**Supplemental information**

**C****orrosion engineering on AlCoCrFeNi high-entropy alloys toward highly efficient electrocatalysts for the oxygen evolution of alkaline seawater**

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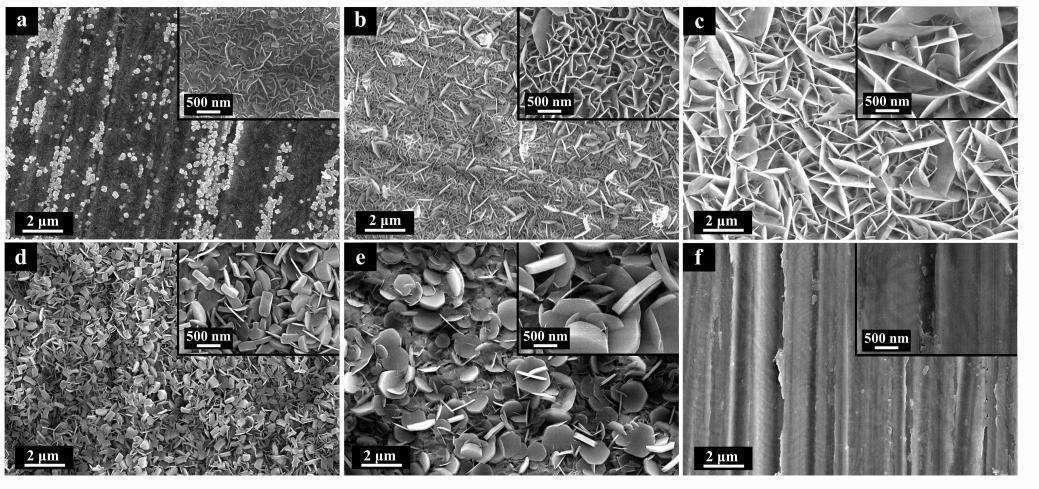
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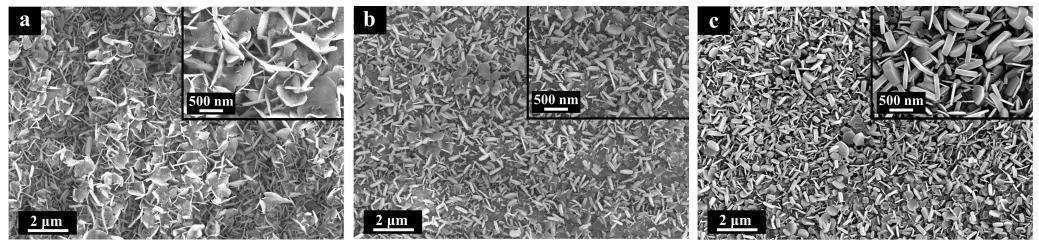
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**Table S1. Chemical composition of AlCoCrFeNi high entropy alloys** wt%

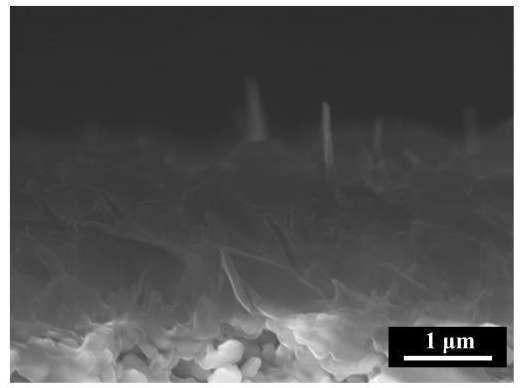
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Al | Co | Cr | Fe | Ni |
| 20 | 20 | 20 | 20 | 20 |  |

