

## Supplementary Materials

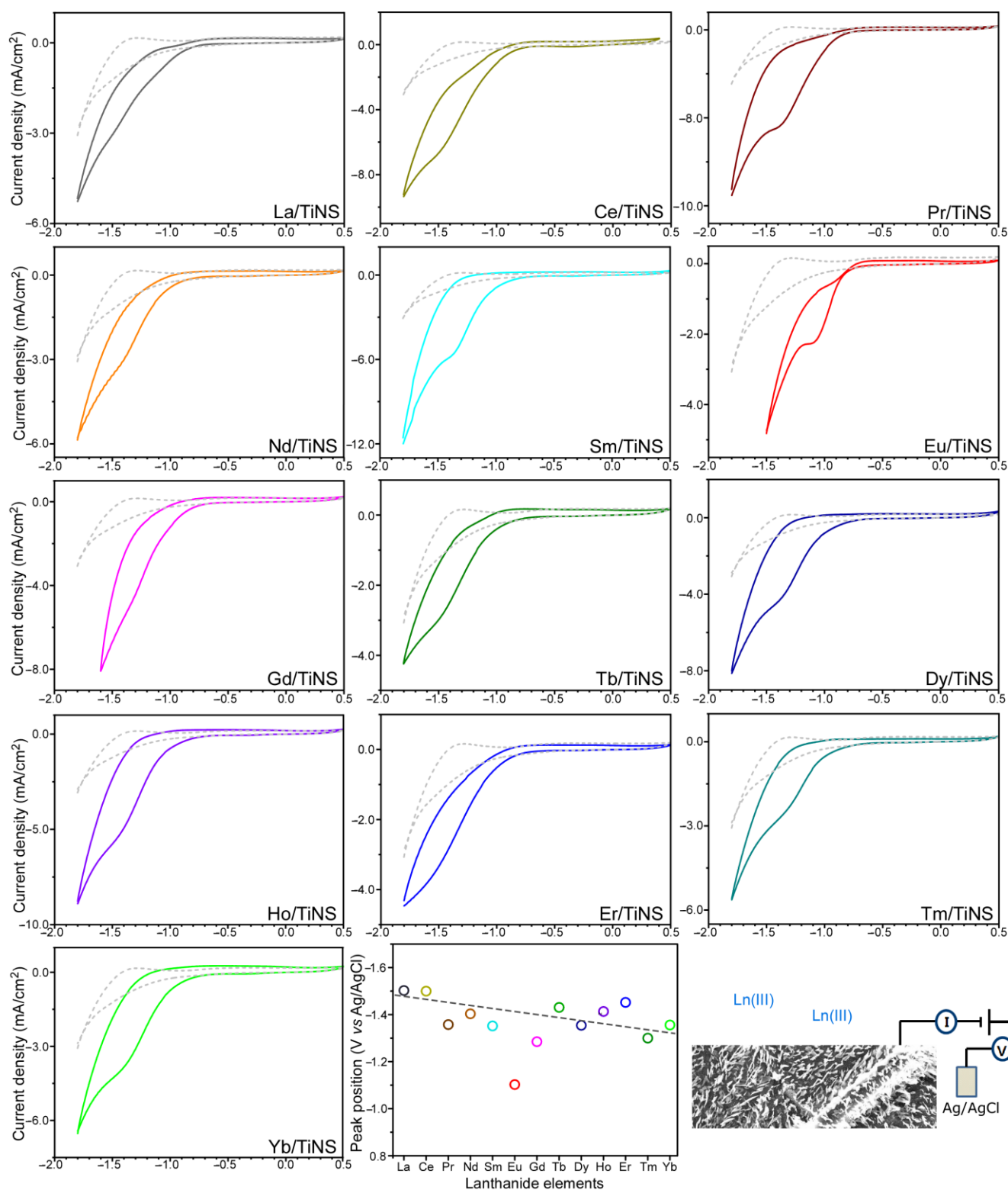
# Electrochemistry, Electrodeposition and Photoluminescence of Eu (III)/Lanthanides (III) on Terpyridine-Functionalized Ti Nanospikes

