

## Supplementary Information

### **Pt Distribution- Controlled Ni-Pt Nanocrystals via Alcohol Reduction Technique for Oxygen Reduction Reaction**

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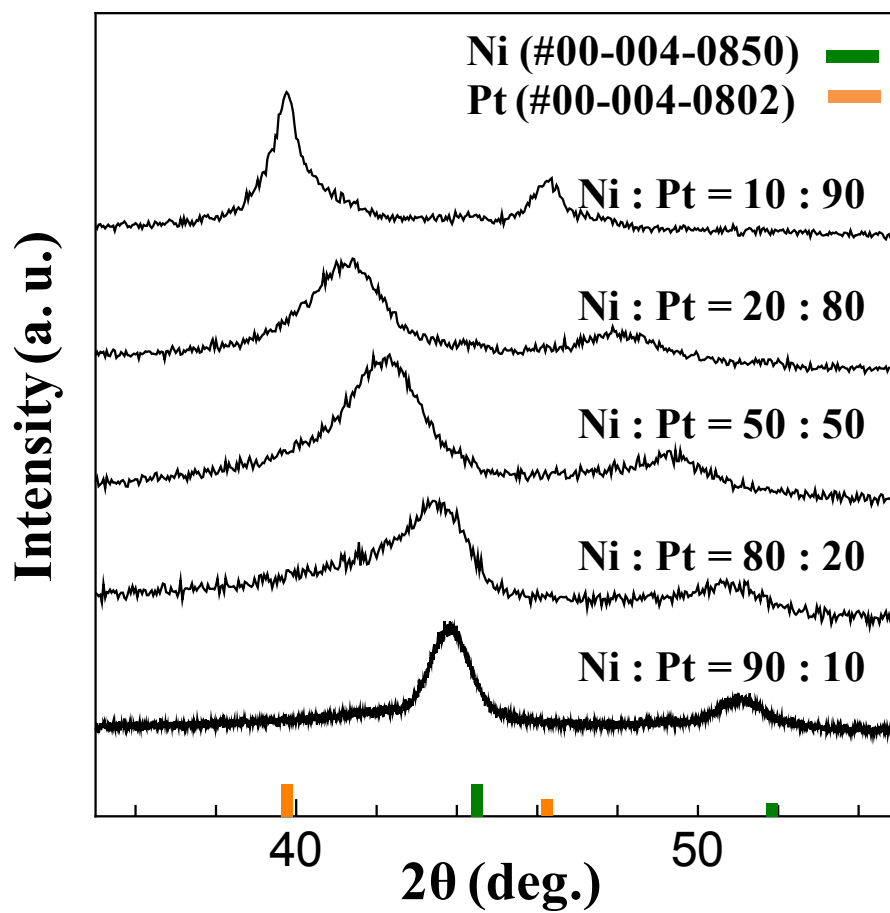
