Fig. S1

(a) Photograph and (b) confocal laser scanning microscopic image of PS-\textit{b}-PVP-\textit{b}-PEO micelle solution.

Fig. S2

Thermogravimetric (TG) analysis of (a) PS-\textit{b}-PVP-\textit{b}-PEO polymer and (b) Pt/SiO$_2$/ PS-\textit{b}- PVP-\textit{b}-PEO nanocomposites, showing that the PS-\textit{b}-PVP-\textit{b}-PEO template is completely burned out at around 500 °C in N$_2$ medium.
Fig. S3 (a) Nitrogen adsorption-desorption isotherm and (b) pore size distribution of Pt-decorated mesoporous silica.

Fig. S4 (a) Wide-angle XRD pattern and (b) XPS spectrum of Pt-decorated mesoporous silica.
Fig. S5 (a-c) TEM image of Pt-decorated mesoporous SiO$_2$ after calcination at 300 °C in air for 5 hours. This temperature is far greater than the temperature of the reaction condition (150 °C) for CO oxidation test. The thermal agglomeration or leaching of the catalytic centers at high temperatures is not observed.
Fig. S6 (a and b) Low- and (c) high-magnified TEM images of Pt-decorated mesoporous alumina and (d) particle size distribution of Pt nanoparticles deposited inside the mesopores.