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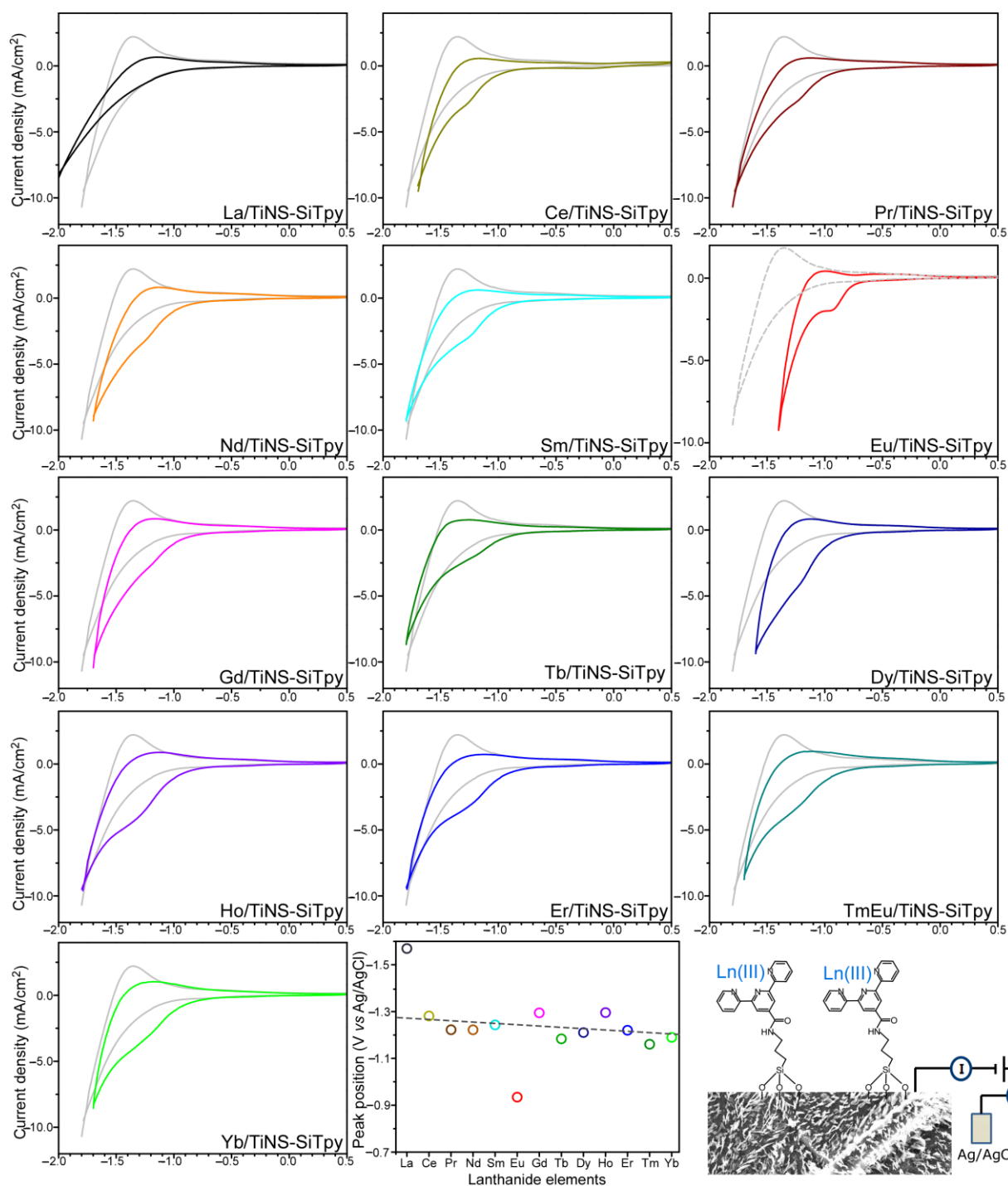
