Experimental

Chemicals. 2-Methylimidazole (MIM, purity 99%), zinc acetate dihydrate (Zn(CH\textsubscript{3}COO)\textsubscript{2}2H\textsubscript{2}O, purity 97%), and anhydrous propylene carbonate (PC) were purchased from Sigma-Aldrich Chemical Co. Polyvinylpyrrolidone (PVP, K30), hydrochloric acid solution, tetraethylammonium tetrafluoroborate (NEt\textsubscript{4}BF\textsubscript{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 K\alpha radiation (\textlambda = 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\textsubscript{4}BF\textsubscript{4}) in anhydrous propylene carbonate (PC) was used as an electrolyte. The separator used was a Wattman glass microfiber filter paper soaked 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\textperiodcentered s\textsuperscript{-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\textsuperscript{5} Hz at a potential equal to the open circuit potential.
Table S1 Summary of surface area and pore volume obtained from N\textsubscript{2} adsorption isotherms.

<table>
<thead>
<tr>
<th>Sample</th>
<th>$S_{\text{BET}}$ (m\textsuperscript{2}·g\textsuperscript{-1})</th>
<th>$S_{\text{micro}}$ (m\textsuperscript{2}·g\textsuperscript{-1})</th>
<th>$S_{\text{micro}}/S_{\text{BET}}$ (%)</th>
<th>$V_{\text{pore}}$ (cm\textsuperscript{3}·g\textsuperscript{-1})</th>
<th>$V_{\text{micro}}$ (cm\textsuperscript{3}·g\textsuperscript{-1})</th>
<th>$V_{\text{micro}}/V_{\text{pore}}$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPC</td>
<td>1873</td>
<td>876</td>
<td>46.8</td>
<td>1.17</td>
<td>0.48</td>
<td>41.0</td>
</tr>
<tr>
<td>AC</td>
<td>1734</td>
<td>753</td>
<td>43.4</td>
<td>0.99</td>
<td>0.44</td>
<td>44.4</td>
</tr>
</tbody>
</table>

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 (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 (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

(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

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