Supplementary Information for

Breaking the Activity and Stability Bottlenecks for Acid Hydrogen Evolution by Strong Metal-Support Interaction between Pt Nanoparticles and Amorphous MoO_x

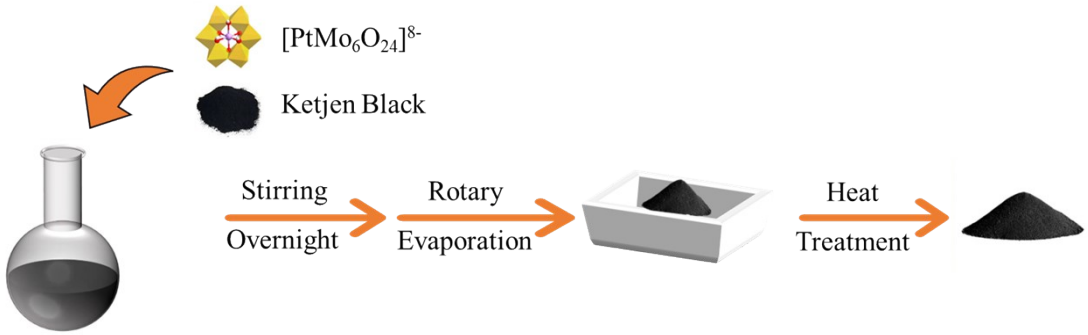

Figure S1. Schematic illustration of the synthetic route of a series of electrocatalysts

Figure S2. The image of a H-type electrolytic cells used for HER stability test.

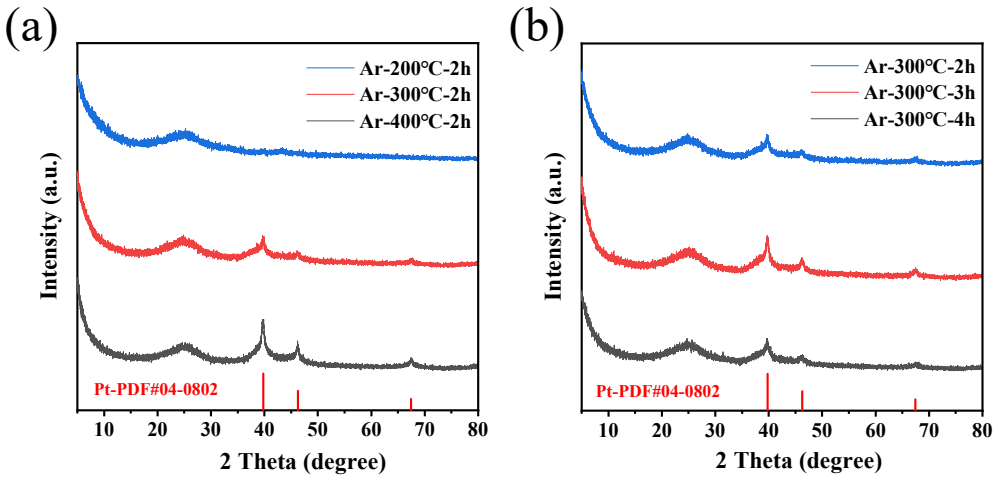

Figure S3. XRD patterns of Pt-MoO_x/C in (a) different treatment temperature, (b) different treatment time.

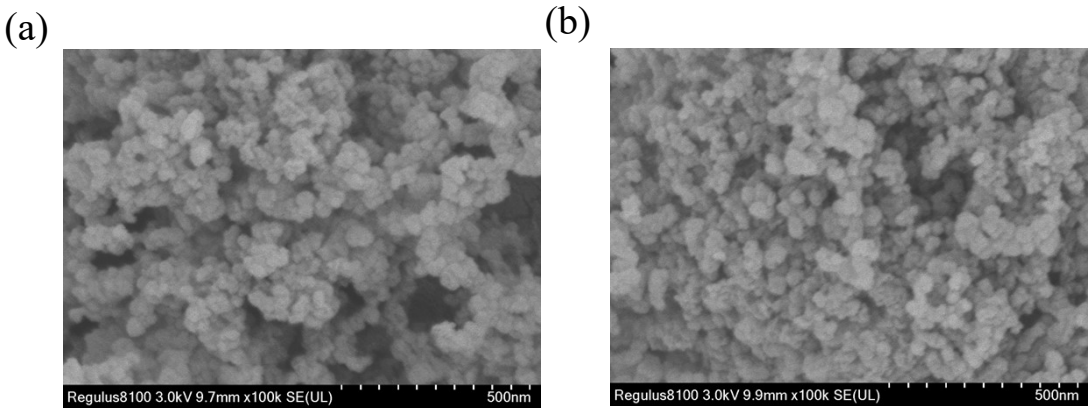

Figure S4. SEM images of (a) Pt-MoO_x/C and (b) Ketjen Black.

