## Supporting Information

## Spherical Nitrogen-doped Hollow Mesoporous Carbon as an Efficient Bifunctional Electrocatalyst for Zinc-Air Battery

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Fig. S1. Energy dispersive X-ray spectrum of HMC.



Fig. S2. XPS survey spectrum of HMC.



Fig. S3. TEM bright field images of polydopamine beads (A, B).



**Fig. S4.** Nitrogen adsorption-desorption isotherms for the hollow mesoporous carbon spheres (HMC).



Fig. S5. Nitrogen adsorption-desorption isotherms for the Silica@mC spheres.



Fig. S6. Nitrogen adsorption-desorption isotherms for the polydopamine beads.



**Fig. S7.** (A) LSV curves for Silica@mC in an O<sub>2</sub>-saturated 0.1 M KOH solution at indicated rotational rates and a scan rate of 10 mV s<sup>-1</sup>. (B) Koutecky-Levich plots for Silica@mC in the potential range of -0.3 to -0.7 V vs. Hg/HgO.



**Fig. S8.** (A) LSV curves for PDA beads in an O<sub>2</sub>-saturated 0.1 M KOH solution at indicated rotational rates and a scan rate of 10 mV s<sup>-1</sup>. (B) Koutecky-Levich plots for PDA beads in the potential range of -0.3 to -0.7 V vs. Hg/HgO.