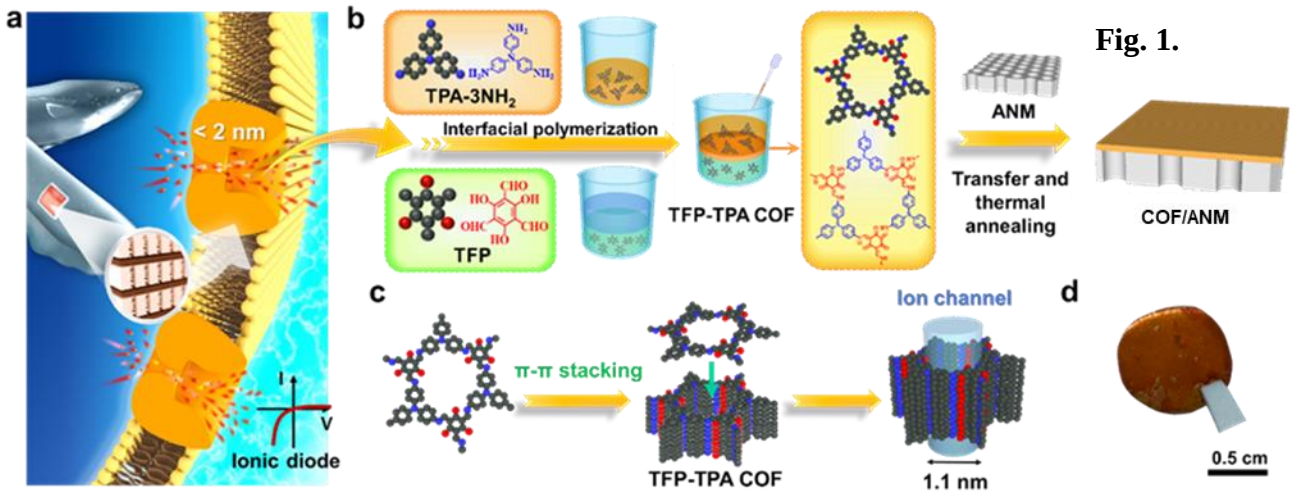

Fig. 1.

Fabrication of a bioinspired ionic diode membrane, COF/ANM. (a) Schematic of the electric eel-inspired sub-2 nm-scale ionic diode membrane for the amplification of energy harvesting from a salinity gradient. (b) Fabrication process of COF/ANM via interfacial polymerization and thermal annealing. (c) Schematic of the formation of ordered sub-2 nm-scale ion channels in TFP-TPA COF membrane via the π-π stacking interaction. (d) Photograph of the prepared COF/ANM.

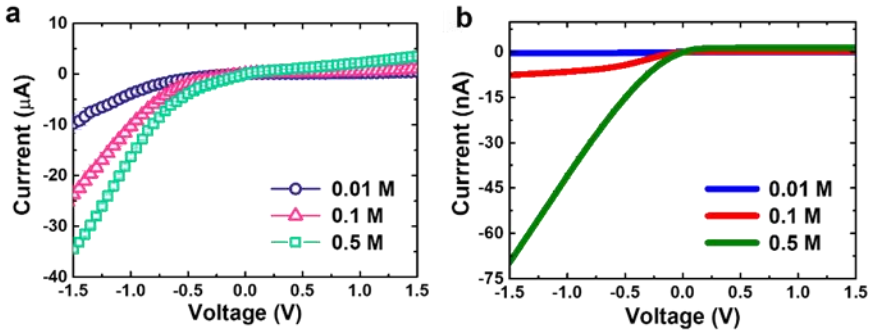

Fig. 2. Realization of COF-based ionic diode membrane. (a) Experimental demonstration of COF-based ionic diode membrane. (b) Theoretical demonstration of COF-based ionic diode membrane, inconsistent with the experimental findings.

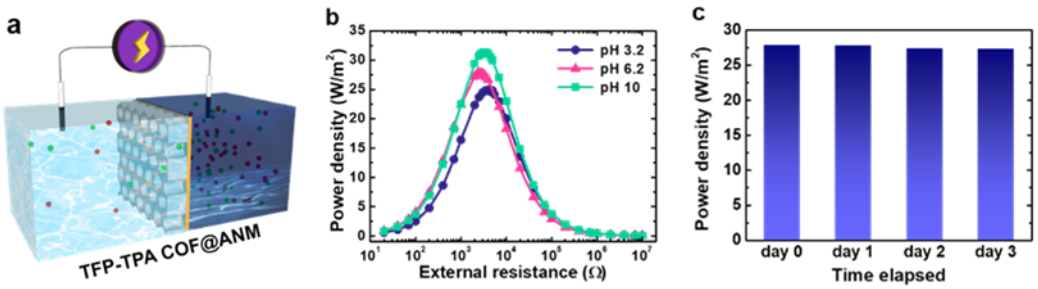

Fig. 3. High-performance osmotic energy harvesting in hypersaline condition (5 M/0.01 M NaCl gradient) (a) Schematic of the osmotic energy conversion device used. (b) Osmotic power harvested at the mixing of artificial salt-lake water and river water (500-fold NaCl gradient) under various pH values. (c) Stability test