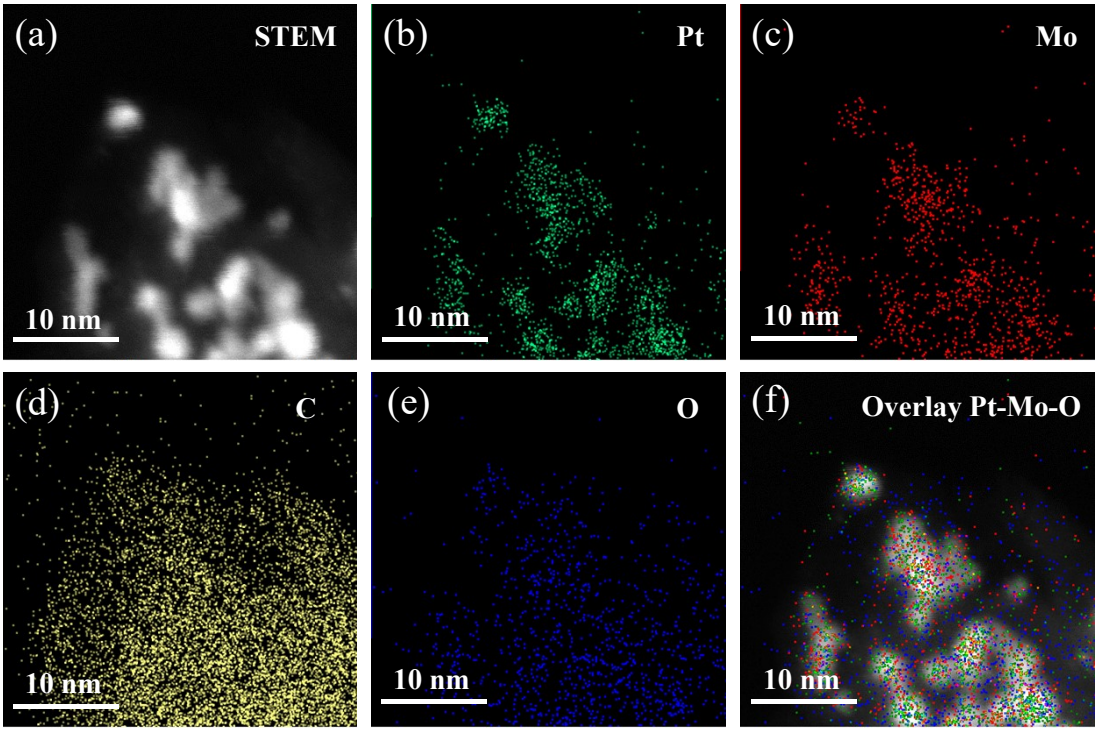

Figure S5. STEM and EDS mapping images of Pt-MoO_x/C.

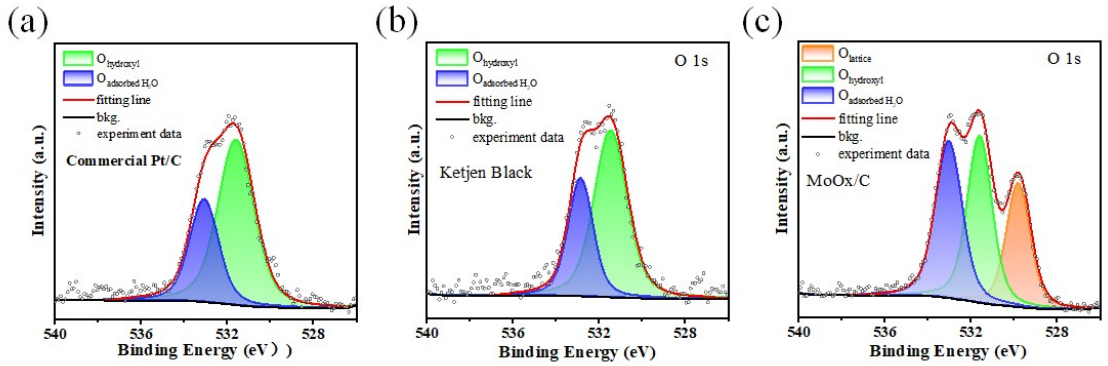

Figure S6. The O 1s XPS spectrum of (a) Commercial Pt/C, (b) Ketjen Black, (c) MoO_x/C.

