Electronic Supplementary Material (ESI) for PCCP
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Electronic Supplementary Information

Fabrication of hydrogel-coated single conical nanochannels exhibiting controllable ion rectification characteristics

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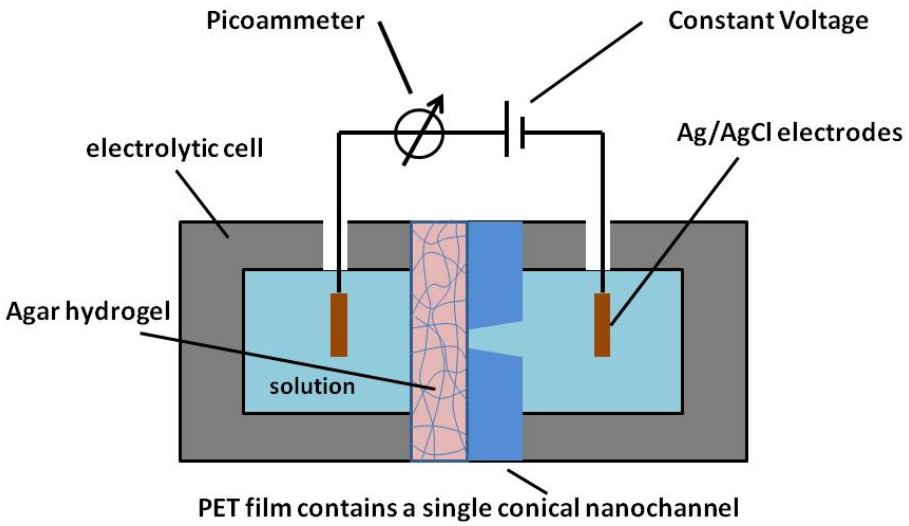

Fig. S1 The experimental set up for Current-Voltage measurement and take the tip-coating nanochannel membrane for example.

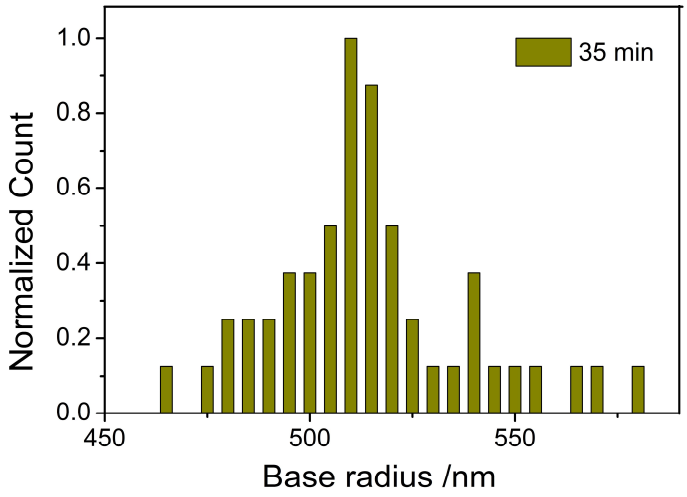

Fig. S2 Distribution of the base radius of the nanochannels after etching for 35 min.

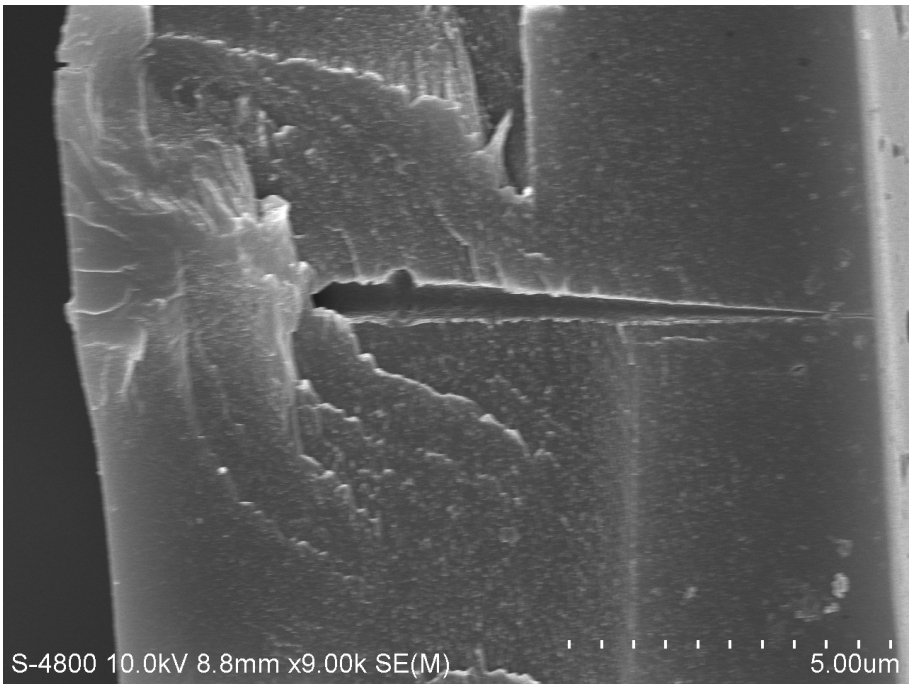

Fig. S3 Cross sections of the conical shaped nanochannels obtained from track-etched multichannel PET membrame with pore density of $10^7/cm^2$, etching 40 min at 35℃.