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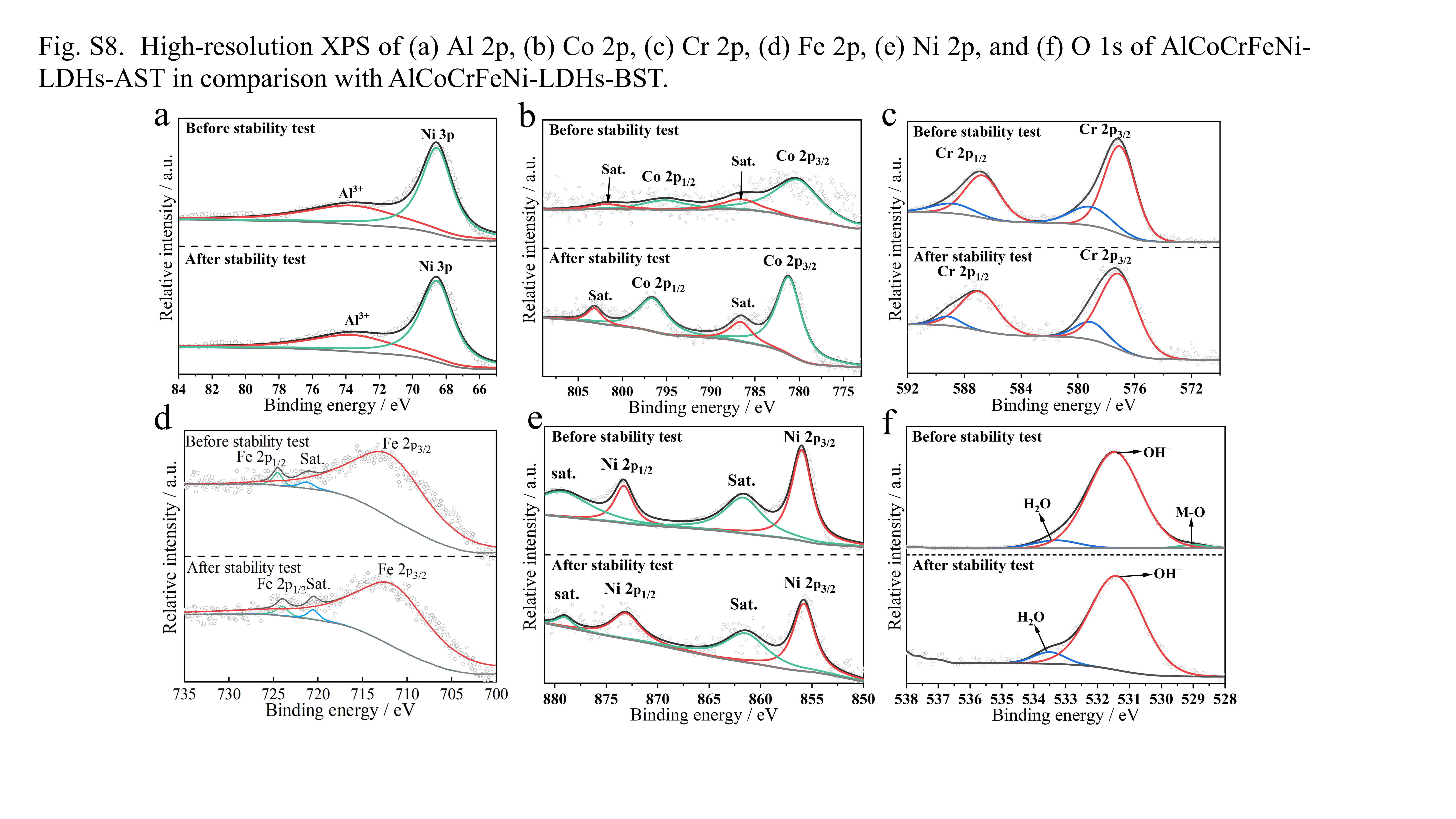
**Fig. S1. SEM images of as-prepared samples in different NaOH solution and AlCoCrFeNi-HEAs: (a) LDHs–0.1 M–8 h; (b) LDHs–1 M–8 h; (c) LDHs–5 M–8 h; (d) LDHs–7 M–8 h; (e) LDHs–9 M–8 h; (f) AlCoCrFeNi-HEAs.**

