

Supporting Information

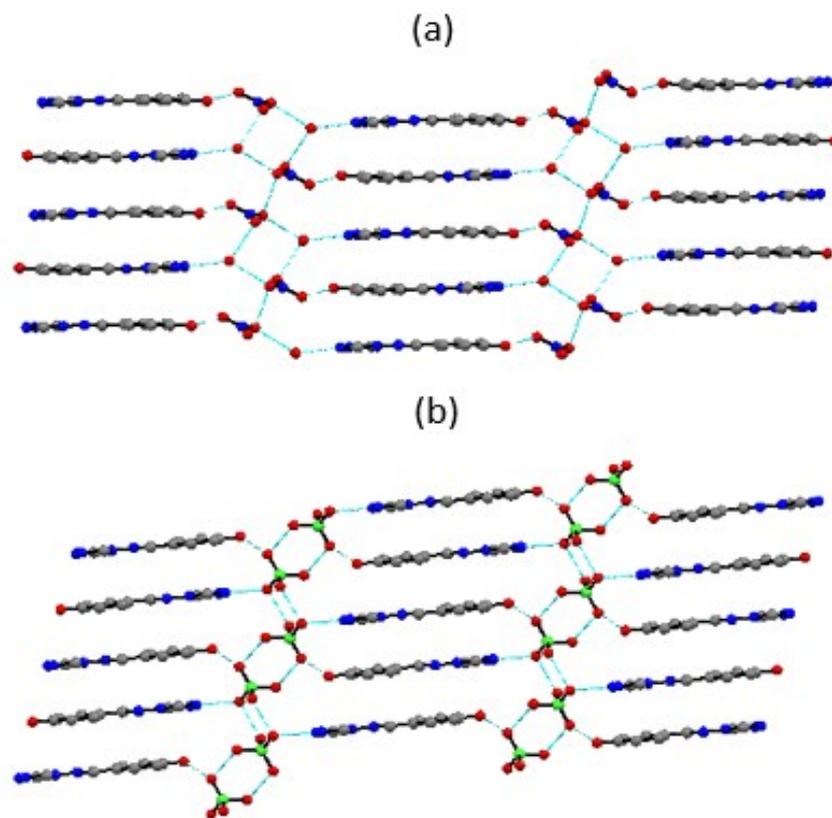


Figure S1. Hydrogen bonding and close contacts patterns of the cationic stacks with the nitrate-water clusters and perchlorate clusters in salts $[HL_3]^+[NO_3] \cdot (H_2O)$ (a), and $[HL_3]^+[ClO_4] \cdot [HL_4]^+[NO_3]$ (b), respectively, viewed down the crystallographic *b* axis. Hydrogen atoms were omitted for sake of clarity.