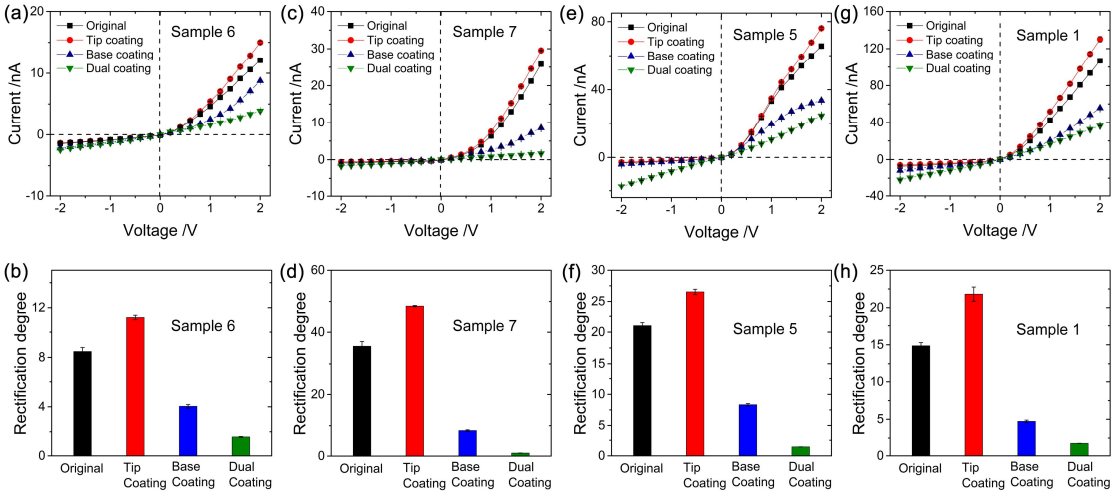

Fig. S4 Influence of the channel size on the ion transport property of the gel-channel composited nanofluidic devices. *I–V* curves of four original single conical nanochannels and their corresponding gel-coated nanodevices fabricated under similar conditions. The base radius of samples 6, 7, 5, and 1 are 296 ± 16 nm, 322 ± 23 nm, 382 ± 18 nm, and 515 ± 24 nm, respectively. And the calculated radius of the tip sides by equation (1) were 8 ± 1 nm, 11 ± 1 nm, 31 ± 2 nm, and 42 ± 2 nm, respectively.

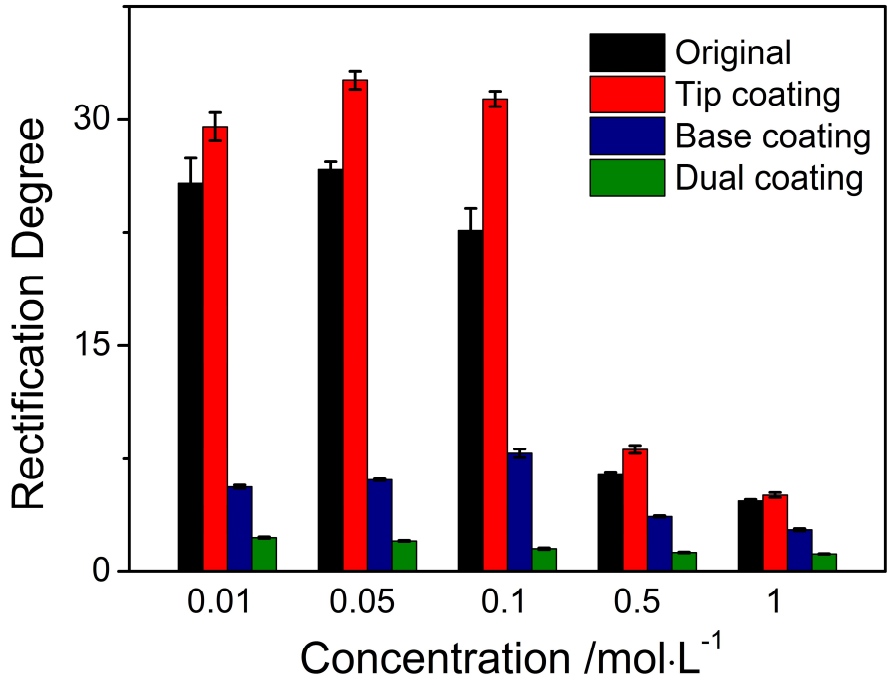

Fig. S5 The rectification degrees of the gel-channel composited nanofluidic devices in five different electrolyte concentration.