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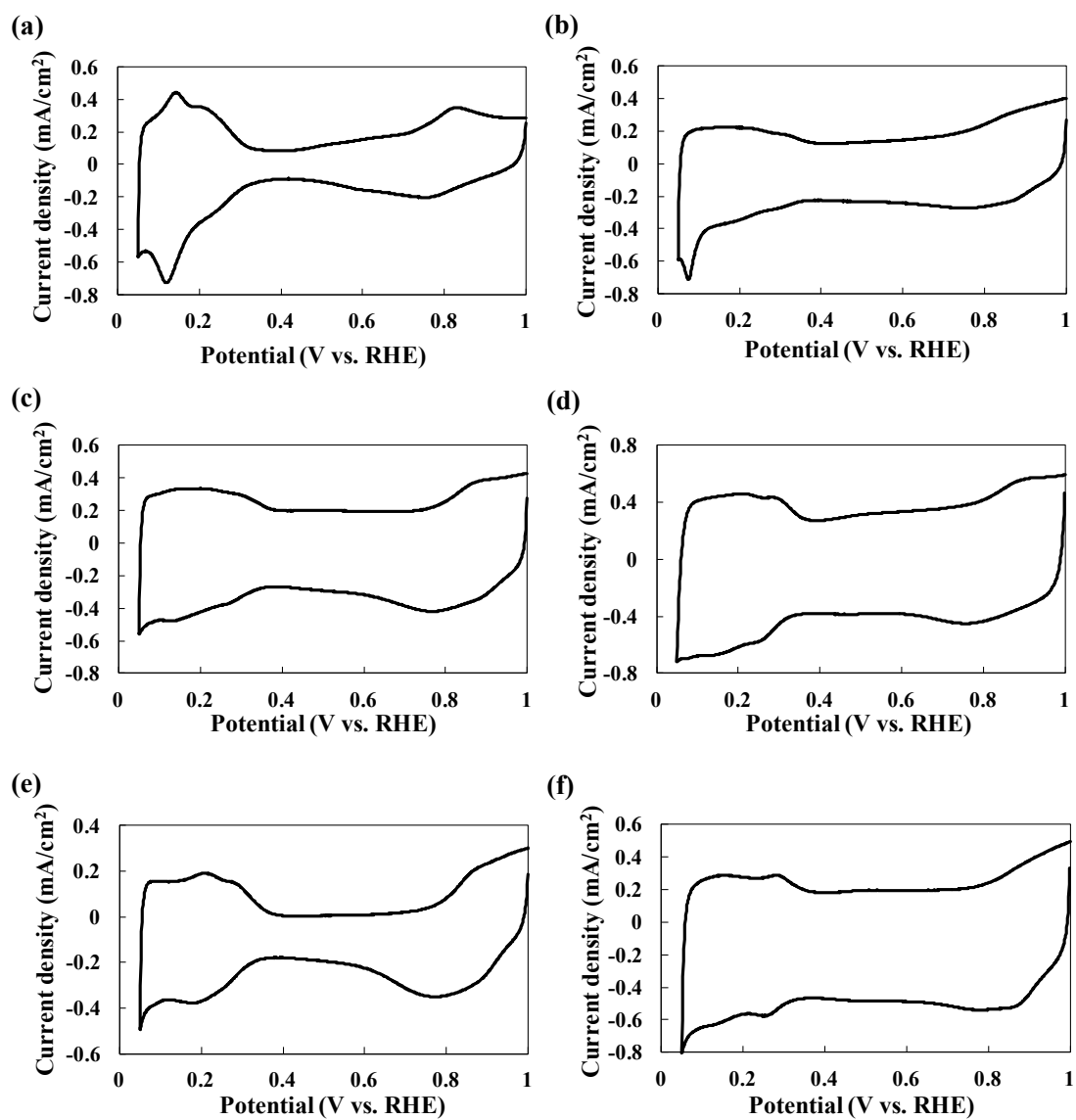
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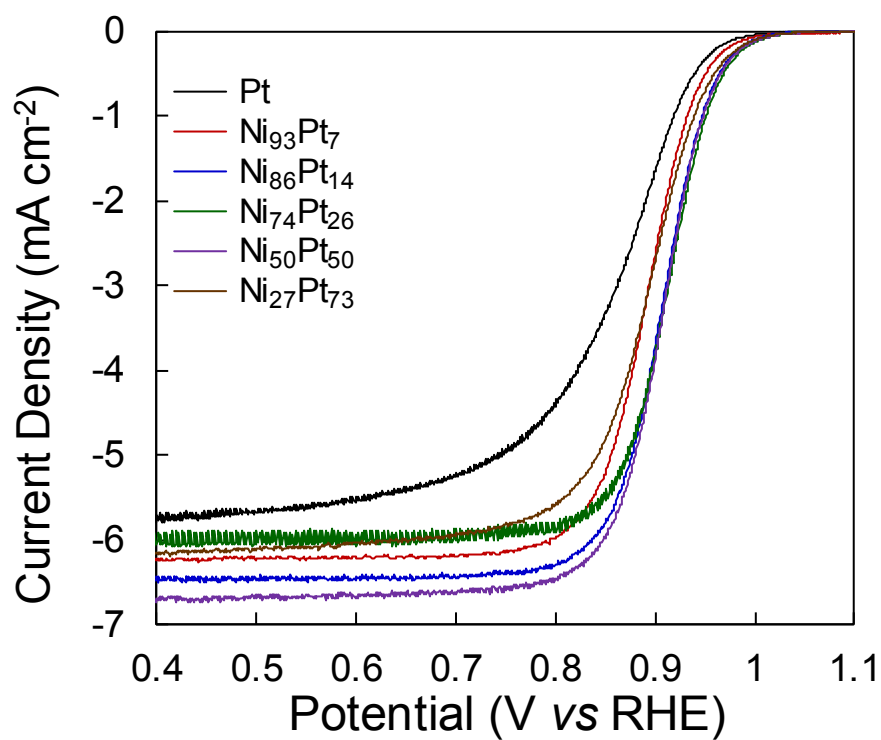
Tel: +81-749-28-8352 Fax: +81-749-28-8486



