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## Supplementary information

# Author Correction: Cucurbituril-based anion-conducting membranes with supramolecular nanopores

In the format provided by the authors and unedited

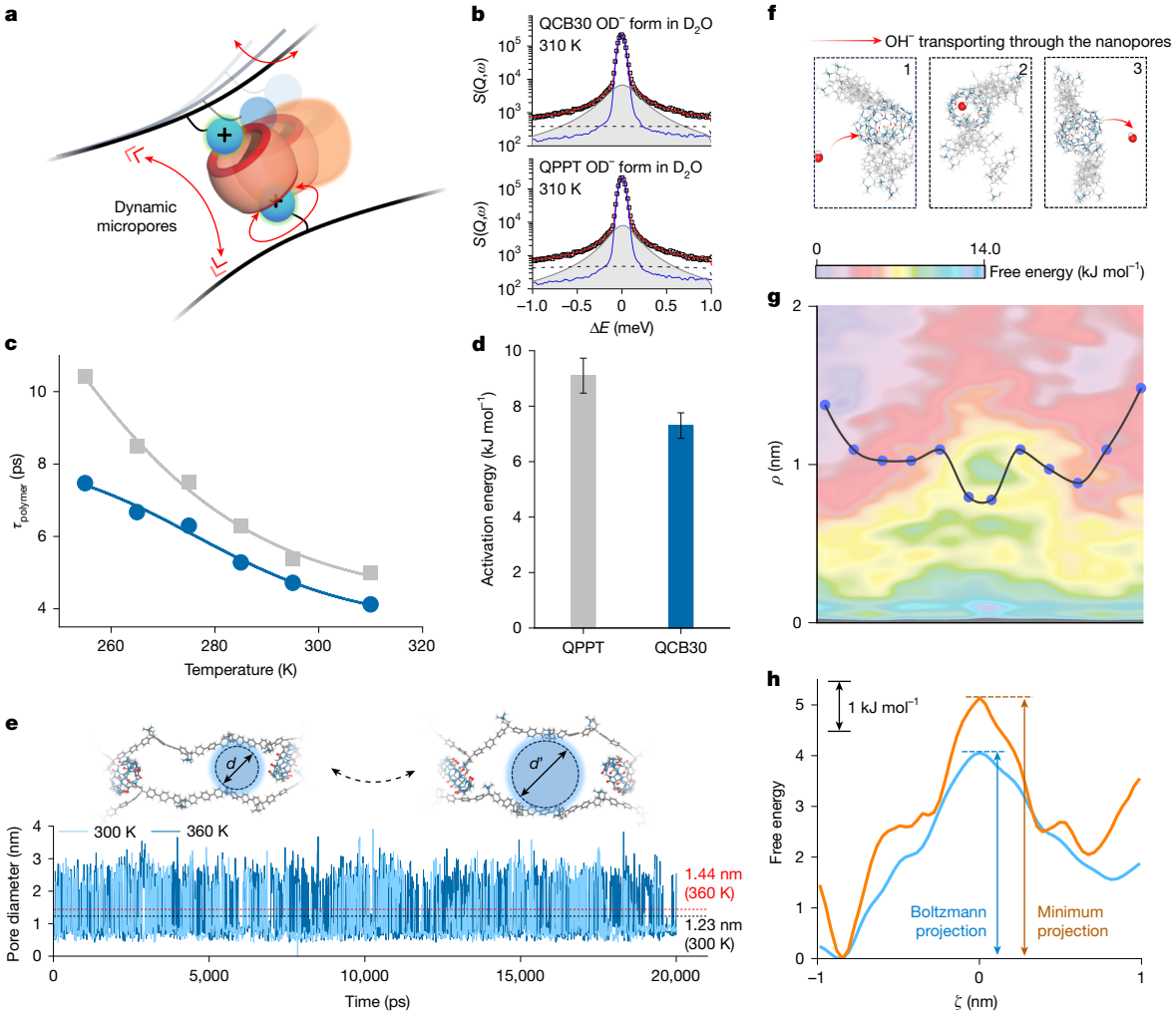
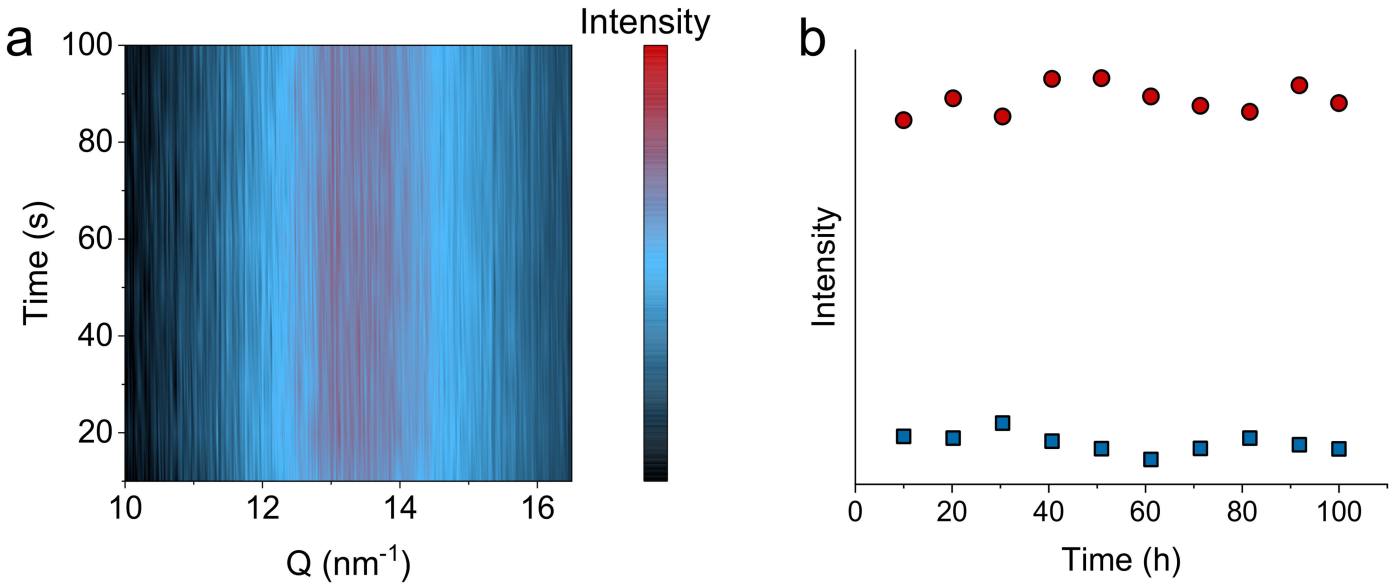



