## SUPPORTING INFORMATION

Efficient Room-Temperature Aqueous-Phase Hydrogenation of Phenol to Cyclohexanone Catalyzed by Pd Nanoparticles Supported on Mesoporous MMT-1 Silica with Unevenly Distributed Functionalities

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Figure S1. <sup>13</sup>C NMR spectra of (a) 100 %  $C_{12}EO_4$ , (b) 100 % CTAB, (c) mixture of 75 % CTAB and 25 %  $C_{12}EO_4$ , (d) the surfactant mixture extracted from sample **A** by chloroform, and (e) the surfactant mixture extracted from **A** by HMDS/chloroform. CDCl<sub>3</sub> was used as a d-solvent for all measurements.



Figure S2. Solid-state  ${}^{1}$ H (a) and  ${}^{29}$ Si (b) MAS NMR spectra of rMMT-1.



Figure S3. XPS spectrum of activated (H<sub>2</sub>-reduced) (a) and non-activated (b) Pd@sMMT-1. Small amount of Pd<sup>2+</sup> present in the activated sample was due to short-time exposure to air.



**Figure S4.** Fourier transform profile of Pd K-edge k<sup>3</sup>-weighted EXAFS data (-) and the fitted result (o) of Pd@sMMT-1 after H<sub>2</sub> reduction.



Figure S5. Wide-angle PXRD patterns of (a) Pd@rMMT-1 and (b) Pd@MMT-1-IMP.



Figure S6. STEM-HAADF image of a Pd@sMMT-1 sample (6.2 wt% Pd) prepared by incipient

wetness impregnation.