Supporting information

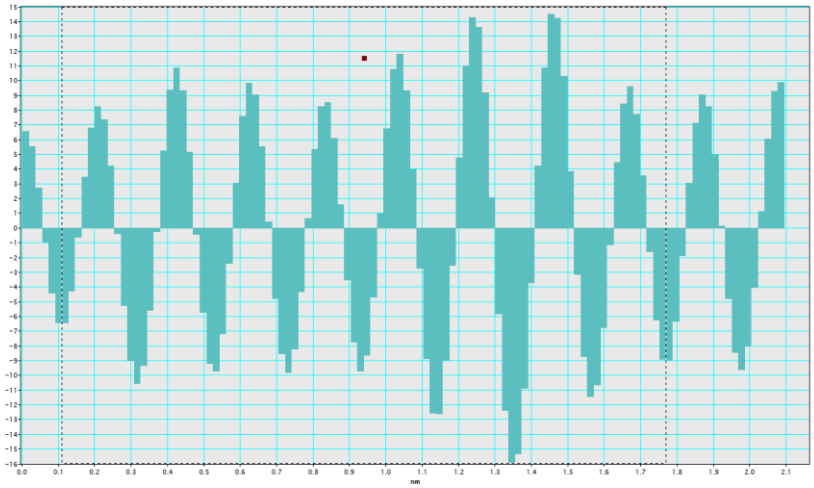

Figure S1. The corresponding lattice distance measurement data of FeCoNiCuIr HEAs (with glucose).

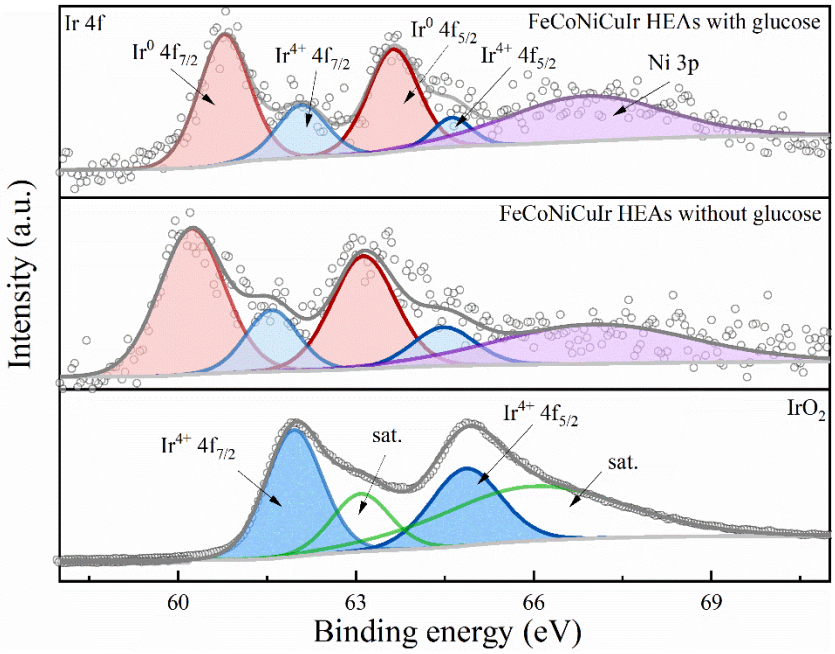

Figure S2. Ir 4f XPS spectra of FeCoNiCuIr HEAs with glucose, FeCoNiCuIr HEAs without glucose and IrO_2.

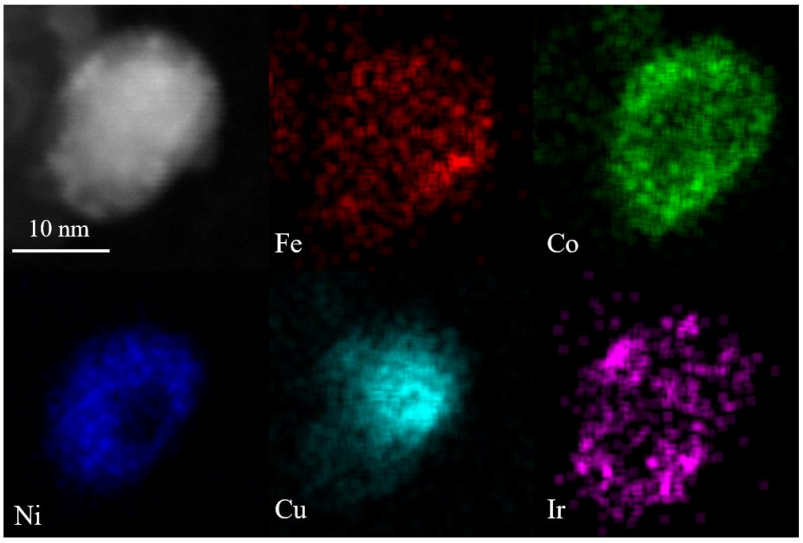

Figure S3. Elemental maps of FeCoNiCuIr HEA NPs synthesized in the presence of glucose after 10 h of chronoamperometry testing.

Table S1. Ratio of Ir^0 and Ir^{4+} to Ir total in Ir 4f XPS spectra of FeCoNiCuIr HEAs with glucose and FeCoNiCuIr HEAs without glucose. Data are collected from Figure S2.

Sample	Ir^0/Ir_{total} (%)	Ir^{4+}/Ir_{total} (%)
FeCoNiCuIr/C (with glucose)	57.1	42.9
FeCoNiCuIr/C (without glucose)	57.7	42.3

Table S2. Comparison of mass activity of FeCoNiCuIr HEA NPs and commercial IrO_2 with recently reported catalysts.

Catalyst	Electrolyte	Mass activity (A mg^{-1})	References
np-Ir/NiFeO	1.0 M KOH	0.039@300mV	42
^{s}Au/NiFe LDH	1.0 M KOH	0.00006@280mV	43
IrO_2	1.0 M KOH	0.006@300mV	This work
FeCoNiCuIr/C (without glucose)	1.0 M KOH	0.049@300mV	This work
FeCoNiCuIr/C (with glucose)	1.0 M KOH	0.121@300mV	This work

Table S3. OER performance comparison FeCoNiCuIr HEA NPs with the literature.

Sample name	Overpotential ($\eta_{10\ mA\ cm^{-2}}$) mV	References
Fe	600	31
Co	428	32
Ni	380	33
FeNi	430	34
NiCo	530	35
FeCo	520	36
FeCoNi	400	37
$NiCo_2O_4$	370	38
FeCoNiMn	377	39
CoCrNiFeAl	440	40
FeNiMnCrCu	380	40
IrO_2	410	This work
FeCoNiCuIr/C (without glucose)	410	This work
FeCoNiCuIr/C (with glucose)	360	This work