Supporting Information for

Template-Free Synthesis of Renewable Macroporous Carbon via Yeast Cells for High-Performance Supercapacitor Electrode Materials

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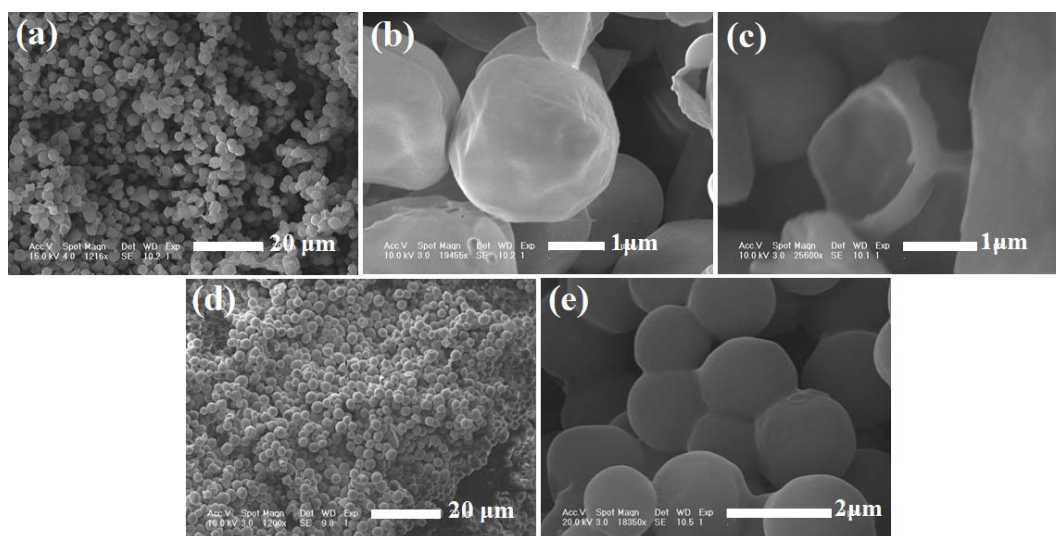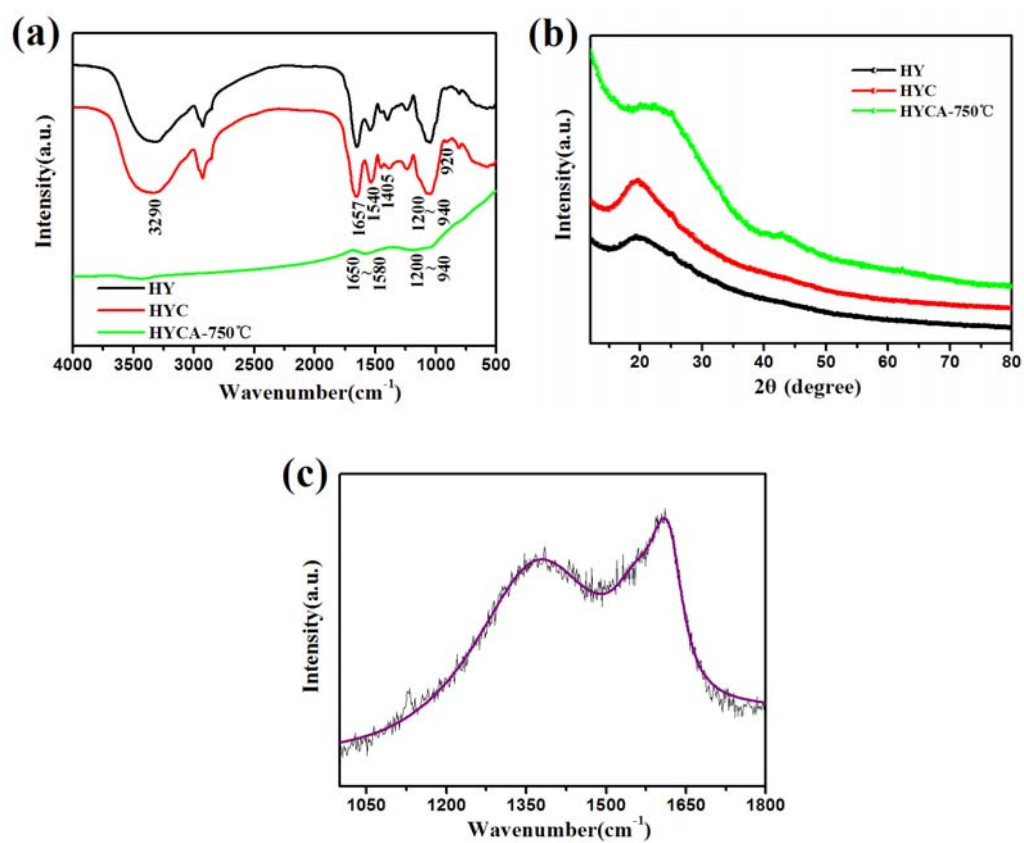
Figure S1. SEM images of (a-c) HY and (d, e) HYC.