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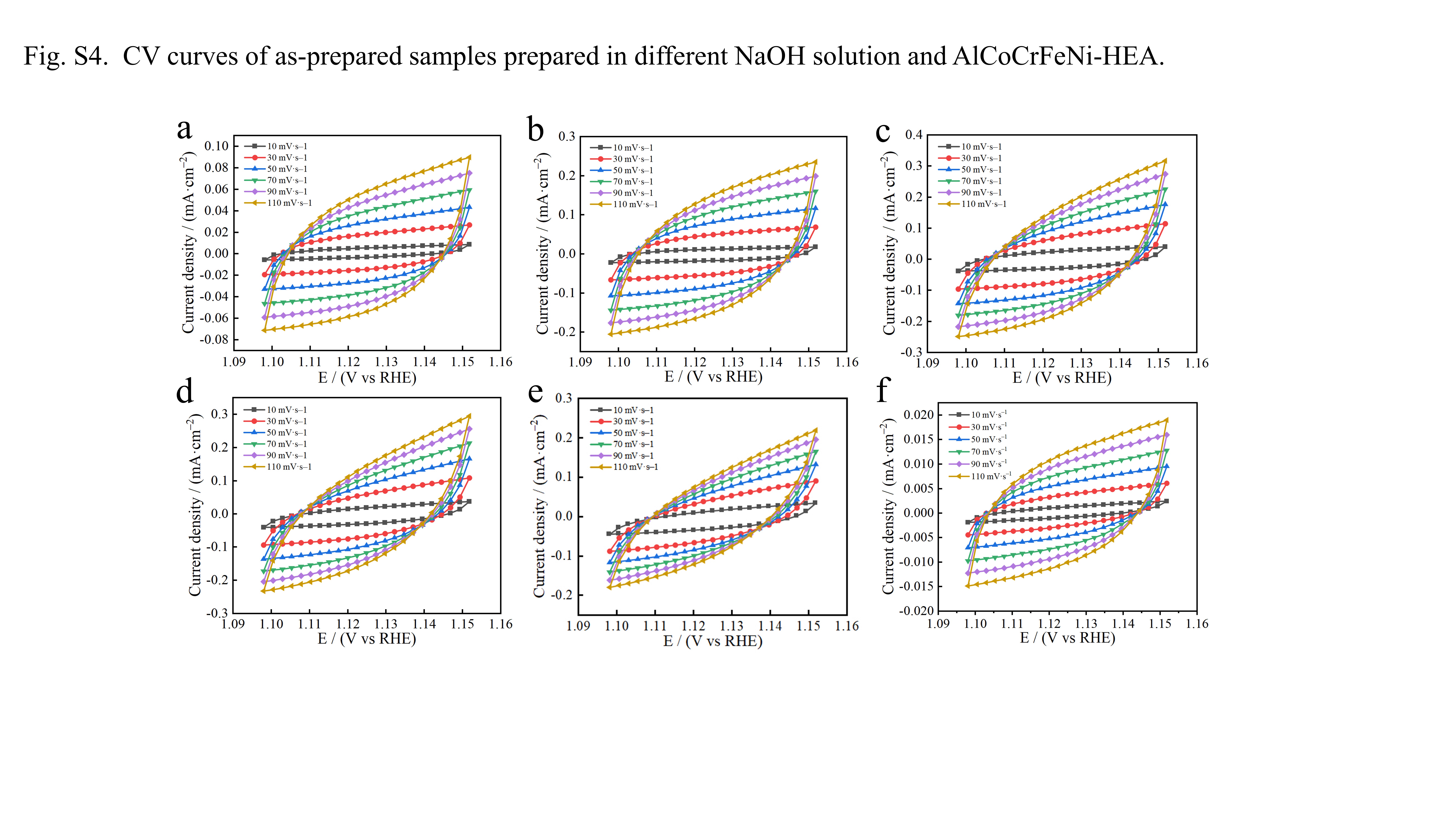
**Fig. S2. SEM images of as-prepared samples underwent different heating duration: (a) LDHs–3 M–4 h; (b) LDHs–3 M–12 h; (c) LDHs–3 M–24 h.**

