**Supplementary Material (ESI) for Soft Matter**

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**Supporting information**

**Fig. S1** QCM-D measurements showing frequency changes in the 3\(^{\text{rd}}\) overtone and the corresponding dissipation changes during the build-up of (PEI/COL)\(_n\) multilayers. The flow rate was maintained at 50 µL/min throughout the experiment.

![Diagram showing QCM-D measurements](image)

**Fig. S2** Relation between N-\(\text{C} = \text{O}\) and N\(_{\text{nonpr}}\) molar concentrations ratioed to the total carbon molar concentration measured by XPS after adsorption for different times of native (■) or denatured collagen (○) on a PAH/PSS film.

![Diagram showing relation between N-\(\text{C} = \text{O}\) and N\(_{\text{nonpr}}\)](image)
Fig. S3 SEM images of track-etched polycarbonate membrane (pore diameter ~ 500 nm) after the deposition of (a) PAH/PSS/COL and (b) PAH/(PSS/COL)$_6$ multilayers. The multilayer crust observed in (b) was removed as shown in (c).

Fig. S4 Evolution of the pore diameters estimated with gas flow porometry as a function of the number of bilayers in polycarbonate track-etched membrane with initial pore size of about 200 (a) and 500 nm (b). Multilayers assembly was performed with native (■) or denatured collagen (●).