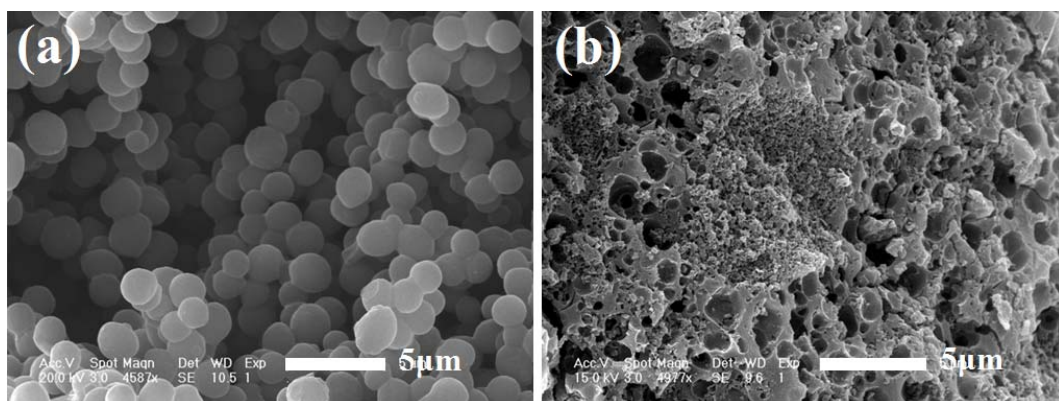**Figure S2.** (a) FTIR spectra and (b) XRD patterns of HY, HYC and HYCA-750 ^{o}C; (c) Raman spectrum of HYCA-750 ^{o}C.

Figure S3. SEM images of (a) HYC-750 ^{o}C and (b) HYA-750 ^{o}C.
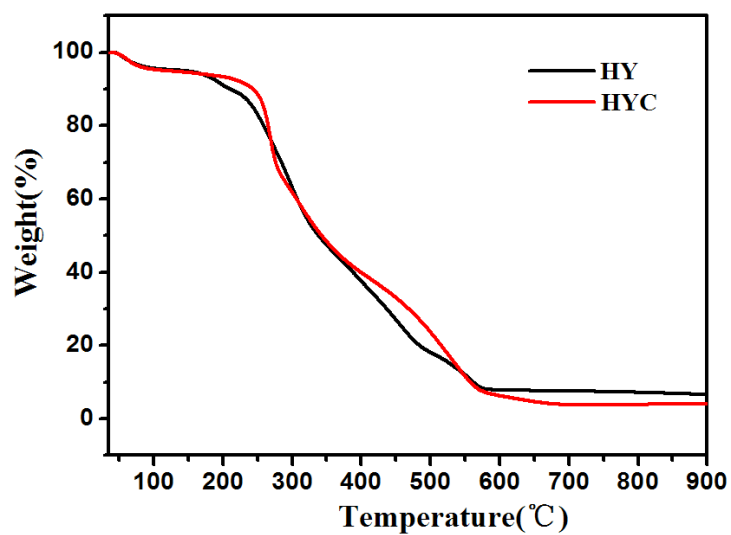