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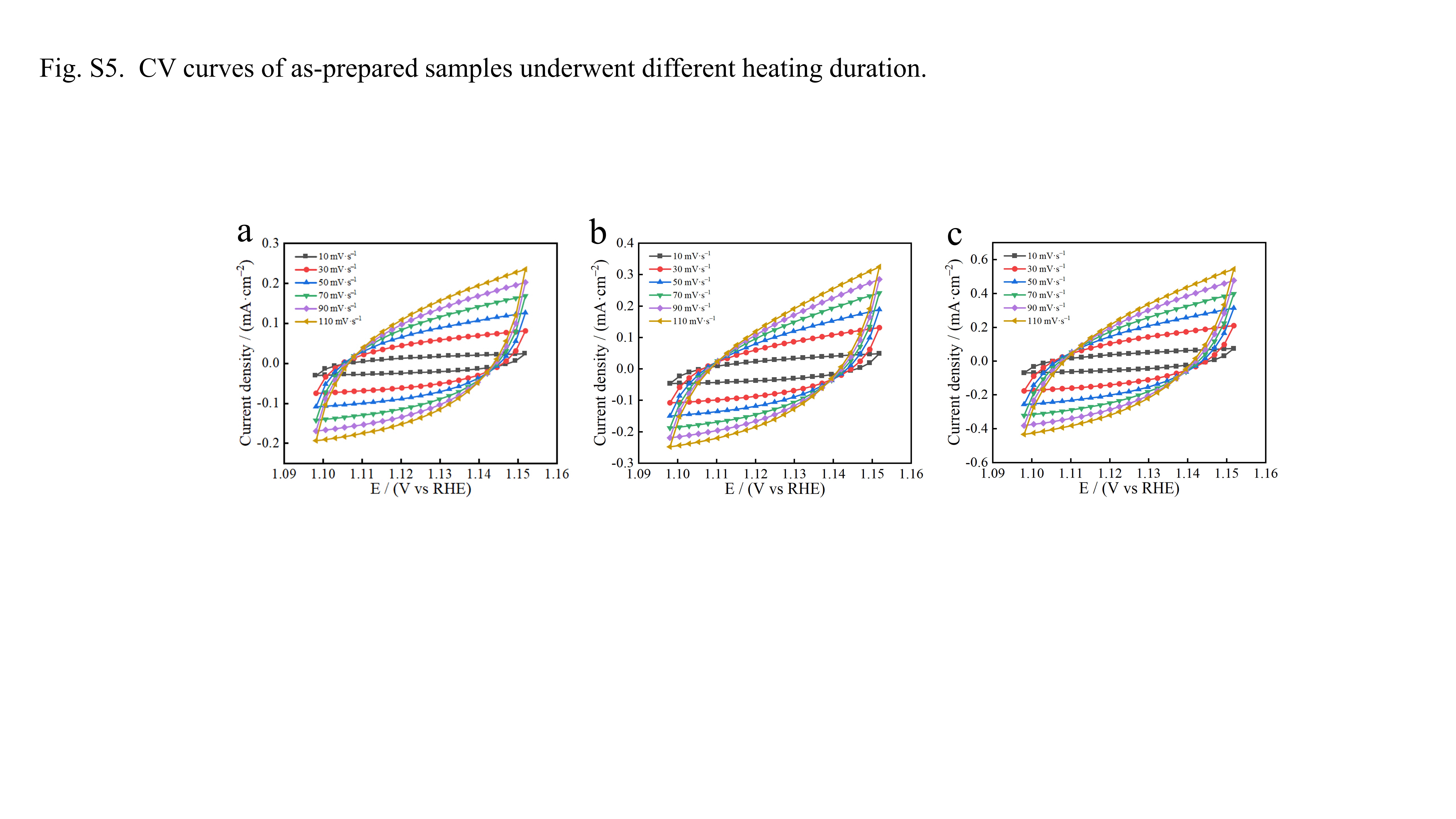
**Fig. S3. Sectional SEM images of LDHs–3 M–8 h.**

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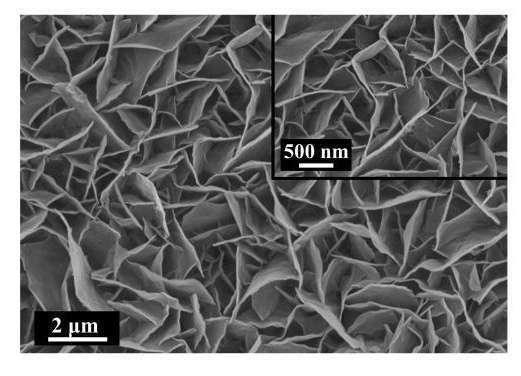
**Fig. S4. High-resolution XPS of (a) Al 2p, (b) Co 2p, (c) Cr 2p, (d) Fe 2p, (e) Ni 2p, and (f) O 1s of AlCoCrFeNi-LDHs-AST in comparison with AlCoCrFeNi-LDHs-BST.**

