Electronic Supplementary Information (ESI)

Beyond the Use of Modifiers in Selective Alkyne Hydrogenation: Silver and Gold Nanocatalysts in Flow Mode for Sustainable Alkene Production

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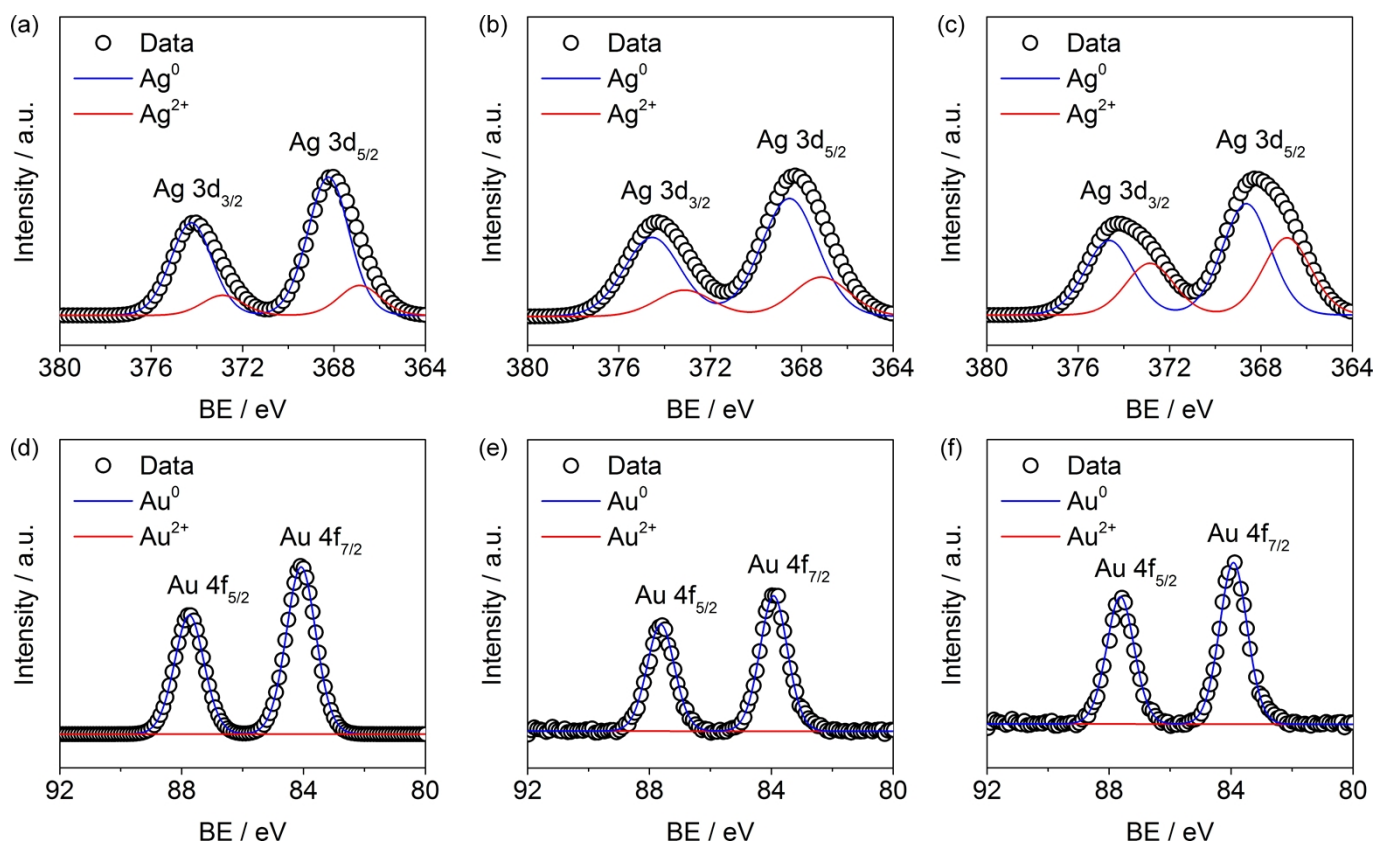* Corresponding author. E-mail: jpr@chem.ethz.ch