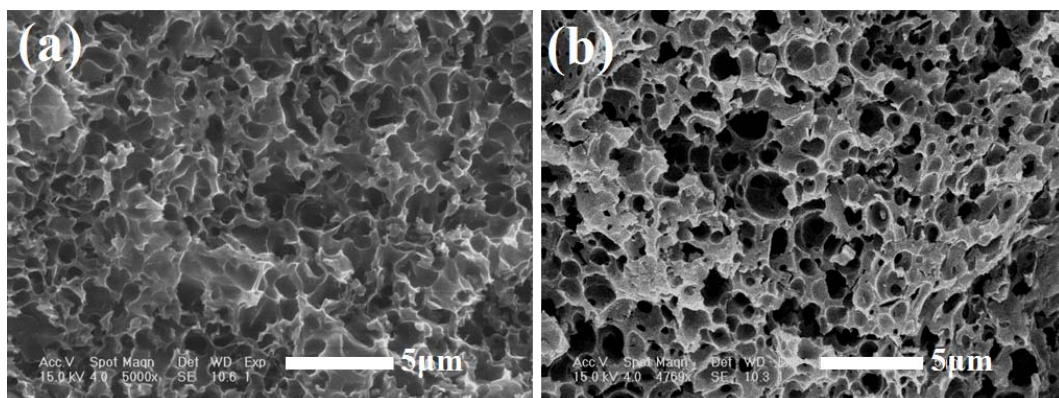**Figure S4.** TGA curves of HY and HYC.

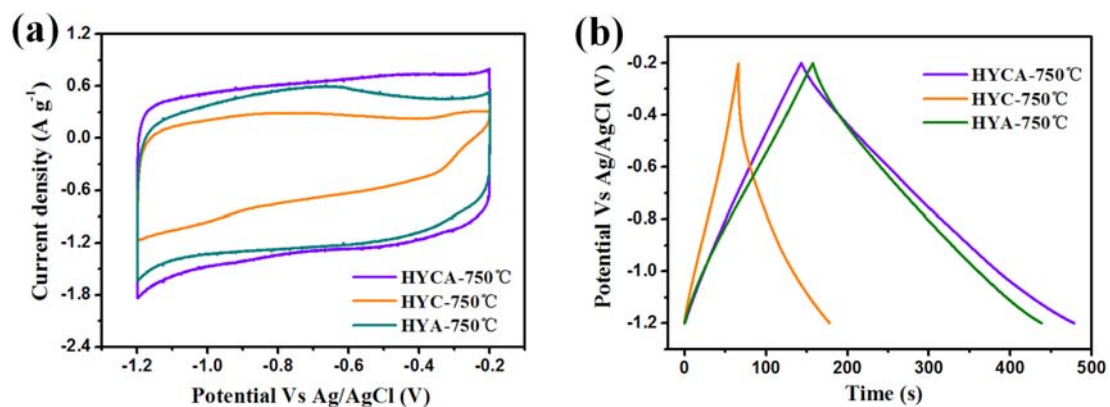**Figure S5.** SEM images of (a) HYCA-650 ^{o}C and (b) HYCA-850 ^{o}C.

