

1 Supporting Information.

2 Table S1. Chemical composition of LDH matrixes intercalated with chloride anions
3 (LDH-Cl) or DS⁻ anions (LDH-DS) and the LDH-BSA hybrids prepared in the absence
4 (LDH-Cl-BSA) and the presence of 25% (LDH-Cl/DS-25-BSA), 50% (LDH-Cl/DS-50-
5 BSA), 100% (LDH-Cl/DS-100-BSA), 150% (LDH-Cl/DS-150-BSA) and 200% (LDH-
6 Cl/DS-200-BSA) DS⁻ anions.

Sample	%Mg	%Al	%C	%N	%S	% H ₂ O ¹	DS/Al ²	Γ(g g ⁻¹) ³
LDH-Cl	22.2	9.0	-	-	-	13.7	0	-
LDH-DS	11.9	4.9	29.0	-	6.4	6.7	1.1	-
LDH-Cl-BSA	-	-	7.8	2.4	0.4	-	0	0.18
LDH-Cl/DS-25-BSA	-	-	12.4	1.2	2.0	-	0.20	0.08
LDH-Cl/DS-50-BSA	-	-	16.8	1.0	3.2	-	0.37	0.07
LDH-Cl/DS-100-BSA	-	-	22.2	0.9	4.5	-	0.60	0.06
LDH-Cl/DS-150-BSA	-	-	24.2	0.8	4.9	-	0.69	0.05
LDH-Cl/DS-200-BSA	-	-	24.3	0.6	5.0	-	0.70	0.04

7 ¹Obtained from the first weight loss in the thermo gravimetric curves (supporting information, Figure S1).

8 ²Calculated from the %S corresponding to the DS⁻ anions. ³Calculated from the %N

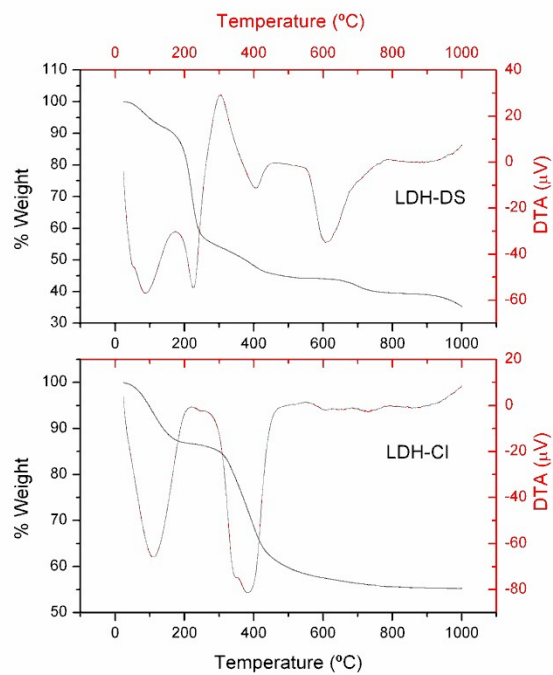
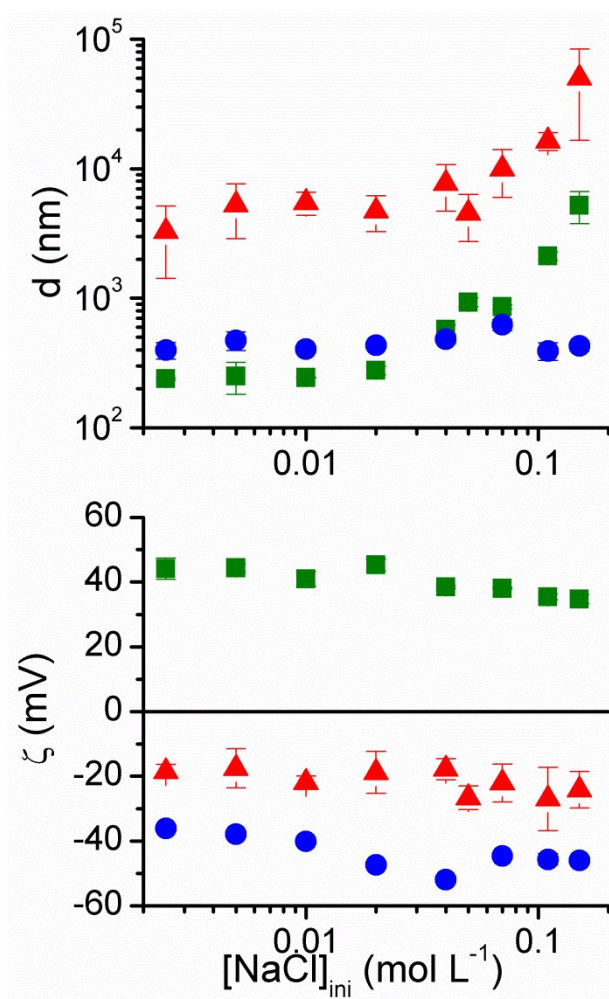


