Experimental

Chemicals. 2-Methylimidazole (MIM, purity 99%), zinc acetate dihydrate ($Zn(CH_3COO)_2 2H_2O$, purity 97%), and anhydrous propylene carbonate (PC) were purchased from Sigma-Aldrich Chemical Co. Polyvinylpyrrolidone (PVP, K30), hydrochloric acid solution, tetraethylammonium tetrafluoroborate (NEt_4BF_4), and methanol were obtained from Nacalai Tesque Reagent Co. All chemicals were used without further purification or treatment.

Material characterizations. The SEM and TEM images were taken on Hitachi S-4800 and JEOL JEM-2100F, 200 kV systems, respectively. A Rigaku 2500 system equipped with Cu Kα radiation (λ = 0.15406 nm) was used to study the crystalline structures of the powder samples. The details of different bondings present on the material surfaces have been characterized using a micro Raman (Horiba-Jovin Yvon T65000) analysis station. The nitrogen adsorption–desorption isotherms were collected on a quantachrome autosorb automated gas sorption system at 77 K.

Details of device fabrication. Electrochemical measurements were carried out using a CHI 660e (CH Instruments) electrochemical workstation. For electrochemical measurements of supercapacitor cell, a pair of NPC films was sandwiched in an HS test cell (Hohsen Corp.) configuration. The weight of each electrode was kept at 2 mg. A 2-M tetraethylammonium tetrafluoroborate (NEt_4BF_4) in anhydrous propylene carbonate (PC) was used as an electrolyte. The separator used was a Wattman glass microfiber filter paper socked with the electrolyte. The electrochemical cell was fabricated in a glove box, and then tightly packed device measurements were carried out in an air atmosphere. The cyclic voltammetry data were collected in the potential window of 0.0 to 2.4 V with a scan speed variation from 10 to 500 $mV \cdot s^{-1}$. The charge–discharge studies with the extension of potential window studied at various potential windows from 1.4 to 2.4 V. The electrochemical impedance spectroscopy analysis was carried out within a frequency range from 1 mHz to 10^5 Hz at a potential equal to the open circuit potential.

Table S1 Summary of surface area and pore volume obtained from N_2 adsorption isotherms.

Sample	S_{BET} ($m^2 \cdot g^{-1}$)	S_{micro} ($m^2 \cdot g^{-1}$)	S_{micro}/S_{BET} (%)	V_{pore} ($cm^3 \cdot g^{-1}$)	V_{micro} ($cm^3 \cdot g^{-1}$)	V_{micro}/V_{pore} (%)
NPC	1873	876	46.8	1.17	0.48	41.0
AC	1734	753	43.4	0.99	0.44	44.4

