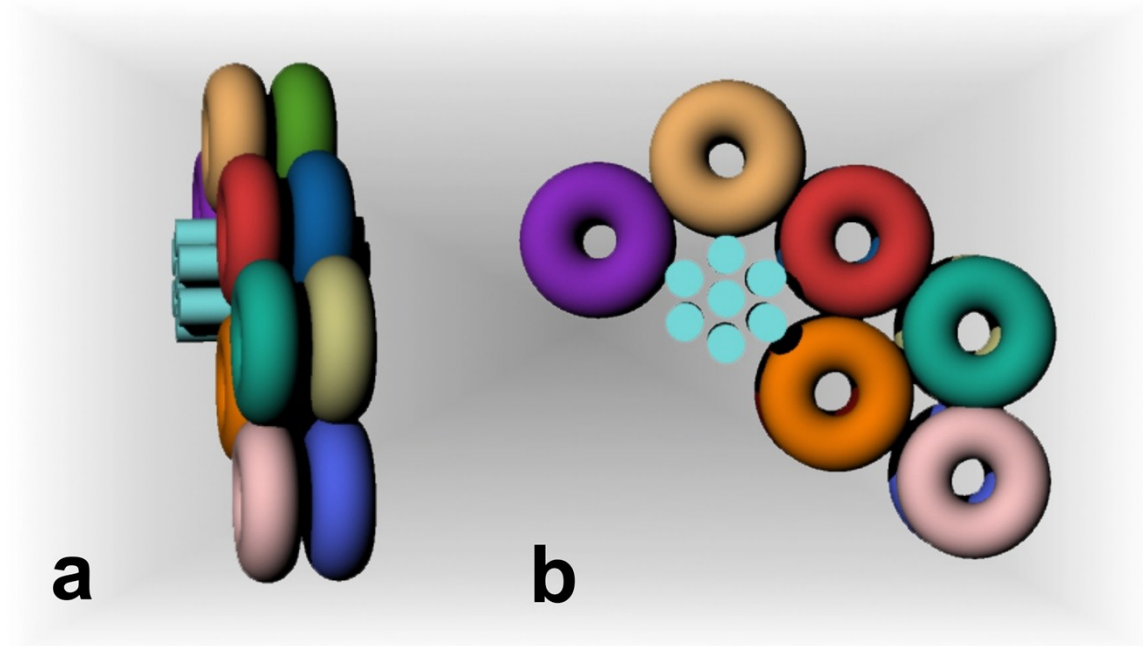
Fig. S3. Sketch of protein-protein and protein-DNA interaction. The heptameric form of Rad51 repair protein used in this work is represented as a ring-shaped object; the ssDNA is reported in light blue. A bundle of 6+1 DNA strands is considered as a simplified model of the ssDNA bundle imaged in Fig. 3. Heptameric proteins interact laterally one each other in ordered manner, giving rise to a vertical pattern. No periodicity was detected in the horizontal direction, due to the interference of overlapping layers of protein.
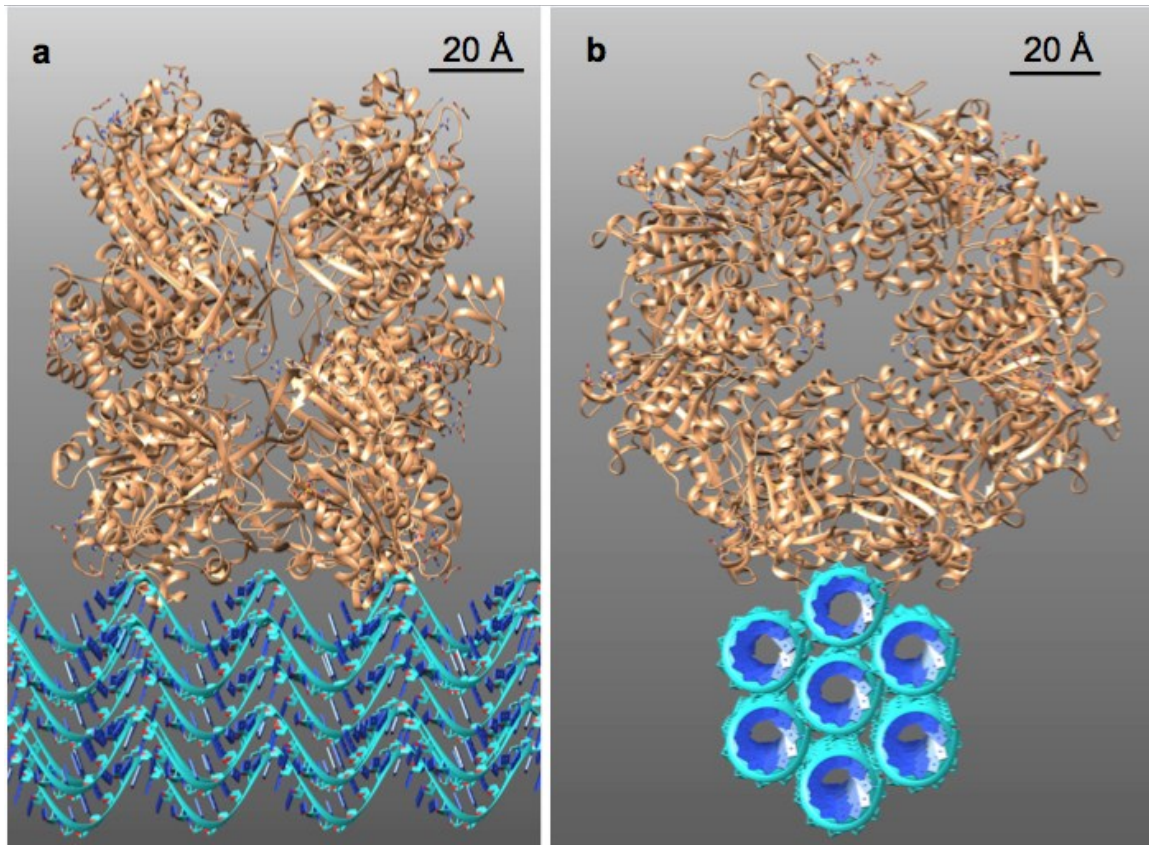
Fig. S4. Simplified structural model of bi-heptameric Rad51 docking on ssDNA bundle. (a) Frontal and (b) lateral view of the a-specific docking interaction between two heptameric Rad51 proteins and DNA bundle. The protein has a diameter of approximately 120 Å.

	HT	Cs	Conv	Spread
Electro Optical setting	100 kV	5.6 mm	1 mrad	100 Å

	Structural Models				
	RAD51	ssDNA/ Rad51	K-Channel	Gap Junction	GABA
Phase grating slices	75	75	92	76	44

Table S1. TEM image simulation details. The number of phase grating slices used is herein related to every structural model considered in this work.