**Fig. 4 | Experimental and computational investigation of nanochannel dynamics. a**, Schematic illustrating the dynamic nature of the nanopores, where the rotation and oscillation of the polymer chains and CB[7] macrocycles create a flexible and adaptive environment for ion transport. **b**, QENS for QCB30 and QPPT ($OD^-$ form, $D_2O$ hydrated) at $Q = 1.32$ Å$^{-1}$ and 310 K. **c**, Temperature-dependent polymer relaxation times ($\tau_{polymer}$) extracted from QENS linewidths, showing faster dynamics (shorter $\tau$) for QCB30. **d**, $E_a$ for polymer relaxation derived from the data in **c**. The lower $E_a$ for QCB30 confirms a less constrained polymer network and a lower barrier for chain motion. **e**, Pore diameter fluctuations over a 20 ns molecular dynamics simulation trajectory for QCB30 at 300 K and 360 K. Insets provide snapshots of the dynamic pore variation. **f**, Representative snapshots (1–3) of $OH^-$ transporting through the nanopores. **g**, Free-energy surface for an anion as a function of its radial ($\rho$) and axial ($\zeta$) position from a 300 ns simulation. The migration pathway is derived from the minimum projection (line with dots). **h**, Potential of mean force along $\zeta$ coordinates for anion translocation. The 1D potential of mean force from a full Boltzmann projection (blue line) shows an obviously lower and smoother energy barrier than a static, minimum-energy projection (orange line), providing a definitive thermodynamic signature of how channel flexibility facilitates low-friction ion migration.




**Extended Data Fig. 4 | Stability of the supramolecular-induced polymer packing. a**, Time-resolved synchrotron WAXS contour plot of the QCB30 membrane, recorded over 100 s (10 s per frame). The prominent scattering peak at a momentum transfer (Q) of ~12.9 $nm^{-1}$ remains constant in both position and intensity, indicating a stable structural feature. **b**, Scattering intensity at Q = 12.9 $nm^{-1}$ as a function of time for the QCB30 membrane.

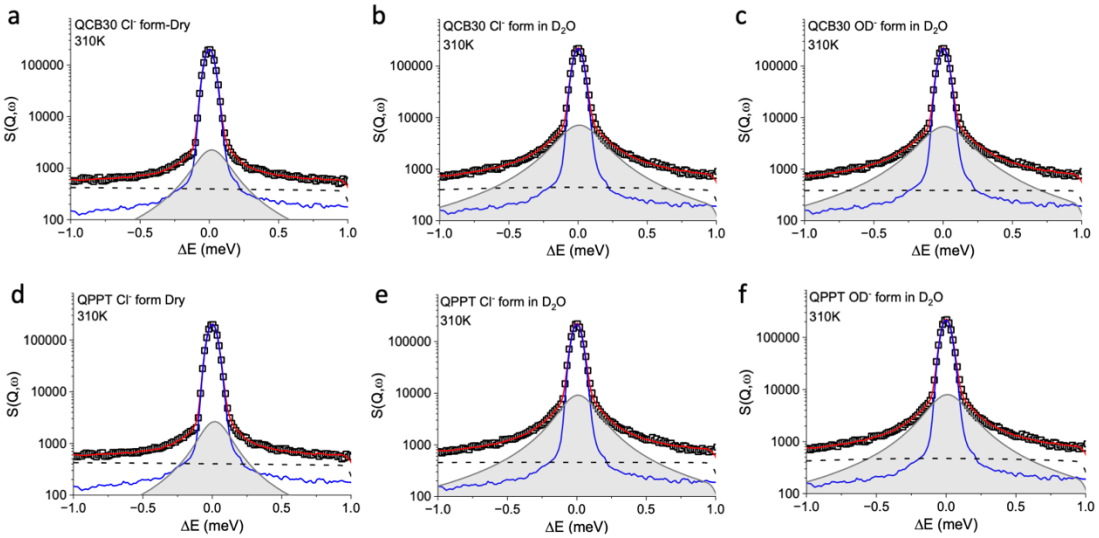



**Figure S49 | QENS spectra.** Measured at Q = 1.32 Å$^{-1}$ and T = 310 K. **a-c,** QCB30 membrane in the $Cl^-$ form (dry), $Cl^-$ form (hydrated in $D_2O$), and $OD^-$ form (hydrated in $D_2O$), respectively. **d-f,** Control QPPT membrane under the same corresponding conditions. The experimental data (open squares) are fitted with a model (red line) comprising the instrumental resolution (blue line), a broad Lorentzian for polymer relaxation (grey shaded area), and an additional broad Lorentzian component (black dashed line).