Figure S1

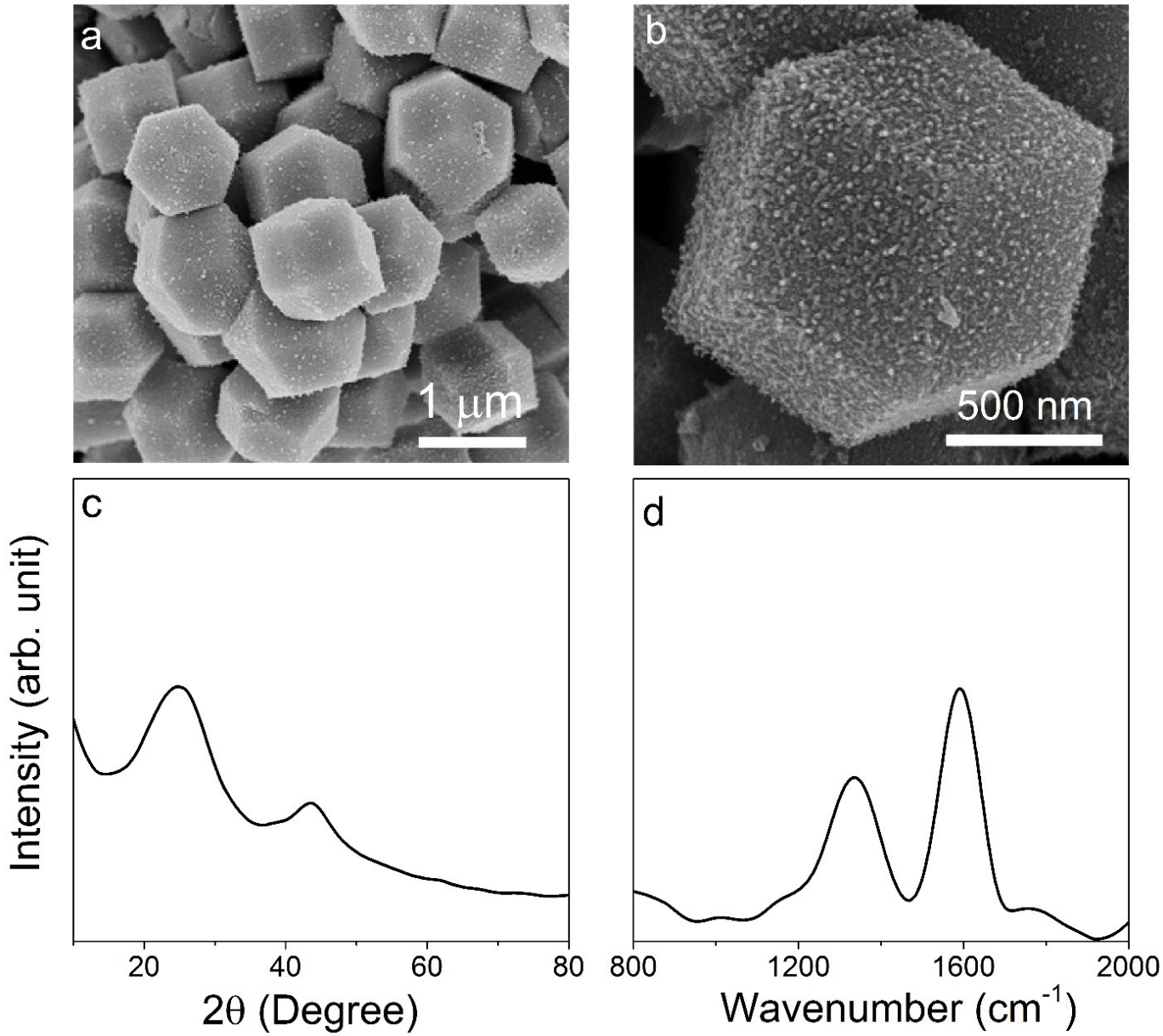

Figure S1 (a) Low- and (b) high-magnification SEM images, (c) wide-angle XRD pattern, and (d) Raman spectra for MOF-derived NPC.