Figure S1. TGA/DTA curves of the synthesized matrixes.



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15 Figure S2: ζ : zeta potential (A) and d : hydrodynamic apparent diameter (B) vs.
 16 the initial NaCl concentration ($[\text{NaCl}]_{\text{ini}}$) curves of LDH-Cl (squares), LDH-Cl/DS-100
 17 (circles) and LDH-DS (triangles) dispersed in aqueous solution (pH 9.0).

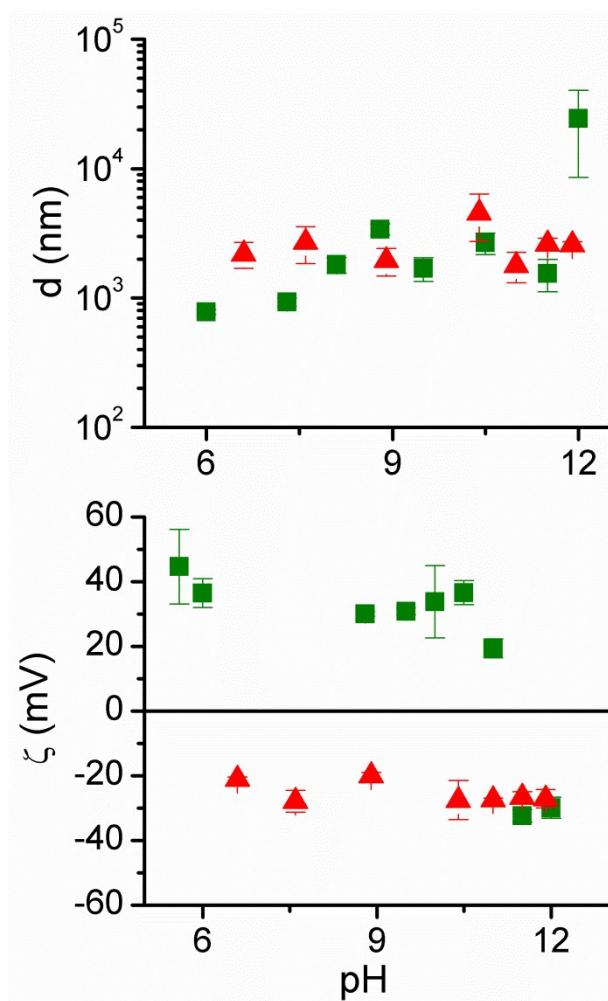
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24 Figure S3. ζ : zeta potential (A) and d : hydrodynamic apparent diameter (B) vs.

25 pH curves of LDH-Cl (squares) and LDH-DS (triangles) matrixes dispersed in aqueous

26 solution ($0.05 \text{ mol L}^{-1} \text{ NaCl}$).

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