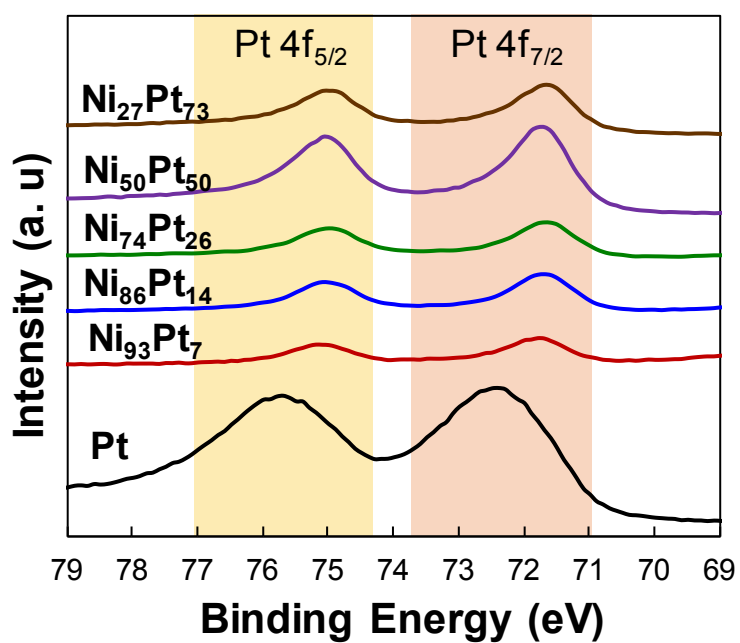
**Fig. S1** XRD patterns of Ni-Pt alloy NPs synthesized using different Ni:Pt precursor ratios.



