Supporting Information

Stable Rhodium Single-Site Catalyst Encapsulated within Dendritic Mesoporous Nanochannels

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Supplementary Informations

Fig. S1 More detailed characterizations by TEM: TEM images (a to f) of the as prepared Rh\textsubscript{1}@MSNS-NH\textsubscript{2}, a-c, one particular area zoomed in with different magnification, d-f another area taken with slight different focus depth.
<table>
<thead>
<tr>
<th>Element</th>
<th>Weight%</th>
<th>Atomic%</th>
</tr>
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<tbody>
<tr>
<td>Si</td>
<td>33.46</td>
<td>23.27</td>
</tr>
<tr>
<td>O</td>
<td>62.20</td>
<td>75.91</td>
</tr>
<tr>
<td>Rh</td>
<td>4.33</td>
<td>0.82</td>
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**Fig. S2** EDS spectrum of a selected area in Rh@MSNS-NH$_2$ sample and the corresponding analysis result.

**Fig. S3.** TEM images of the Rh@MSNS-NH$_2$ after serving as catalyst for the reduction of 4-nitrophenol.
Fig. S4 TEM images and EDX result of the as-prepared Rh/MSNS without surface functionalization.

Fig. S5 TEM images of the Rh/MSNS after serving as catalyst for the reduction of 4-nitrophenol.
Fig. S6: GC-MS result of the reaction product obtained in the hydrosilylation of phenylacetylene with triethylsilane.

^1H NMR
(<E)-triethyl(styryl)silane and triethyl(1-phenylvinyl)silane.

$^{1}$H NMR (500 MHz, CDCl$_3$) $\delta$ 7.50 – 7.42 (m, 0.57H), 7.36 – 7.27 (m, 2.47H), 7.27 – 7.19 (m, 1H), 7.17 (dt, $J = 3.0, 1.8$ Hz, 2H), 6.92 (d, $J = 19.3$ Hz, 0.17H), 6.45 (d, $J = 19.3$ Hz, 0.16H), 5.89 (d, $J = 3.1$ Hz, 1H), 5.60 (d, $J = 3.1$ Hz, 1H), 1.01 (t, $J = 7.9$ Hz, 2H), 0.95 (t, $J = 7.9$ Hz, 9H), 0.69 (q, $J = 7.9$ Hz, 7H).

$^{13}$C NMR (126 MHz, CDCl$_3$) $\delta$ 150.45, 145.54, 144.86, 138.53, 130.57, 128.86, 128.54, 128.12, 126.69, 126.35, 126.13, 125.94, 7.46, 7.34, 3.55, 3.33.

**Fig. S7.** $^{1}$H NMR and $^{13}$C NMR spectra of the hydrosilylation reaction product after purification.