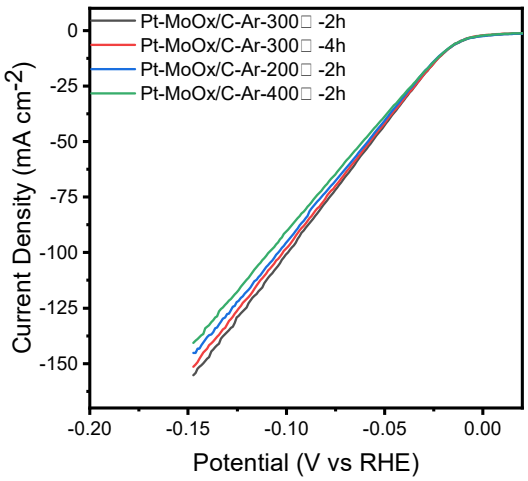

Figure S7. The LSV curves of Pt-MoO_x/C synthesized at different treatment conditions.

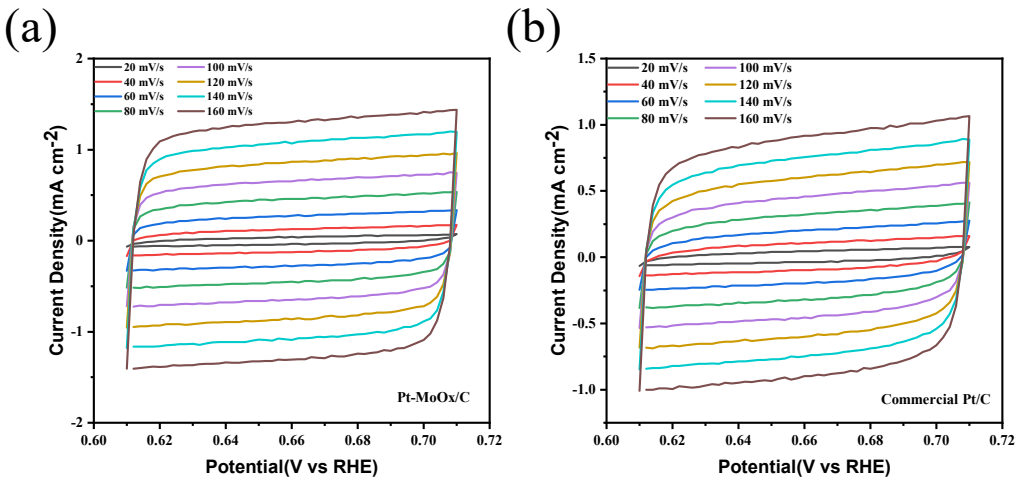

Figure S8. CV scans of Pt-MoO_x/C and commercial 20% Pt/C.

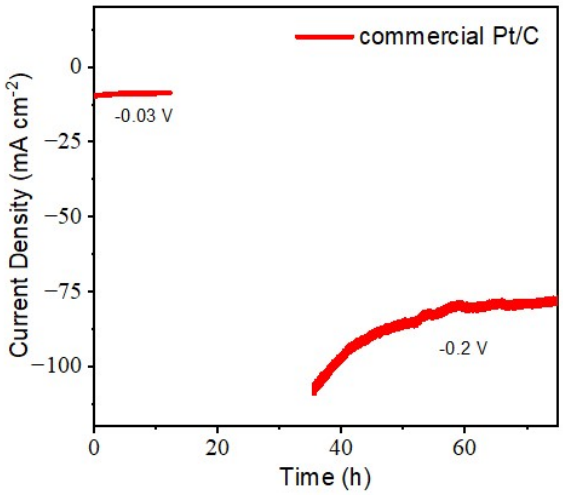

Figure S9. The chronoamperometric test of commercial Pt/C.

Table S1. Comparison of the HER performance of the reported catalysts.

Catalysts	Electrolyte	Overpotential (mV)		Tafel slope	Stability	Ref.
		η10	η100	mV dec^{-1}		
Pt-MoOx/C	0.5 M H_2SO_4	4	29	31.7	100h	This work
Ptdoped@WC_x	0.5 M H_2SO_4	2		20	12h	1
Pt-SA/α-MoO_x	0.5 M H_2SO_4	19		123	20h	2
Pt/WO_3	0.5 M H_2SO_4	8	26	35	65h	3
Pt@VNC	0.5 M H_2SO_4	5		21	40h	4
3D Pt_xMo_{1-x}@graphene	0.5 M H_2SO_4	32		32	5000 cycles	5
Pt_4/Co	0.5 M H_2SO_4	6.8		40.99	22h	6
Pt/TiO_2-O_v	0.5 M H_2SO_4	18		12	20h	7
Pt/def-WO_3@CFC	0.5 M H_2SO_4	42		73	10000 cycles	8
PtNC/S-C	0.5 M H_2SO_4	11		23.5	10000 cycles	9
PtW@WO_3	0.5 M H_2SO_4	19.4		27.8	2 h	10
K_2PtCl_4@NC-M	0.5 M H_2SO_4	11		21	40h	11

Table S2. Pt and Mo contents in Pt-MoOx/C measured by ICP-OES

Element	Pt	Mo
Content (wt%)	8.1	4.7

References

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