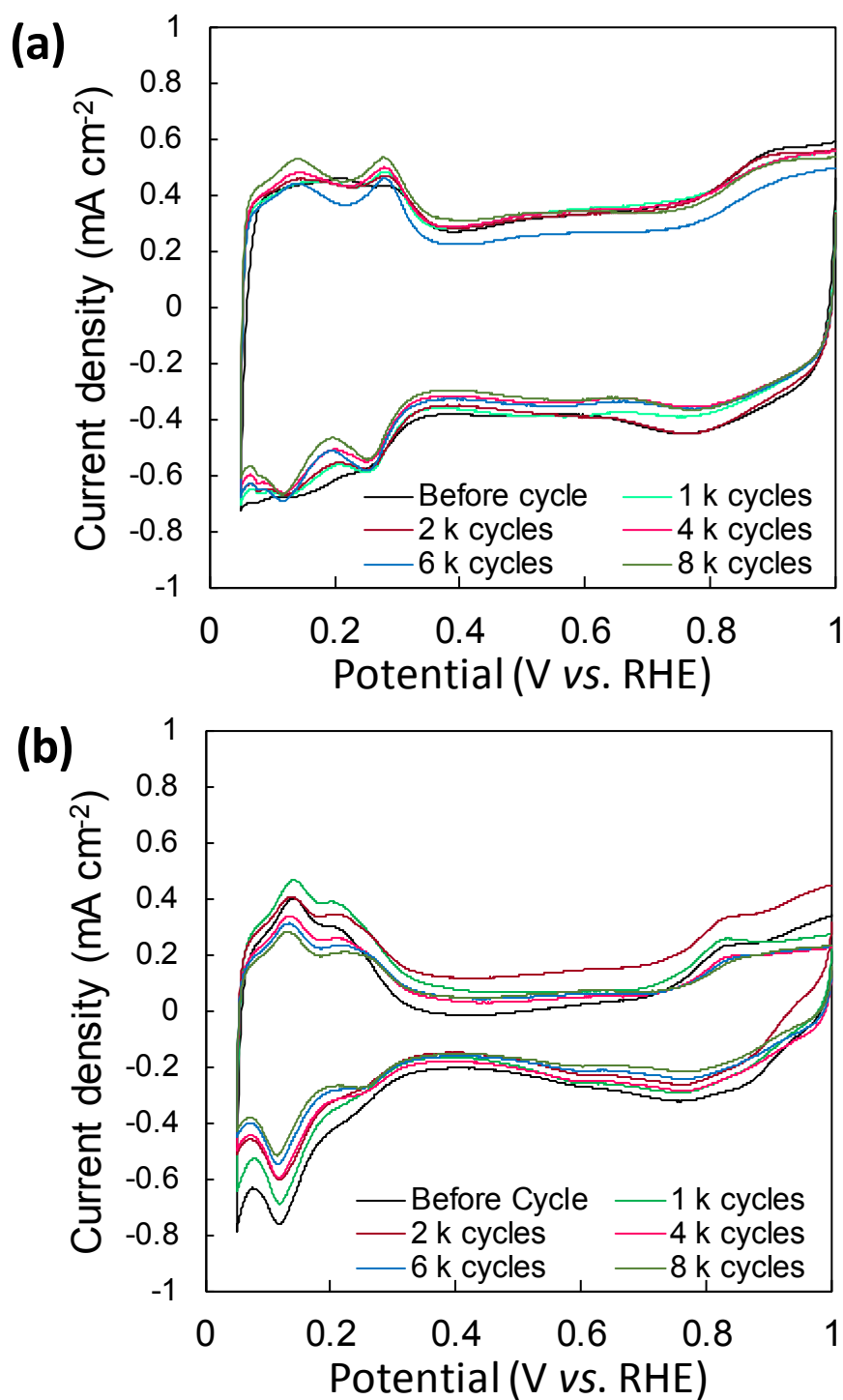
**Fig. S2** Cyclic voltammograms of (a) commercial Pt catalyst, (b) Ni<sub>93</sub>Pt<sub>7</sub>/C, (c) Ni<sub>86</sub>Pt<sub>14</sub>/C, (d) Ni<sub>74</sub>Pt<sub>26</sub>/C, (e) Ni<sub>50</sub>Pt<sub>50</sub>/C and (f) Ni<sub>27</sub>Pt<sub>73</sub>/C.



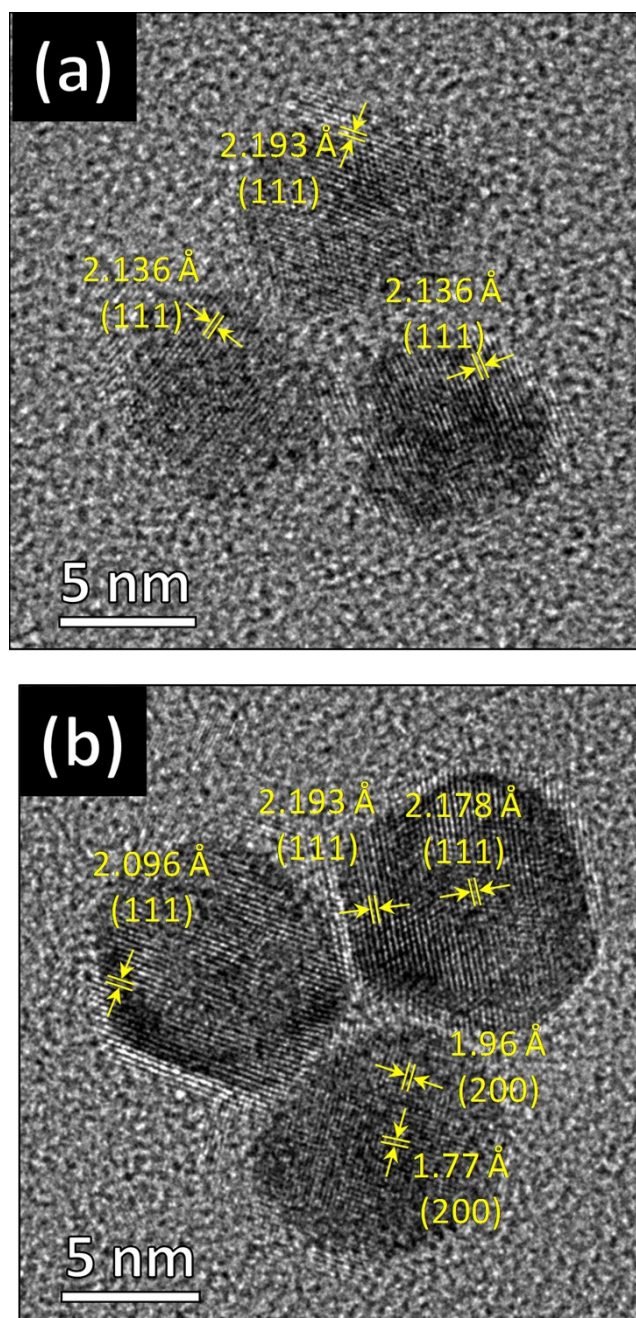
**Fig. S3** LSV curves of C-supported Pt and Ni-Pt alloy NPs with varying Pt concentrations.



