Figure S1 I-V curves of the fuel cell with different treatments (Without treatment: the fuel cell based on the Co-OH-CO$_3$-PdPt electrode without acid leaching; Activation: the "without treatment" cell activated at low current density for 24h and then N$_2$ purge; Co-OH-CO$_3$-PdPt: the fuel cell based on the Co-OH-CO$_3$-PdPt electrode with acid leaching) (Testing condition: active area 1 cm$^2$; 65°C; gas flow rate of H$_2$/O$_2$ was 15/70 sccm min$^{-1}$; H$_2$/O$_2$ gases were externally humidified at dew point temperature of 65°C, respectively. Pt and Pd loading are 43 and 24 μg cm$^{-2}$).

Figure S2 the CV curves of the UTCL based on Co-OH-CO$_3$-Pt and Co-OH-CO$_3$-PdPt electrodes.
Figure S3 SEM images of the GDL (a) and GDL-Pt (b).

Figure S4 I-V curves of the catalyst layer based on Co-OH-CO$_3$-PdPt and GDL-Pt electrodes.