Figure S2

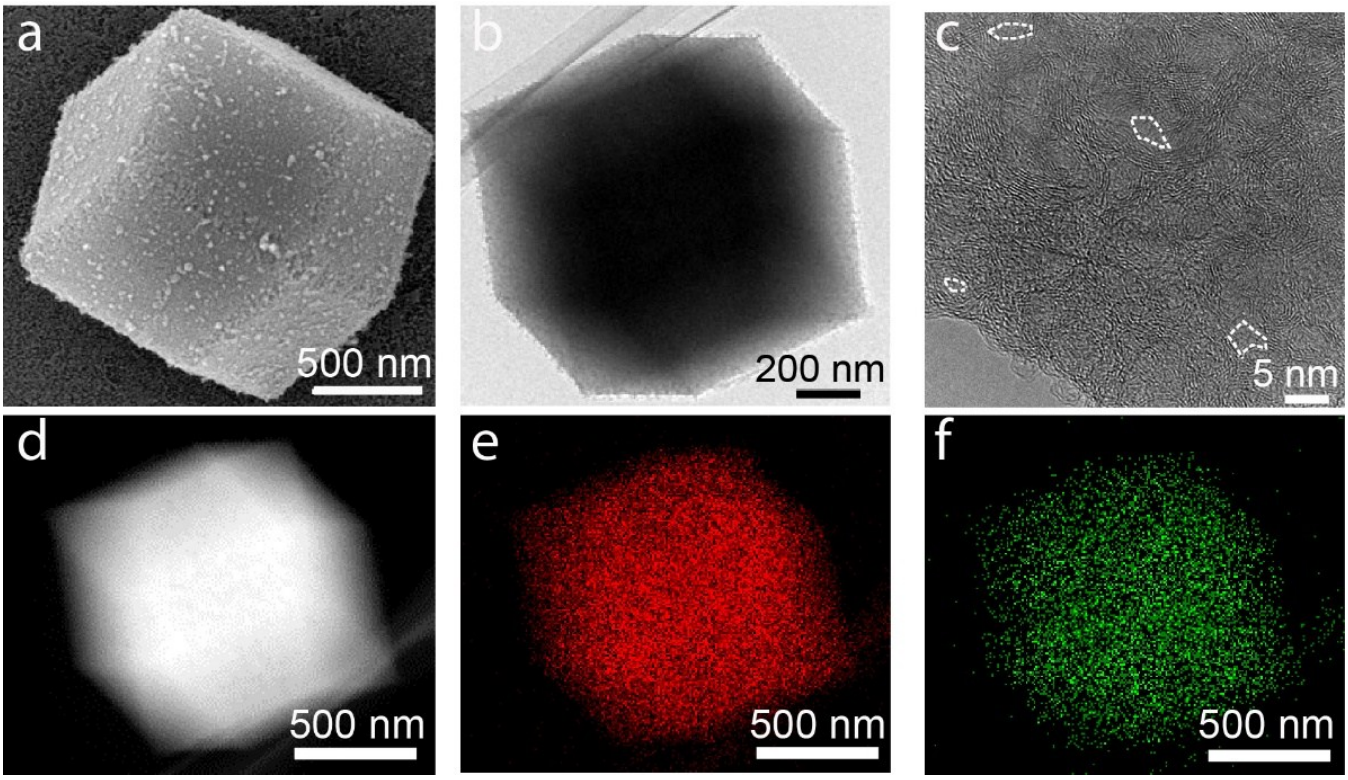

Figure S2 (a) SEM image, (b) TEM image, (c) high-resolution TEM image (pores highlighted by dotted lines), and (d–f) HAADF-STEM image and elemental mapping of (e) carbon and (f) nitrogen.