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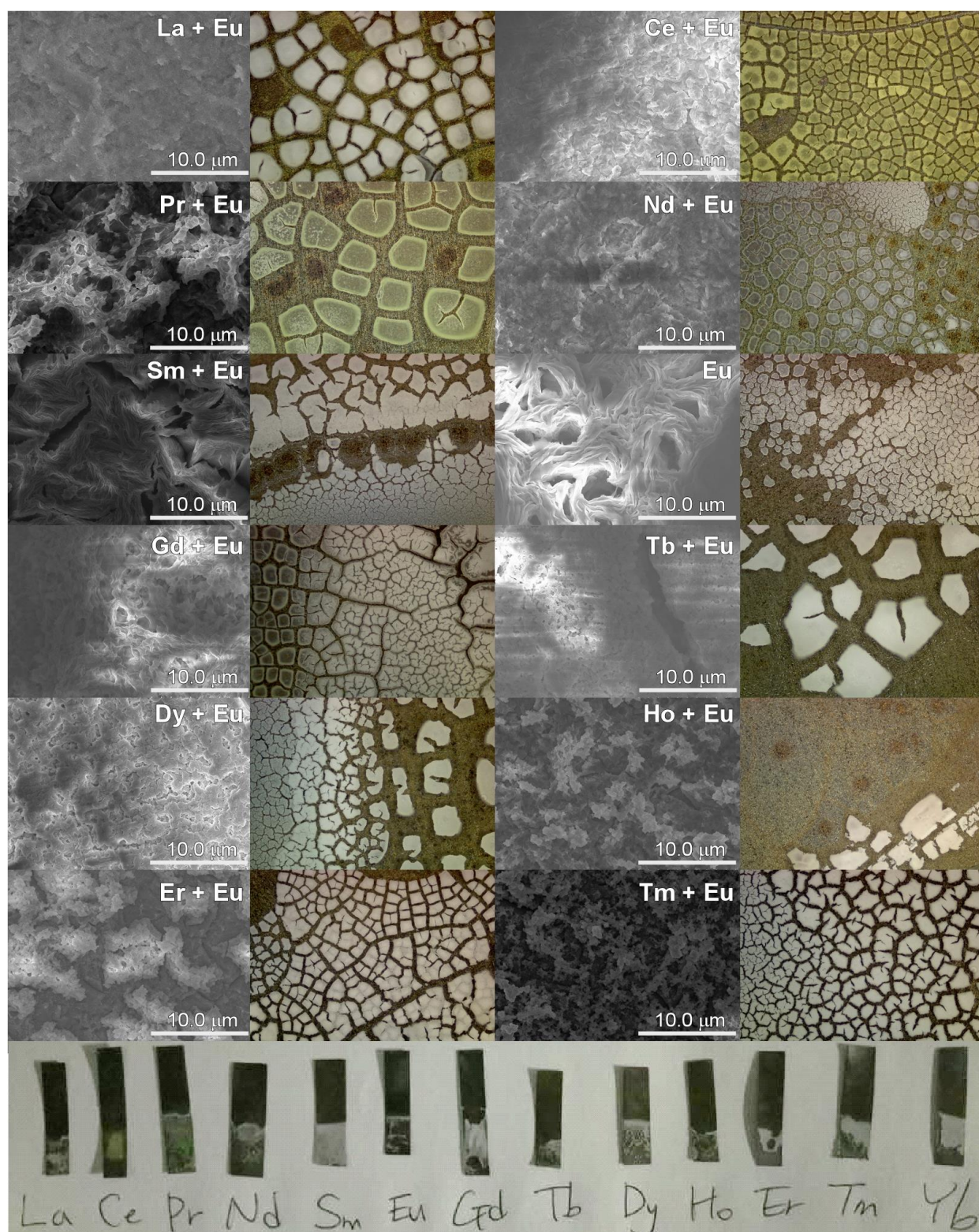