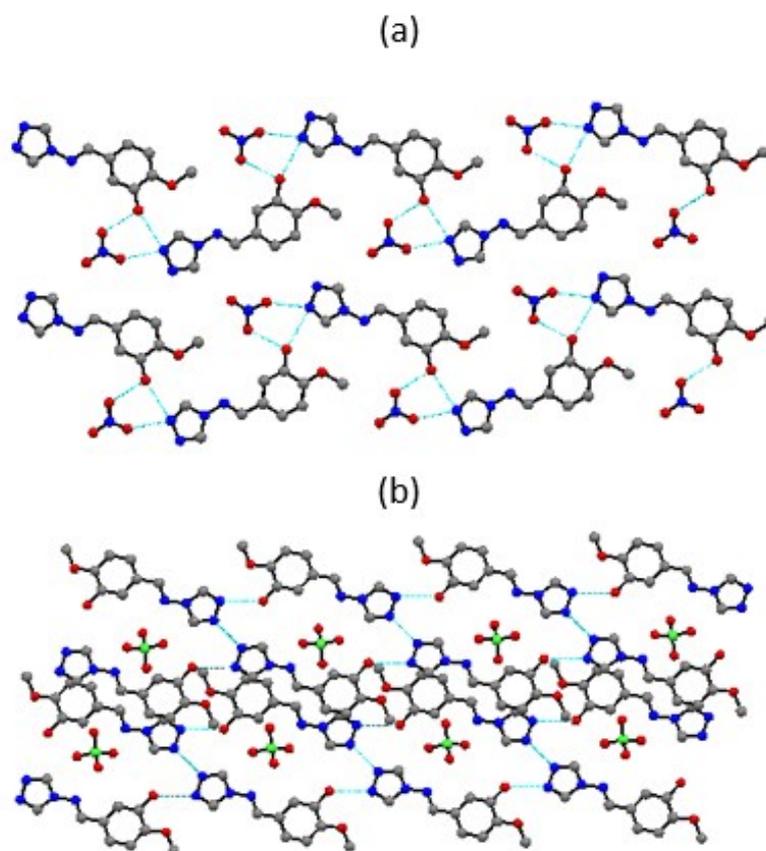


Figure S2. Hydrogen bonding patterns of the cationic layers with the nitrate and perchlorate anions in salts $[HL_4]^+[\text{NO}_3]^-$ (a) and $[L_4][HL_4]^+[\text{ClO}_4]^-$ (b), respectively, viewed down the crystallographic c axis. Hydrogen atoms were omitted for sake of clarity.

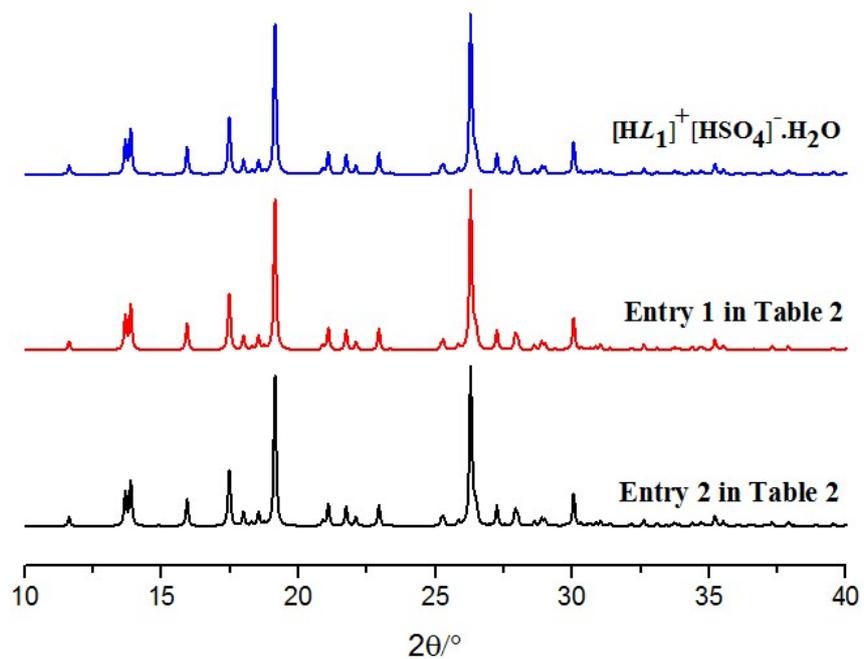


Figure S3. PXRD patterns for salts $[\text{HL}_1]^+[\text{HSO}_4]^{2-} \cdot 2(\text{H}_2\text{O})$, and the entries 1 and 2 in Table 2.