Figure S3

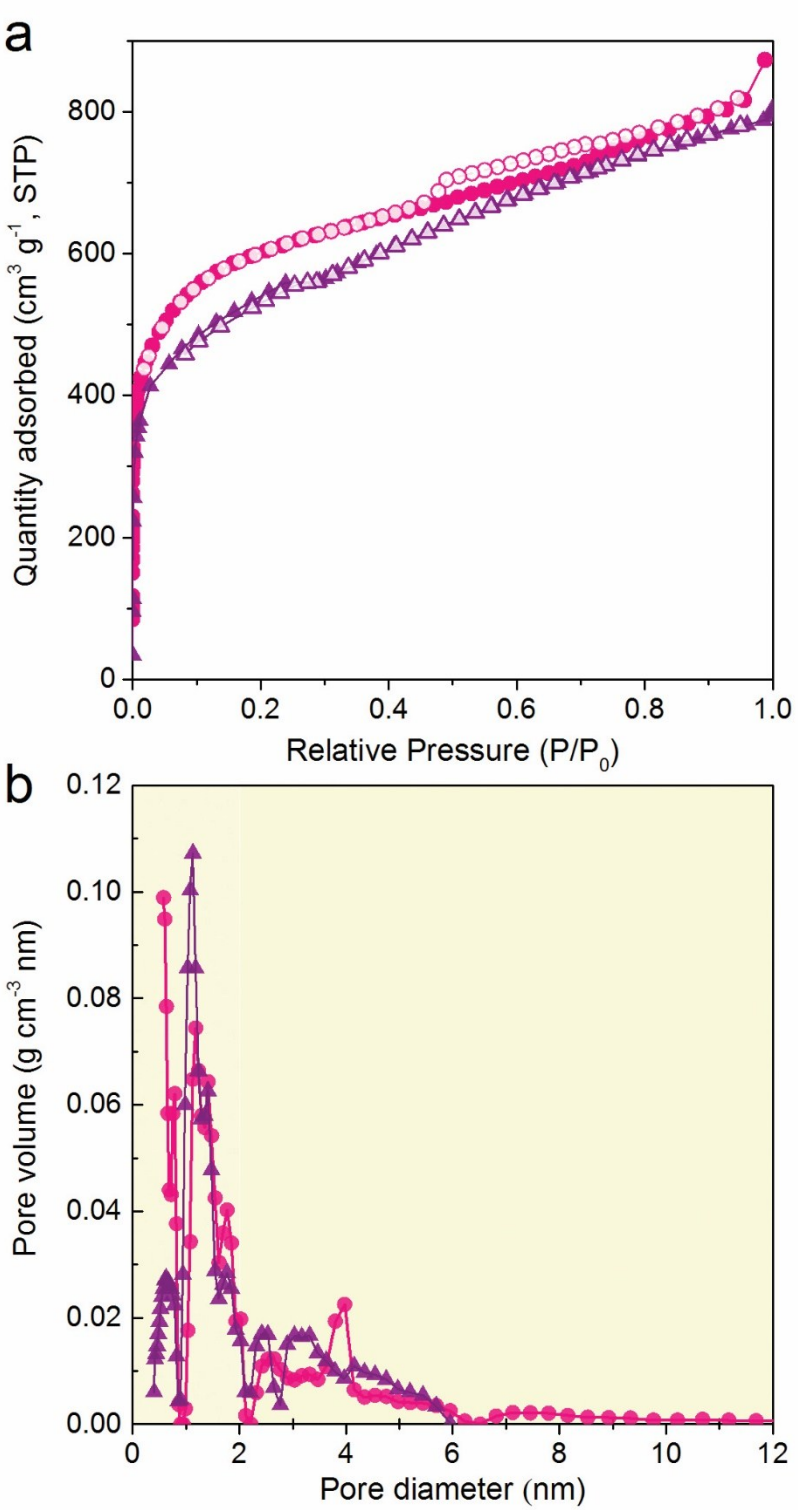

Figure S3 (a) Nitrogen adsorption-desorption isotherms and (b) NLDFT pore-size distribution of MOF-derived NPC sample (shown by pink color) and AC sample (shown by purple color).