**Figure S1.** Cyclic voltammetry profiles in a 10 mM Ln (III)/0.1 M NaClO<sub>4</sub> electrolyte over bare TiNS electrodes at a scan rate of 0.2 V·sec<sup>-1</sup> and a schematic of a three-electrode system.



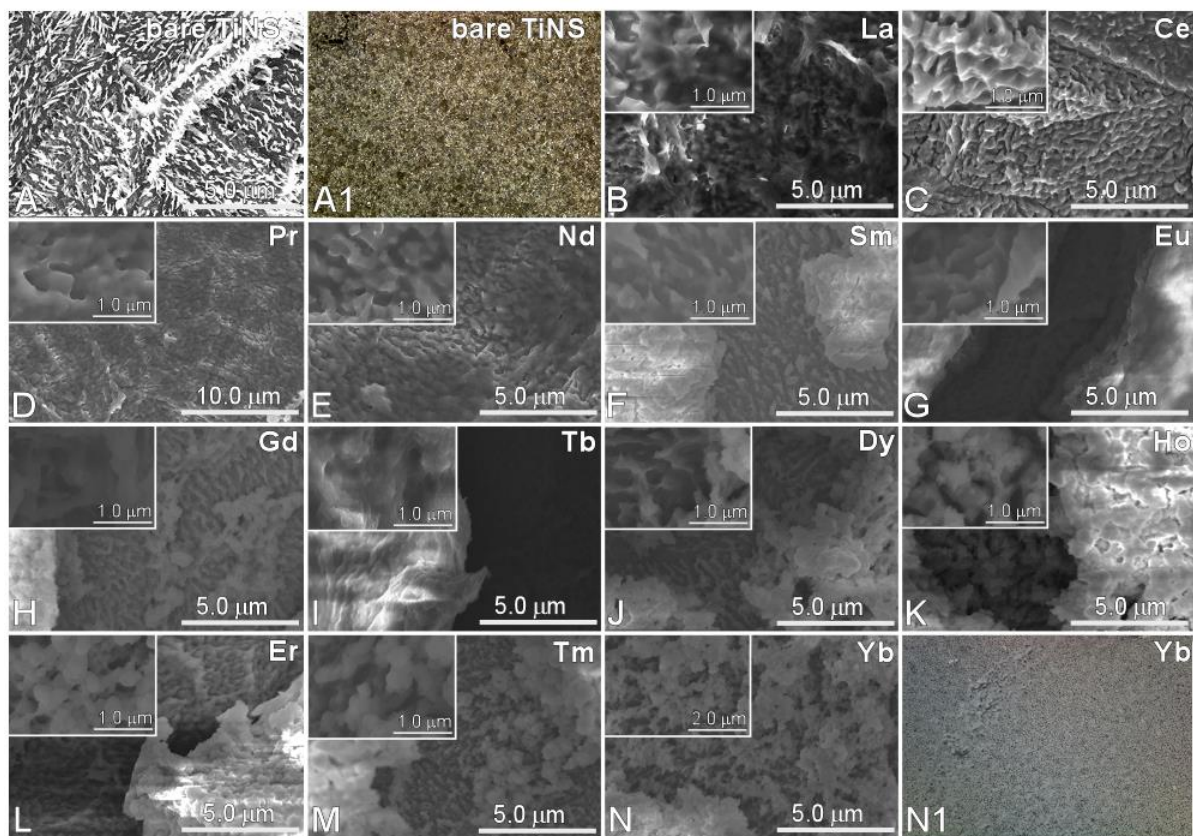
**Figure S2.** Cyclic voltammetry profiles in a 10 mM Ln (III)/0.1 M NaClO<sub>4</sub> electrolyte over TiNS-SiTpy electrodes at a scan rate of 0.2 V · sec<sup>-1</sup> and a schematic of a three-electrode system.