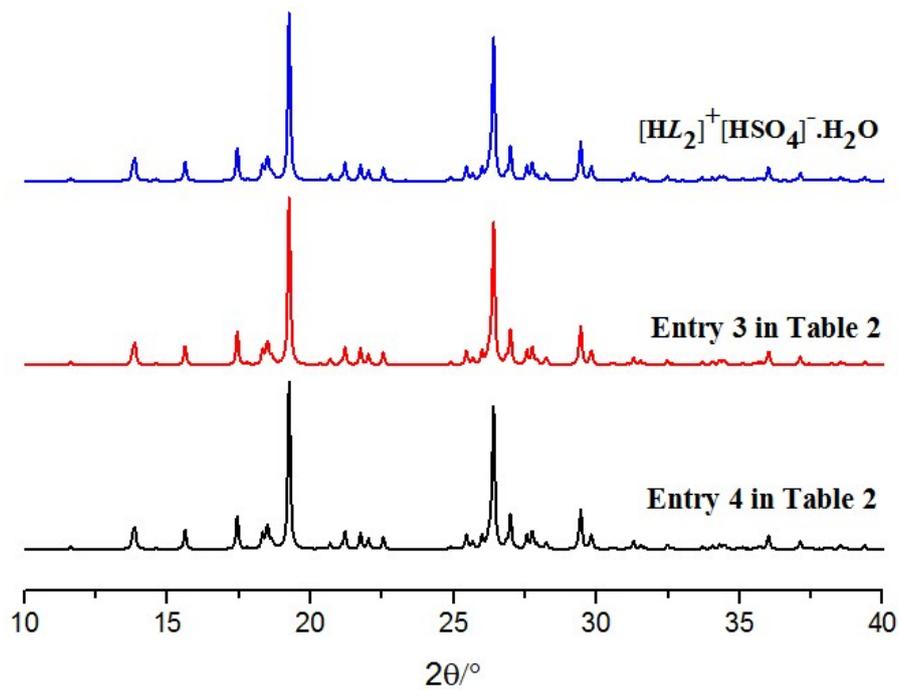


Figure S4. PXRD patterns for salts $[\text{HL}_2]^+[\text{HSO}_4]^{2-} \cdot 2(\text{H}_2\text{O})$, and the entries 3 and 4 in Table 2.

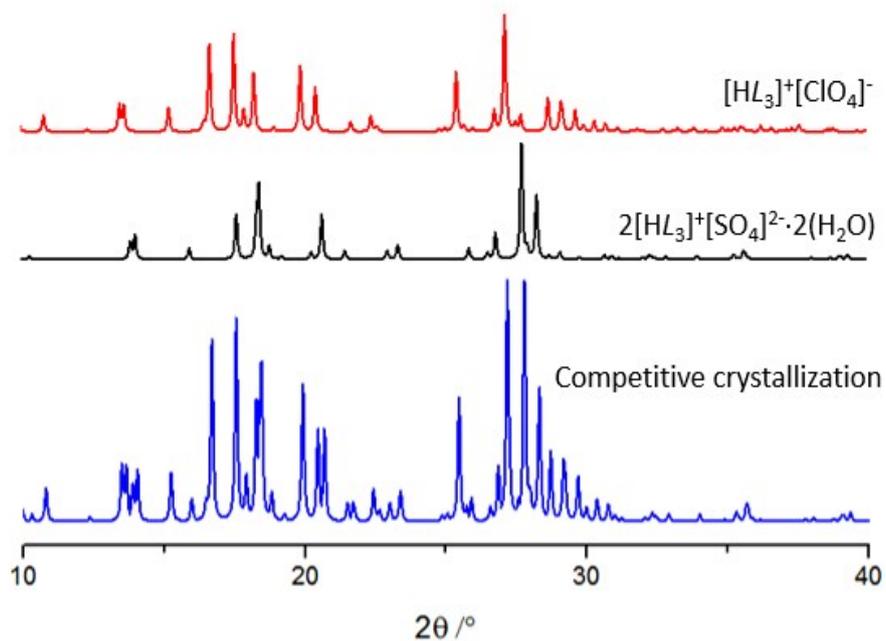


Figure S5. PXR D patterns for salts $2[\text{HL}_3]^+[\text{SO}_4]^{2-} \cdot 2(\text{H}_2\text{O})$, $[\text{HL}_3]^+[\text{ClO}_4]^-$ and the competitive sulfate/ perchlorate crystallization of entry 6 in Table 2.

