## Supporting Information

## Selenium Clusters in Zn-glutamate MOF Derived Nitrogen-Doped Hierarchically Radial-Structured Microporous Carbon for Advanced Rechargeable Na-Se Battery

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Figure S1. TGA curves of Se@N-HRMC.



Figure S2. Raman spectra of the commercial Se, N-HRMC, Se/N-HRMC and Se@N-HRMC.



Figure S3. XPS survey spectrum of Se@N-HRMC.



**Figure S4.** XPS spectra of the Se/N-HRMC composite. (a) survey spectrum, high resolution XPS spectra of (b) C 1s, (c) N 1s and (d) Se 3d.



Figure S5. CV curves of the Se/N-HRMC electrode at 1.0-3.0 V at a potential sweep rate of 0.1 mV  $s^{-1}$ .



Figure S6. The cycle performance of N-HRMC in 0.2C.



Figure S7. The SEM picture and photo of treated Se.



**Figure S8.** Nyquist plots of Se@N-HRMC and Se/N-HRMC electrodes collected after 2 cycles. Insert: Solid lines in Nyquist plots are fitted to the equivalent circuit.



Figure S9. The beaker cell test of (a) Se@N-HRMC, and (b) Se/N-HRMC.