

## Supplementary material

**Table S1.** Mass coverages of albumin adsorbed on SiO<sub>2</sub> and SiON (concentration of 0.1 mg/ml at pH 7).

Surface material	Mass (ng/mm <sup>2</sup> )
SiO <sub>2</sub>	1.51±0.05
SiON 89% SiO <sub>2</sub> 11% of silicon nitride	1.44±0.09

**Table S2.** Protein layers characterization on parylene-C and SiON for Fn 50 µg/mL, albumin 5000 µg/mL and a mixture of Fn 50 µg/mL and albumin 5000 µg/mL in PBS at 20°C.

Proteins	Parylene-C			SiON		
	Mass (ng/mm <sup>2</sup> )	Thickness (nm)	Density (g/mL)	Mass (ng/mm <sup>2</sup> )	Thickness (nm)	Density (g/mL)
<b>Maximum adsorption</b>						
<b>Fn</b>	2.51±0.06	3.2±0.2	0.79±0.05	2.06±0.04	8.9±1.4	0.23±0.04
<b>Albumin</b>	1.5±0.1	1.72±0.06	0.88±0.04	0.8±0.1	4.3±0.6	0.20±0.05
<b>Fn/Albumin</b>	1.70±0.07	1.9±0.1	0.91±0.08	1.9±0.1	8.2±0.3	0.24±0.02
<b>Post adsorption (5 min rinsing)</b>						
<b>Fn</b>	2.50±0.08	3.1±0.2	0.81±0.05	1.89±0.03	7.5±0.9	0.25±0.03
<b>Albumin</b>	1.5±0.1	1.80±0.06	0.85±0.06	0.66±0.05	3.2±0.6	0.21±0.04
<b>Fn/Albumin</b>	1.69±0.07	1.89±0.07	0.90±0.05	1.7±0.1	6.9±0.2	0.24±0.02

**Fig. S1.** AFM morphology analysis of silicon oxide surface before (A) and after (B) parylene-C coating). (B) Image of a scalpel blade incision in the deposited parylene-C layer. The silicon oxide surface underneath the parylene-C is revealed and the step between the two layers is measured at approximately 30 nm.

