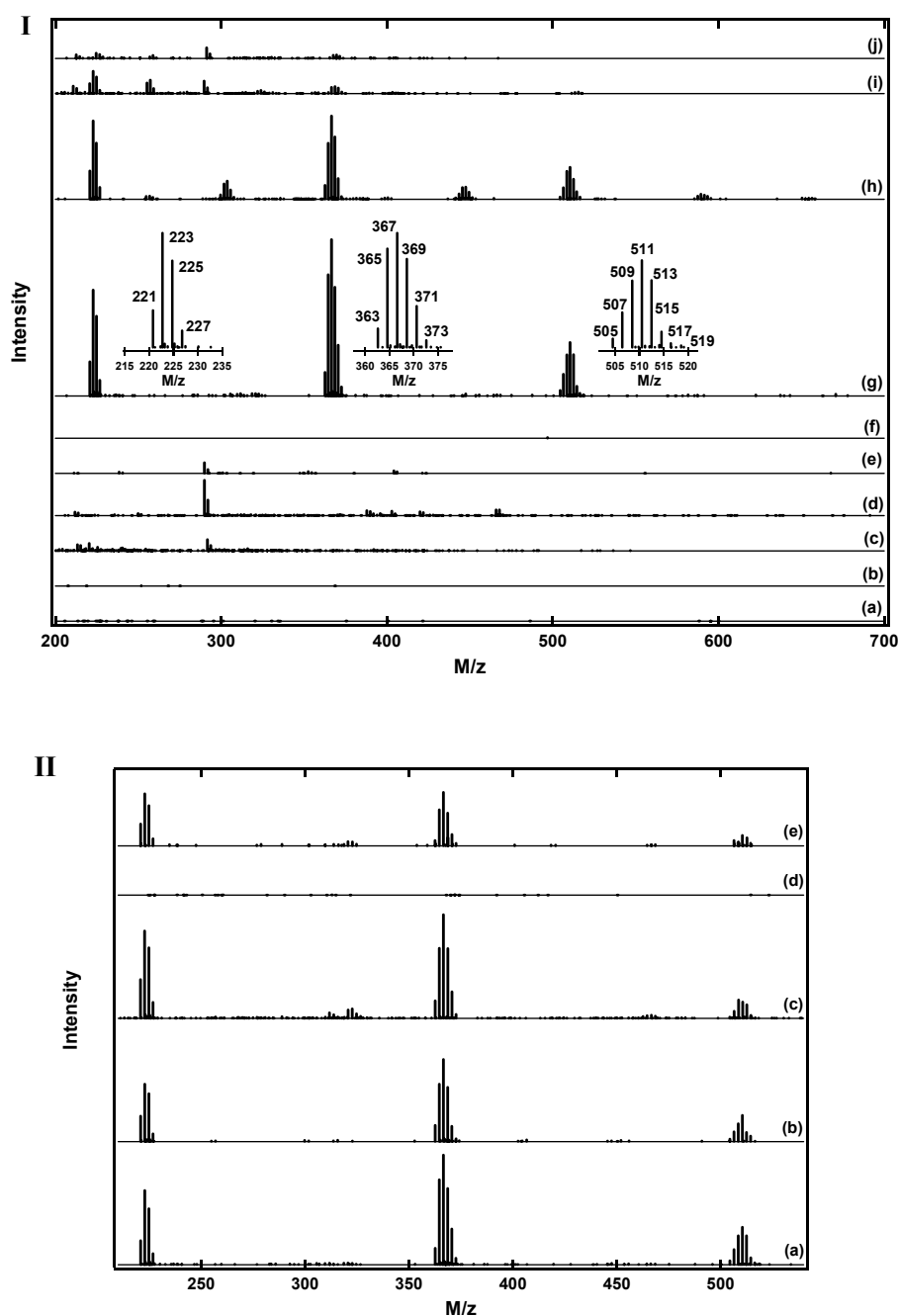


Supporting Information 1 XRD patterns of Cu catalysts and references. (a) CeO_2 , (b) Ce_2O_3 , (c) fresh Cu/Ce-CTAB (7.5 Cu wt%), (d) Cu/Ce-CTAB after PROX reaction (7.5 Cu wt%), (e) fresh Cu/Ce-CTAB (15 Cu wt%), (f) Cu, (g) Cu_2O , and (h) CuO.

Supporting Information 2 Curve-fitting results of Cu K-edge EXAFS measured at 300 K for the
Cu/Ce-CTAB catalyst (7.5 Cu wt%)

Catalyst	Shell	CN	Distance /nm	$\sigma^2 / 10^{-5} \text{ nm}^2$	
Fresh	Cu-O	2.5 ± 0.2	0.194 ± 0.001	6 ± 1	$\Delta E_0 = 7 \text{ eV}$
	Cu-Cu	1.1 ± 0.3	0.256 ± 0.001	9 ± 2	$R_f = 0.8\%$
After PROX reaction	Cu-O	2.4 ± 0.2	0.195 ± 0.001	5 ± 1	$\Delta E_0 = 8 \text{ eV}$
	Cu-Cu	0.9 ± 0.3	0.257 ± 0.001	8 ± 3	$R_f = 1.7\%$

$k=30\text{-}130 \text{ nm}^{-1}$, $R=0.11\text{-}0.29 \text{ nm}$.



Supporting Information 3 (I) LDI-MASS of Cu/Ce catalysts. (a) Ce_2O_3 , (b) CeO_2 , (c) Cu, (d) Cu_2O , (e) CuO, (f) Cu-CTAB, (g) fresh Cu/Ce-CTAB (7.5 Cu wt%), (h) fresh Cu/Ce-CTAB (15 Cu wt%), (i) co-precipitated Cu-Ce, and (j) impregnated Cu/ CeO_2 . (II) LDI-MASS of the Cu/Ce-CTAB catalyst (7.5 Cu wt%). (a) Fresh catalyst, (b) after the PROX for 2 h, (c) fresh catalyst treated with CO (20 kPa) at 90 °C for 1 h, (d) fresh catalyst treated with O_2 (20 kPa) at 90 °C for 1 h, and (e) the O_2 adsorption, followed by evacuation and subsequent exposure to CO (20 kPa) at 90 °C for 1 h.