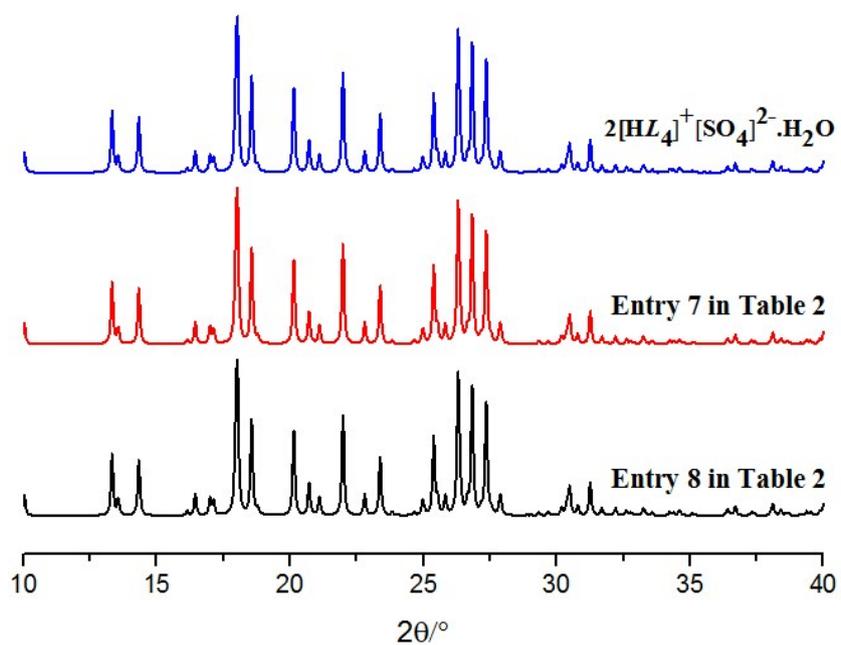


Figure S6. PXR D patterns for salts $2[\text{HL}_4]^+[\text{SO}_4]^{2-} \cdot 2(\text{H}_2\text{O})$, and the entries 7 and 8 in Table 2.

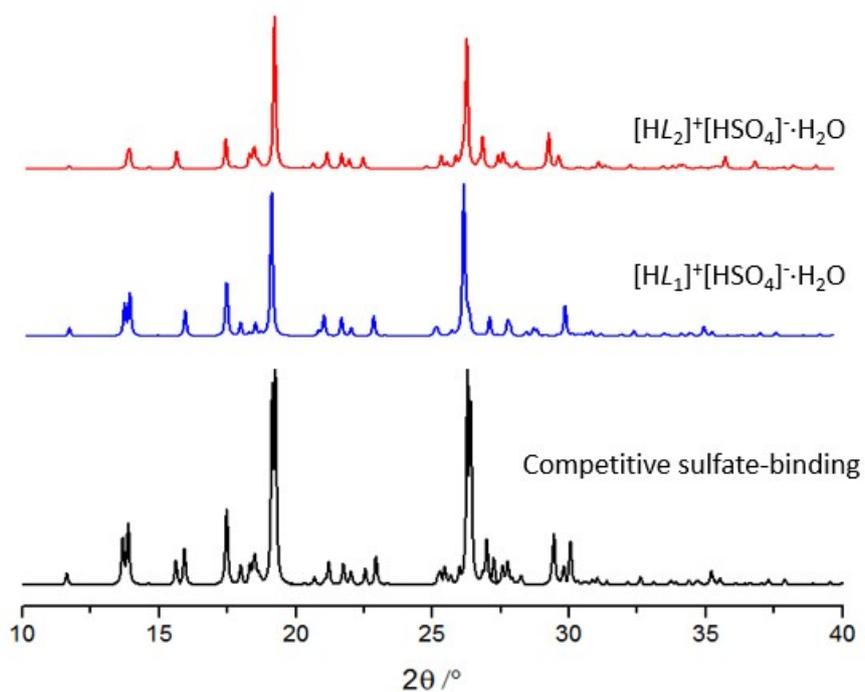


Figure S7. PXRD patterns for salts $[\text{HL}_1]^+[\text{HSO}_4]^- \cdot \text{H}_2\text{O}$, $[\text{HL}_2]^+[\text{HSO}_4]^- \cdot \text{H}_2\text{O}$ and the competitive L_1 and L_2 sulfate-binding (entry 1 in Table 3).