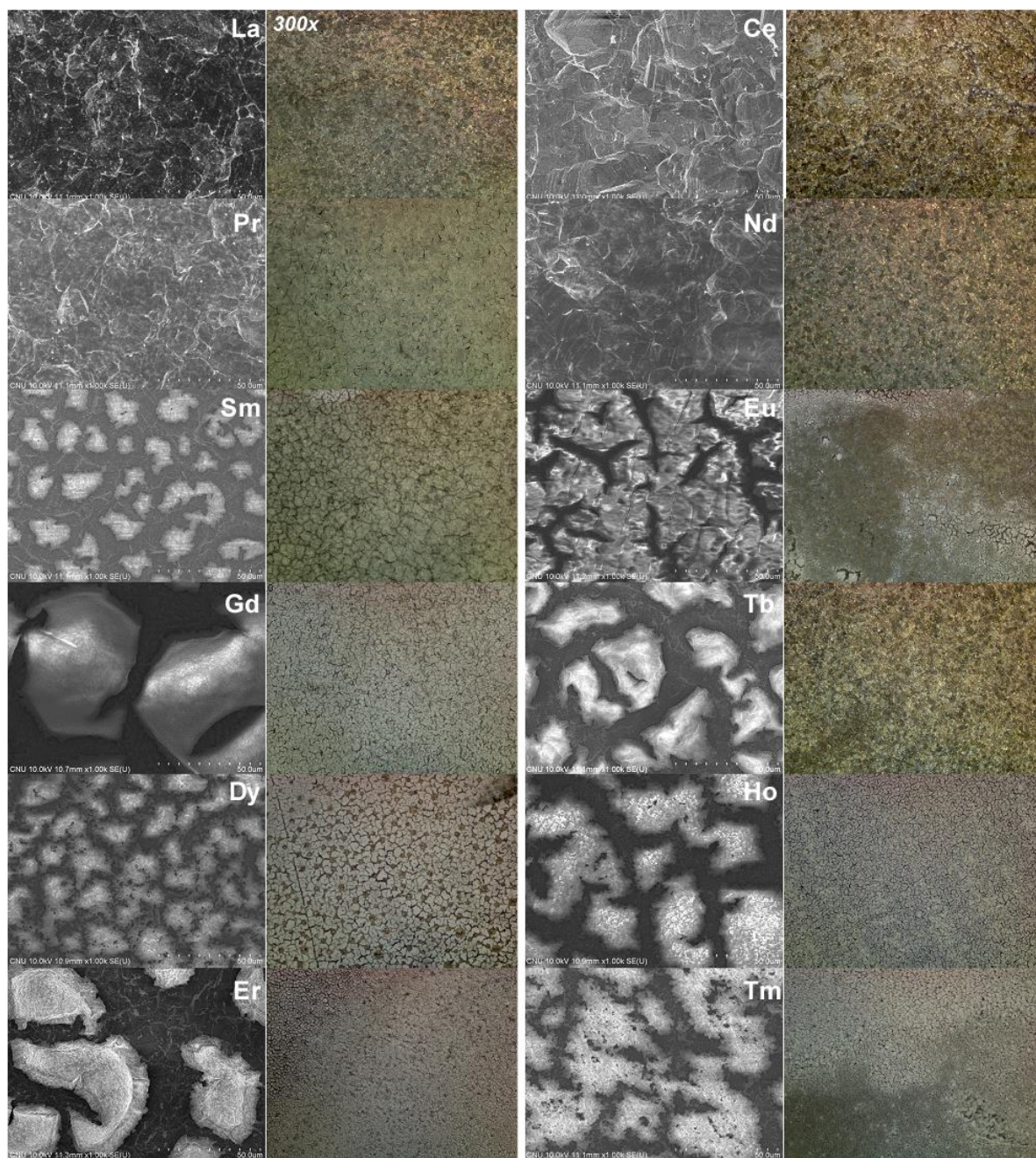


**Figure S3.** SEM (scanning electron microscope) and the corresponding optical microscope (300 $\times$ ) images of electrodeposited mixed Ln over TiNS-SiTpy electrodes in a 5 mM Eu (III) + 5 mM Ln (III)/0.1 M NaClO<sub>4</sub> electrolyte, and the photos (bottom panel) of the corresponding electrode samples.





**Figure S4a.** SEM (A–N) and the corresponding optical microscope (300×) images (A and N1) of electrodeposited Ln over TiNS electrodes in a 10 mM Ln (III)/0.1 M NaClO<sub>4</sub> electrolyte. Insets show the magnified image of the corresponding SEM image.



**Figure S4b.** SEM and the corresponding optical microscope (300×) images of electrodeposited Ln over TiNS electrodes in a 10 mM Ln (III)/0.1 M NaClO<sub>4</sub> electrolyte.

**Table S1.** EDXS (energy dispersive X-ray spectroscopy) elemental atomic composition ratios (%).

	Eu	Gd + Eu	Tb +Eu
N	8.09	7.48	5.72
O	68.92	77.14	72.8
Na	0.38	0.2	0.28
Cl	3.78	3.18	1.84
Eu	18.82	6.34	10.96
Gd	-	5.66	-
Tb	-	-	8.41