Electronic Supporting Information

pH-responsive ion transport in polyelectrolyte multilayers with strong- and weak acid repeat units.

Eliana Maza,1 Jimena S. Tuninetti,1 Nikolaos Politakos,2 Wolfgang Knoll,3 Sergio Moya2 and Omar Azzaroni1

1 Instituto de Investigaciones Fisicoquímicas Teóricas y Aplicadas (INIFTA) – Universidad Nacional de La Plata (UNLP) – CONICET – (1900) La Plata – Argentina
2 Biosurfaces Unit, CIC biomaGUNE, Paseo Miramón 182, 20009 San Sebastian, Gipuzkoa, Spain
3 Austrian Institute of Technology GmbH, Donau Strasse 1, Vienna – Austria

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Quartz crystal microbalance characterization

Figure S1. Representation of normalized frequency ($\Delta f/n$) at different overtones obtained during the multilayer growth at pH 3.5.
**Figure S2.** Representation of normalized frequency ($\Delta f/n$) at different overtones obtained during the multilayer growth at pH 6.
Figure S3. Representation of normalized frequency ($\Delta f/n$) at different overtones obtained during the multilayer growth at pH 9.
Water content of multilayers

Hydration or water content of the multilayers estimated from the areal mass obtained with QCM-D ($m_{\text{QCM}}$, wet mass) and SPR ($m_{\text{SPR}}$, dry mass) experiments by using the equation: \(^1\)

\[
\text{Hydration (\%)} = \frac{(m_{\text{QCM}} - m_{\text{SPR}})}{m_{\text{QCM}}} \times 100
\]

Figure S4. Hydration of PSS-MA/PDADMAC assembly as a function of the number of assembled layers.
Atomic force microscopy – Topography and phase imaging

Figure S5. Atomic force microscopy characterization including topography and phase imaging of (PSS-MA/PDADMAC)$_9$PSS-MA (“PSS-MA capping layer”) and (PSS-MA/PDADMAC)$_{10}$ (“PDADMAC capping layer”) multilayers assembled in pure water and in the presence of 0.2 M KCl.
Figure S6. XPS characterization of PSS-MA/PDADMAC multilayers grown under different assembly conditions: (a) pH 3.5, (b) pH 6, (c) pH 9.

References