Figure S6. (a) CV curves at 5 mV s^{-1} and (b) galvanostatic charge/discharge curves at 1 A g^{-1} of the samples.
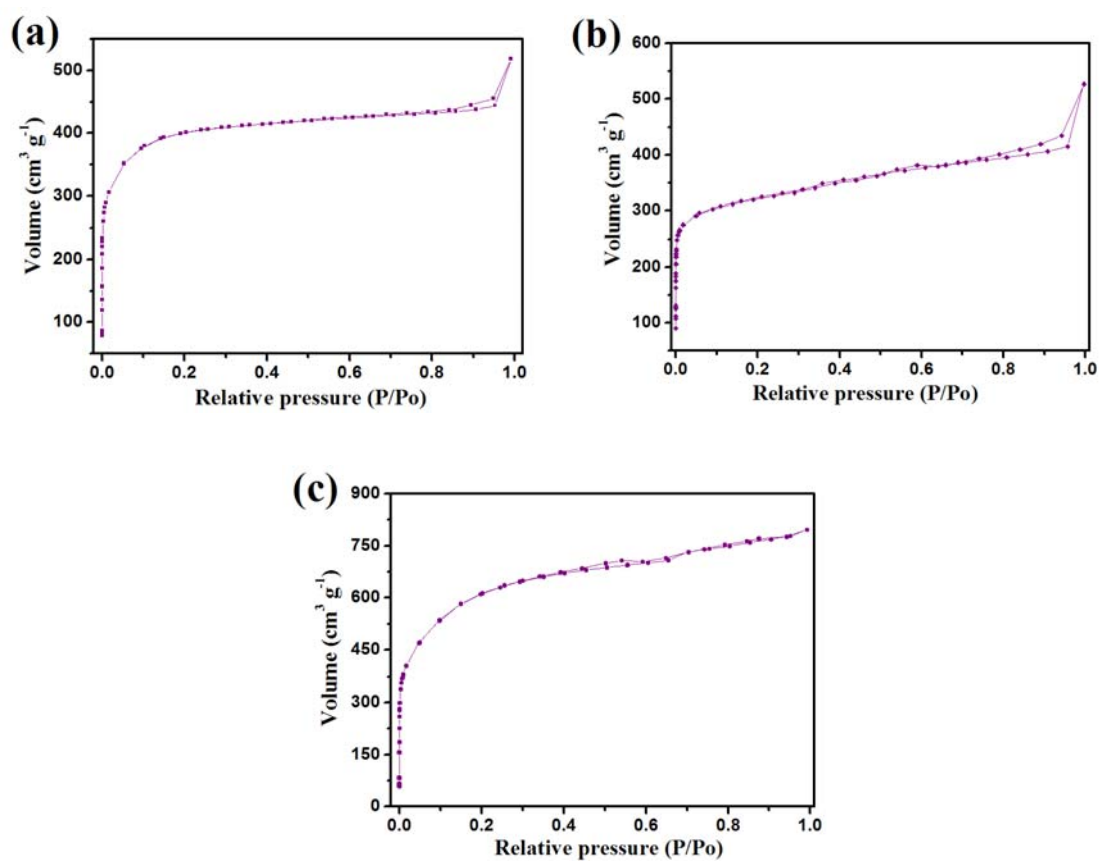

Figure S7. Nitrogen adsorption/desorption isotherms of (a) HYCA-750 ^{o}C, (b) HYCA-650 ^{o}C, (c) HYCA-850 ^{o}C.

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Table S1. Calculated surface area of the samples.

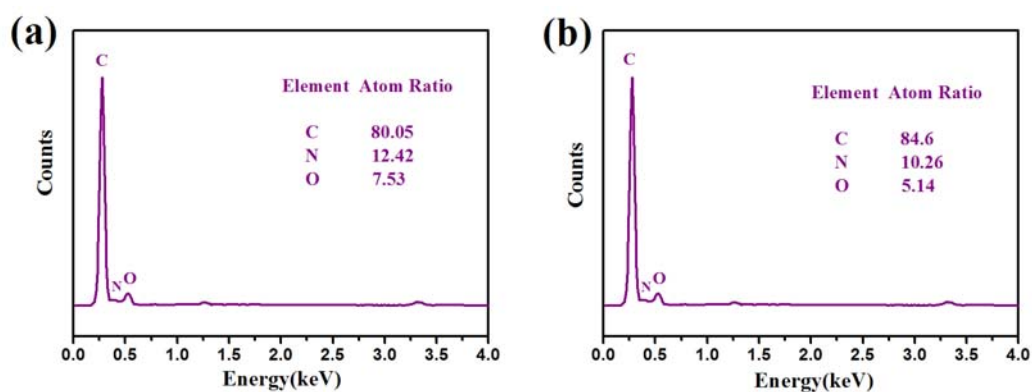| Sample	HYCA-650 ℃	HYCA-750 ℃	HYCA-850 ℃
$S_{BET}(m^2 g^{-1})$	1002	1227	2011

Figure S8. EDX analysis of (a) HYCA-650 ^{o}C and (b) HYCA-850 ^{o}C.

Table S2. The atom ratio of the elements in the samples.