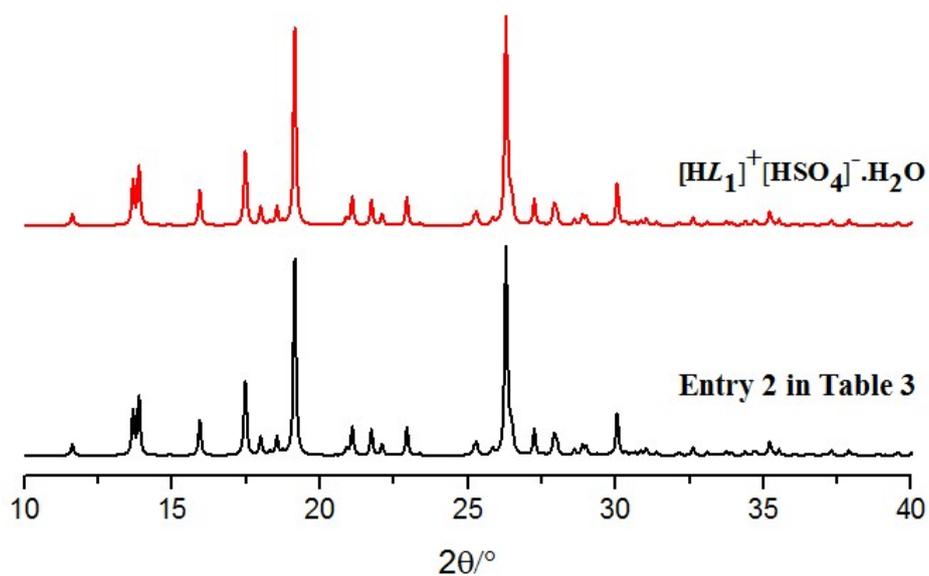


Figure S8. PXRD patterns for salts $[\text{HL}_1]^+[\text{HSO}_4]^- \cdot \text{H}_2\text{O}$ and the competitive L_1 and L_3 sulfate-binding (entry 2 in Table 3).

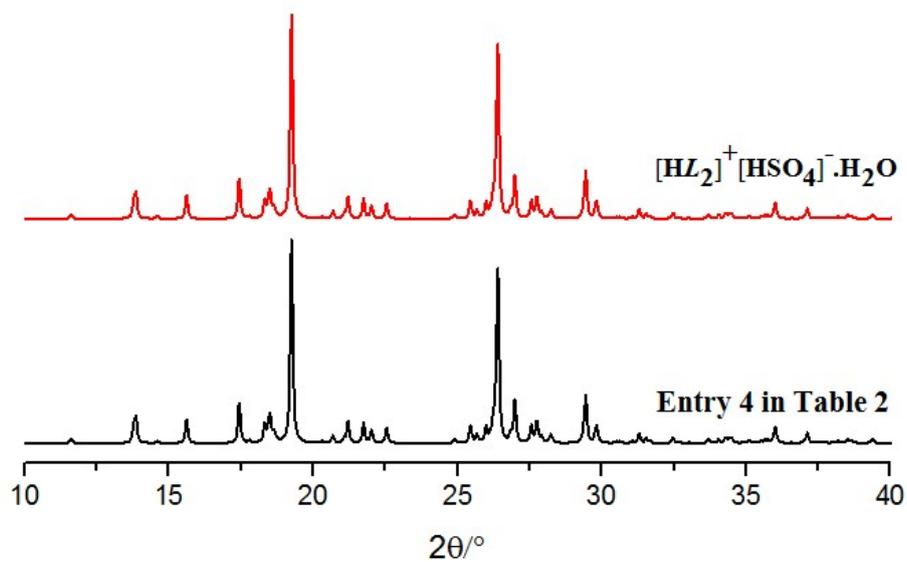


Figure S9. PXRD patterns for salts $[\text{HL}_2]^+[\text{HSO}_4]^- \cdot \text{H}_2\text{O}$ and the competitive L_2 and L_3 sulfate-binding (entry 4 in Table 3).