Figure S4

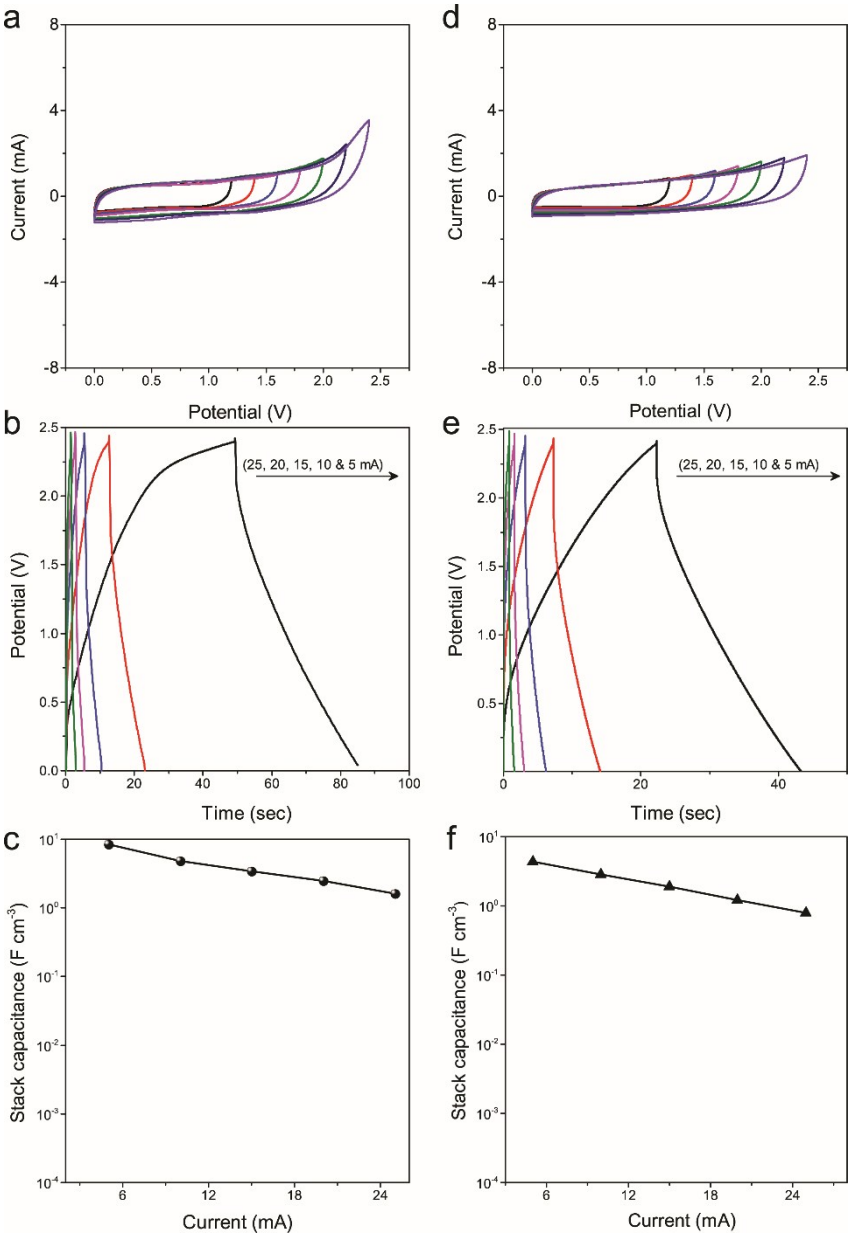

Figure S4 (a) CV curves of NPC-based supercapacitor cell with upper cell voltage varied from 1.2 to 2.4 V, (b) galvanostatic charge-discharge studies in the potential window of 0.0 to 2.4 V at various applied currents, and (c) variation of stack capacitance at the applied currents. (d) CV curves of AC-based supercapacitor cell with upper cell voltage varied from 1.2 to 2.4 V, (e) galvanostatic charge-discharge studies in the potential window of 0.0 to 2.4 V at various applied currents, and (f) variation of stack capacitance at the applied currents for the AC sample.

Figure S5

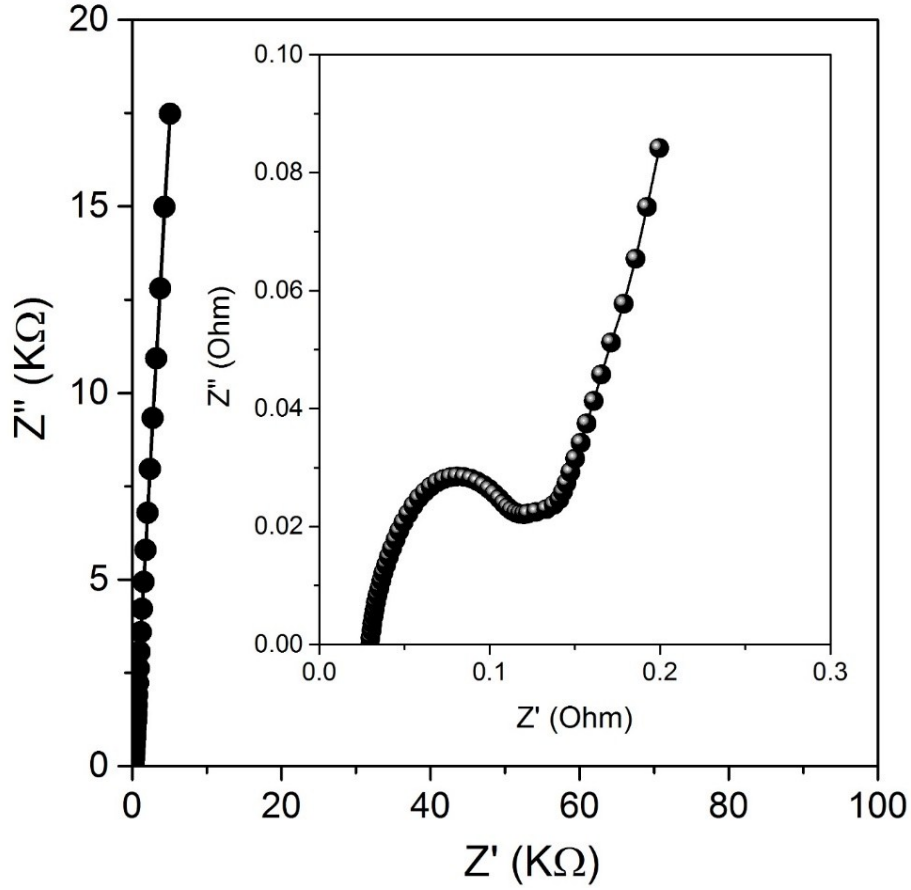

Figure S5 Electrochemical impedance spectra (EIS) measured at a potential equal to open circuit potential.