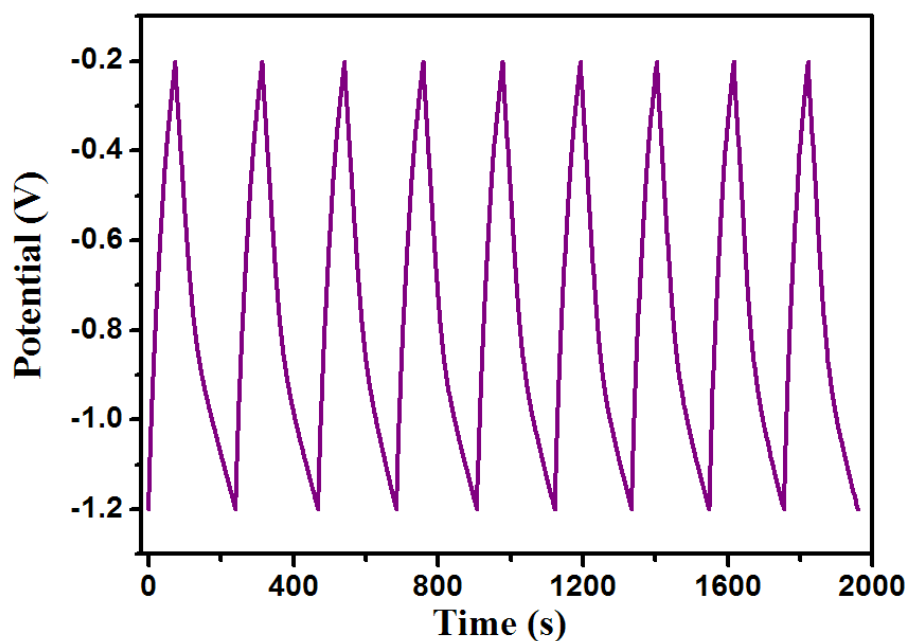| Element	HYCA-650 ^{o}C	HYCA-750 ^{o}C	HYCA-850 ^{o}C
C (Atom Ratio %)	80.05	82.34	84.6
N (Atom Ratio %)	12.42	11.39	10.26
O (Atom Ratio %)	7.53	6.28	5.14

Figure S9. Galvanostatic charge/discharge curves of HYCA-750 $^{\circ}$C at the current density of 1 A g^{-1} in two-electrode system.

For HYCA-750 $^{\circ}$C, the specific capacitance of a single electrode at the current density of 1A g^{-1} in a symmetrical two-electrode configuration was calculated to be 280 F g^{-1} by the equation: $Cs = 4(I\ \Delta t)/(\Delta V\ m)$,[1-3] where I is the current, Δt is the discharge time, ΔV is the potential range, and m is the total mass of HYCA-750 $^{\circ}$C on both electrodes, 4 adjusts the capacitance of the cell and the combined mass of two electrodes to the capacitance and mass of a single electrode.
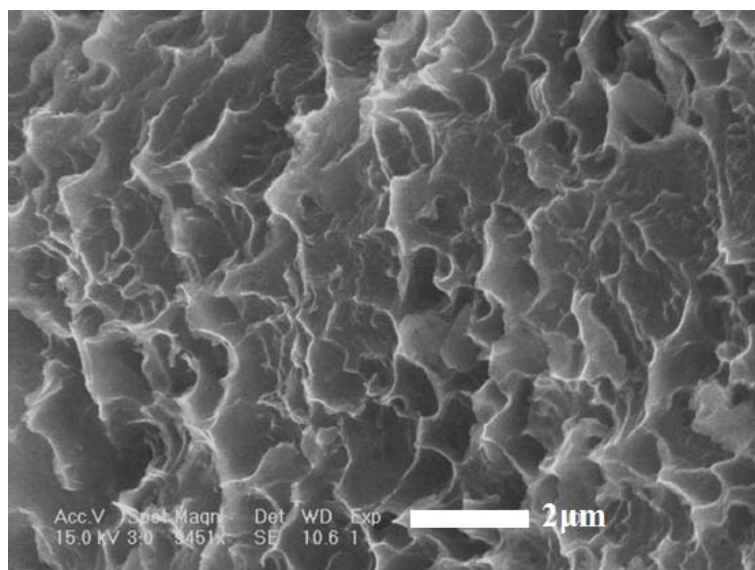
Figure S10. SEM image of HYCA-750 ^{o}C after 1000 cycles.

Reference:

(1)   Stoller M. D.; Ruoff, R. S. *Energy Environ. Sci.* **2010**, *3*, 1294-1301.

(2)   Xie, K.; Qin, X.; Wang, X.; Wang, Y.; Tao, H.; Wu, Q.; Yang L.; Hu, Z. *Adv. Mater.* **2011**, *24*, 347-352.

(3)   Simon P.; Gogotsi, Y. *Nat. Mater.* **2008**, *7*, 845-854.