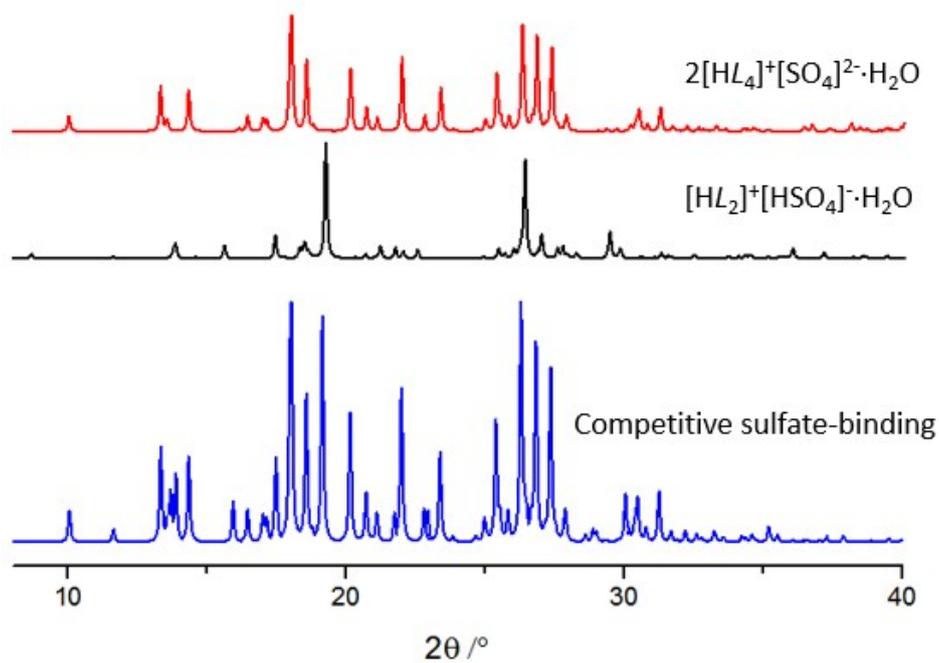


Figure S10. PXRD patterns for salts $[\text{HL}_2]^+[\text{HSO}_4]^- \cdot \text{H}_2\text{O}$, $2[\text{HL}_4]^+[\text{SO}_4]^{2-} \cdot \text{H}_2\text{O}$ and the competitive L_2 and L_4 sulfate-binding (entry 5 in Table 3).

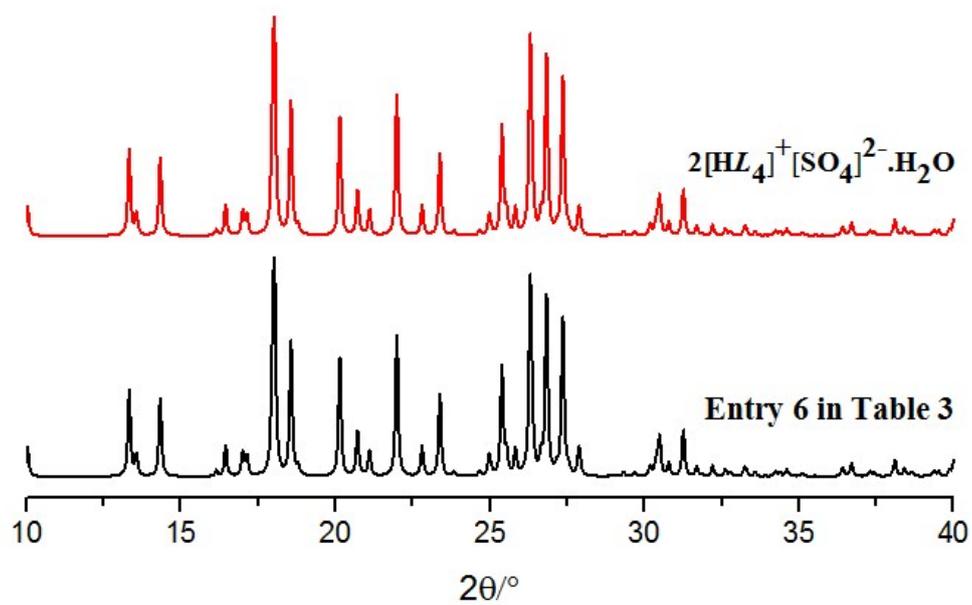


Figure S11. PXRD patterns for salts $2[\text{HL}_4]^+[\text{SO}_4]^{2-}\cdot\text{H}_2\text{O}$ and the competitive L_3 and L_4 sulfate-binding (entry 6 in Table 3).