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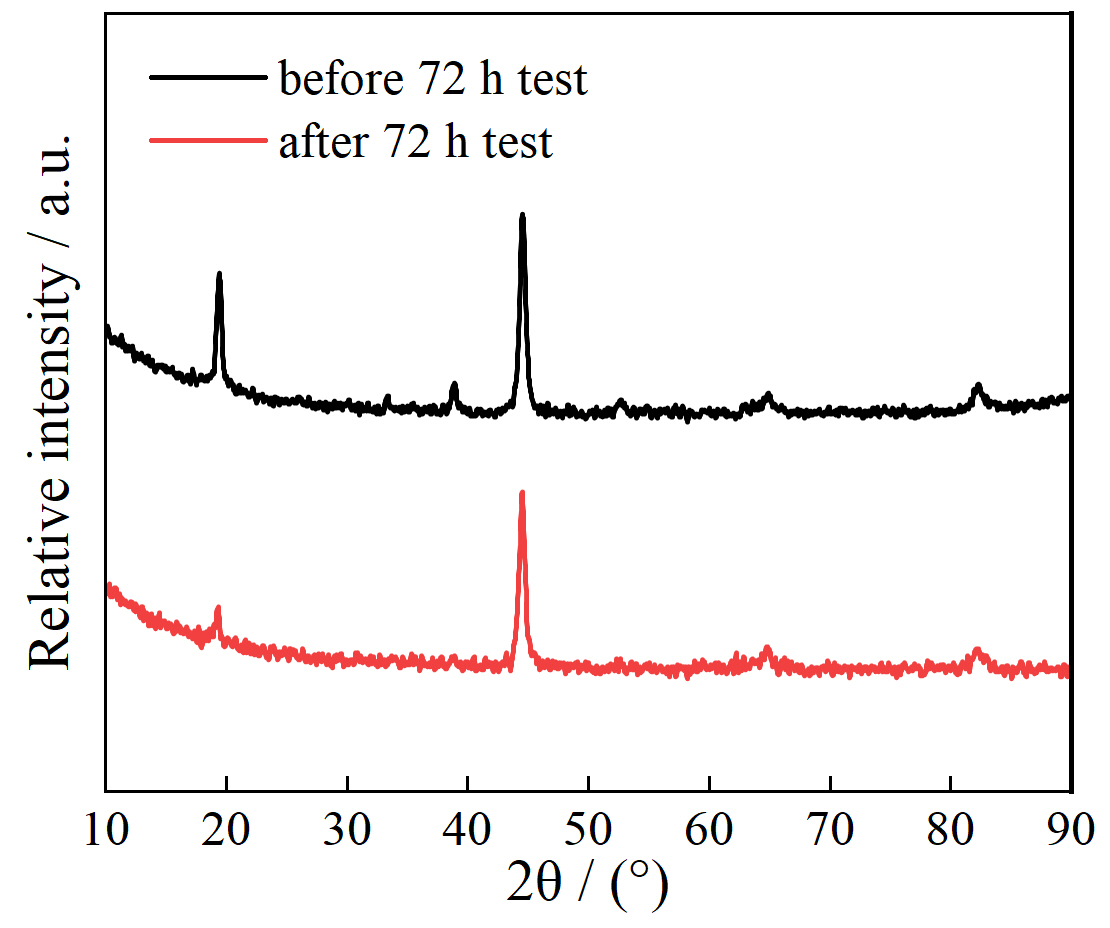
**Fig. S5.** **CV curves of as-prepared samples prepared in different NaOH solution and AlCoCrFeNi-HEA: (a) LDHs–0.1 M–8 h; (b) LDHs–1 M–8 h; (c) LDHs–5 M–8 h; (d) LDHs–7 M–8 h; (e) LDHs–9 M–8 h; (f) AlCoCrFeNi-HEAs.**

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**Fig. S6. CV curves of as-prepared samples underwent different heating duration: (a) LDHs–3 M–4 h; (b) LDHs–3 M–12 h; (c) LDHs–3 M–24 h.**

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**Fig. S7. SEM images of AlCoCrFeNi-LDHs-AST.**

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**Fig. S8.** **XRD pattern of catalyst before and after 72 h stability test.**