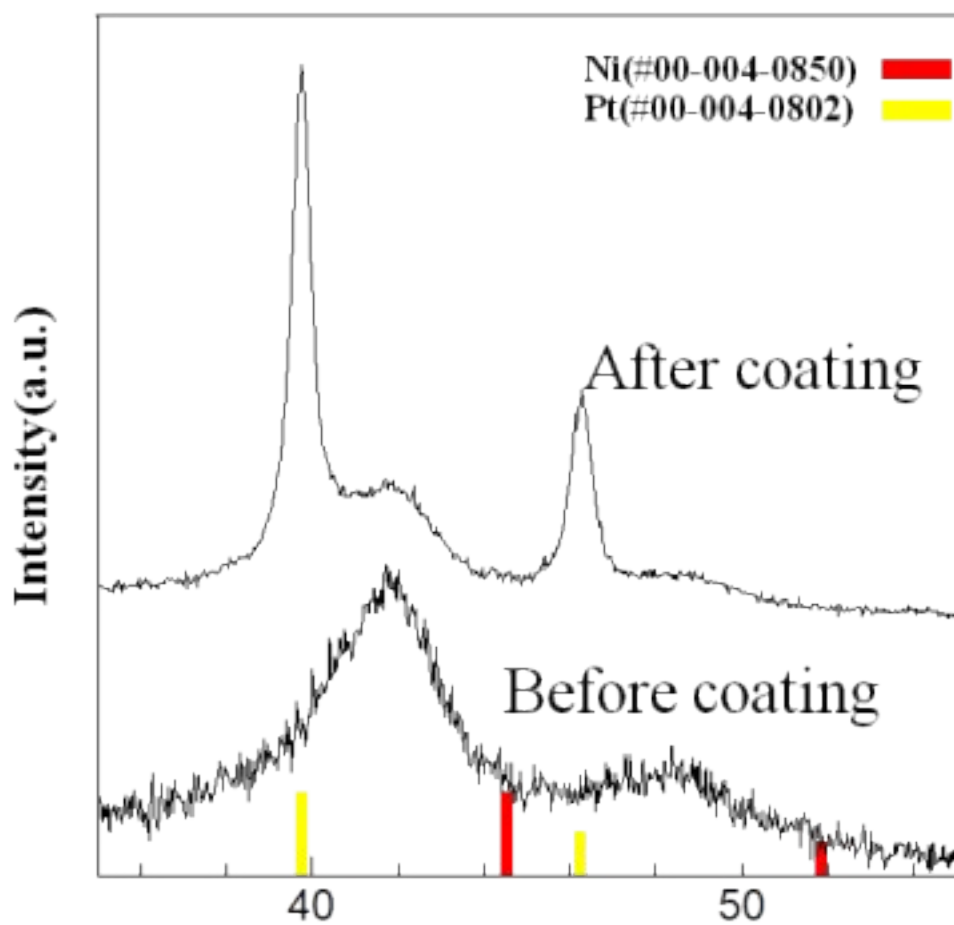
**Fig. S4** XPS spectra of Pt 4f for various compositions of Ni-Pt nanoparticles with different compositions.