Figure S1. Ag 3d (top) and Au 4f (bottom) core level XPS spectra of catalysts **A** (a), **D** (b), **E** (c), **F** (d), **G** (e), and **K** (f) in **Table 1**.
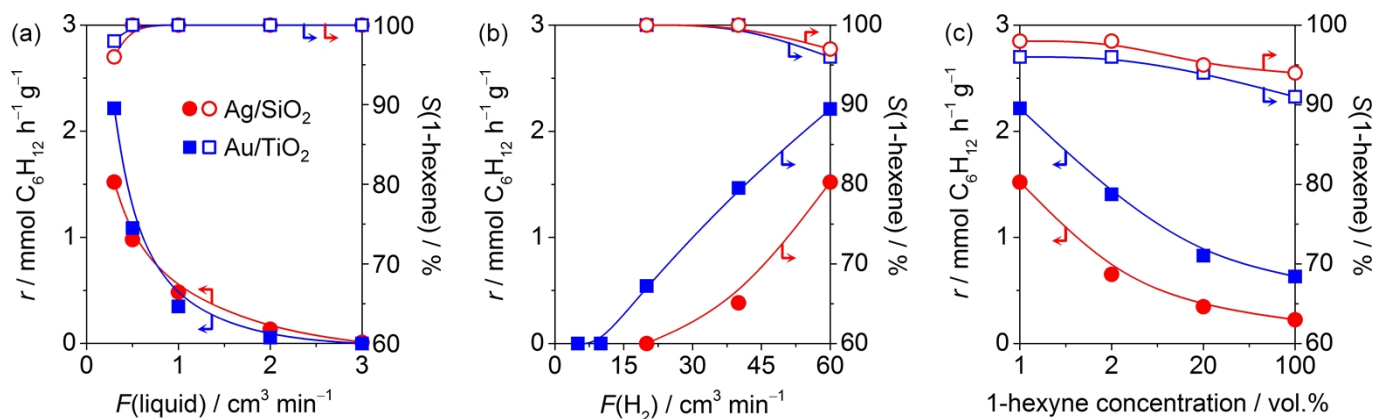
Figure S2. Hydrogenation of 1-hexyne as a function of the liquid (a) and hydrogen flow rate (b), and inlet concentration of 1-hexyne (c) over catalysts **A** and **G** in **Table 1**. The reactions were conducted at $T = 373$ K $P = 20$ bar, $F(H_2) = 60$ cm^3 min^{-1}, and 1 vol.% 1-hexyne when assessing the influence of the liquid flow rate on the catalytic performance, F(liquid) = 0.3 cm^3 min^{-1} and 1 vol.% 1-hexyne when assessing the influence of the hydrogen flow rate, and F(liquid) = 0.3 cm^3 min^{-1} and $F(H_2) = 60$ cm^3 min^{-1} when assessing the influence of the inlet concentration of 1-hexyne
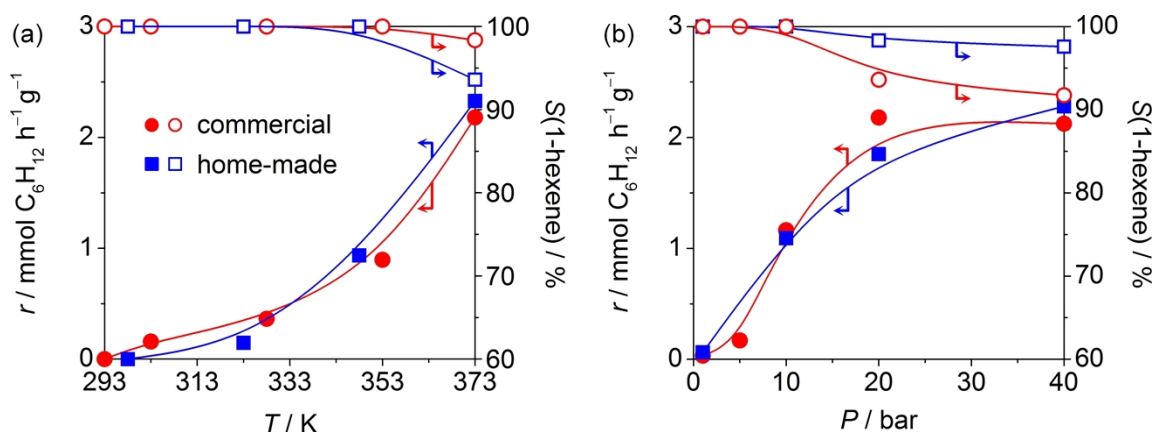

Figure S3. Hydrogenation of 1-hexyne as a function of temperature (a) and pressure (b) over the home-made Au/TiO$_2$ prepared by sol immobilisation and activated in N$_2$ flow at 623 K for 3 h (catalyst **G** in **Table 1**), and a commercial Au/TiO$_2$ sample (Strem Chemicals, ref: 79-0165). The reactions were conducted at F(liquid) = 0.3 cm^3 min^{-1} and $F(H_2) = 60$ cm^3 min^{-1}; in particular, the influence of temperature was studied at $P = 20$ bar, and the influence of pressure at $T = 373$ K.