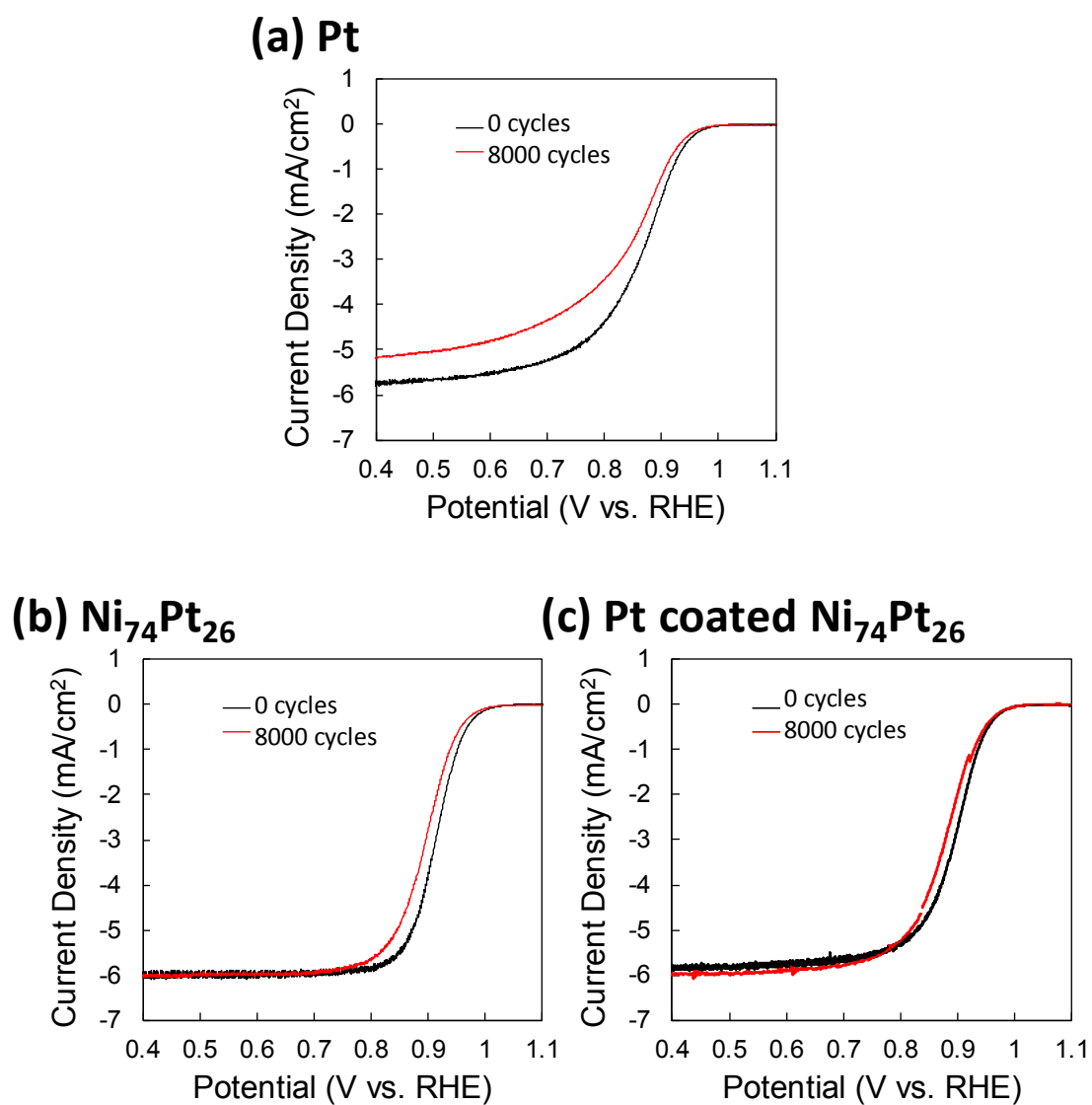
**Fig. S5** Cyclic voltammograms of (a) commercial Pt and (b) Pt coated Ni-Pt alloy NPs measured at different numbers of cycles.



**Fig. S6** HRTEM images of Ni-Pt alloy NPs (a) before and (b) after Pt coating.



**Fig. S7** XRD patterns of Ni-Pt nanoparticles before and after Pt coating by adding OAm and Pt precursor (OAm/Pt ratio = 5.0) mixed for 6h at 160 °C.



**Fig. S8** LSV curves of (a) C-supported Pt and Ni-Pt alloy NPs (b) before coating and (c) after coating measured after 8000 cycles of catalytic treatment.