

*Supplementary Material*

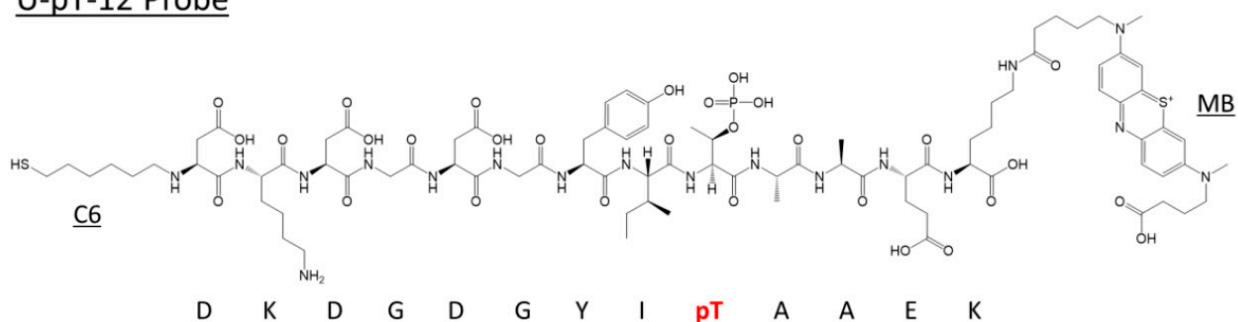
# **Threonine Phosphorylation of an Electrochemical Peptide-Based Sensor to Achieve Improved Uranyl Ion Binding Affinity**

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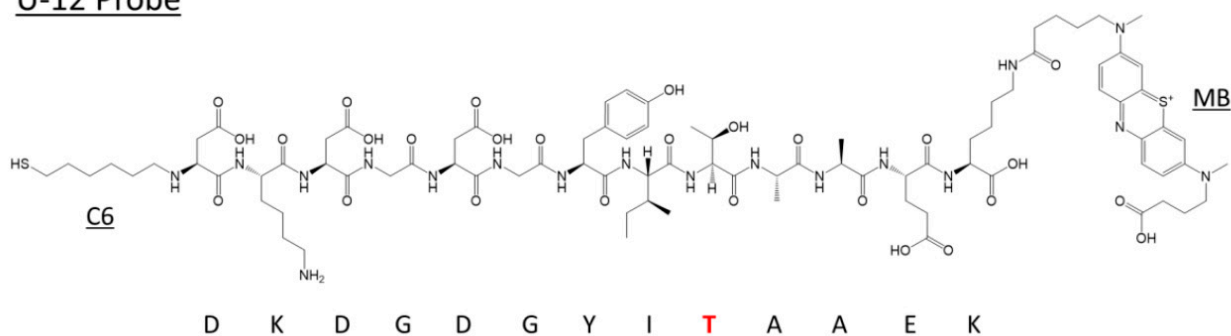
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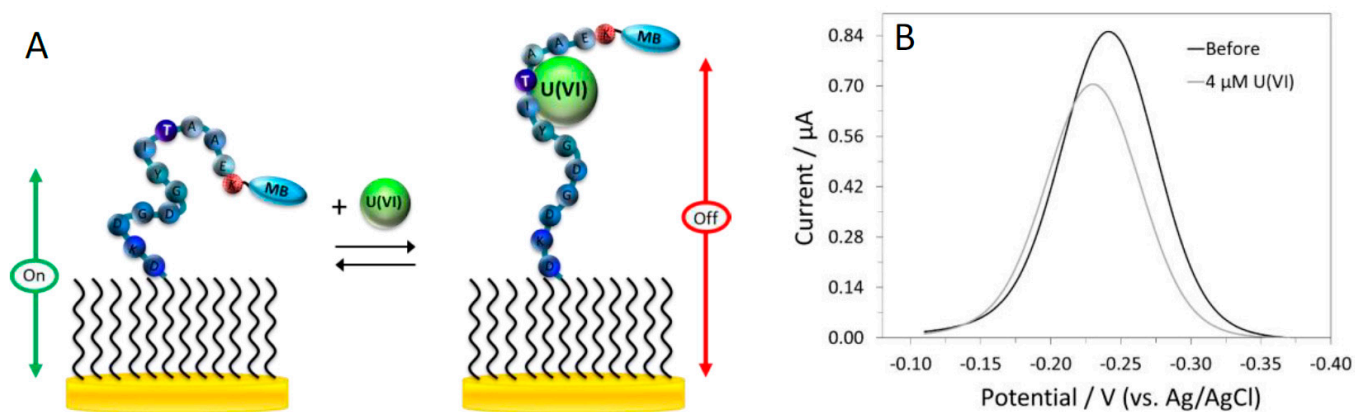
### A U-pT-12 Probe



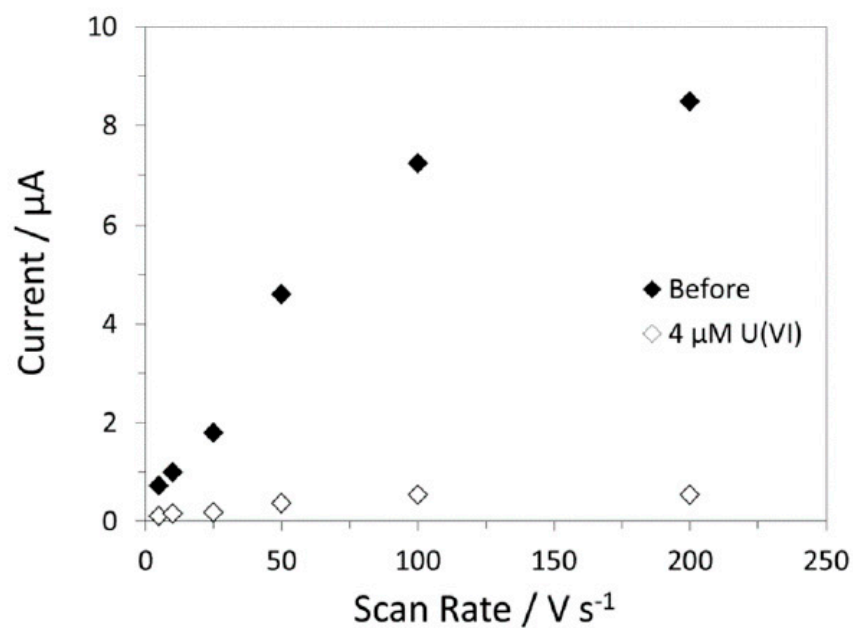
### B U-12 Probe



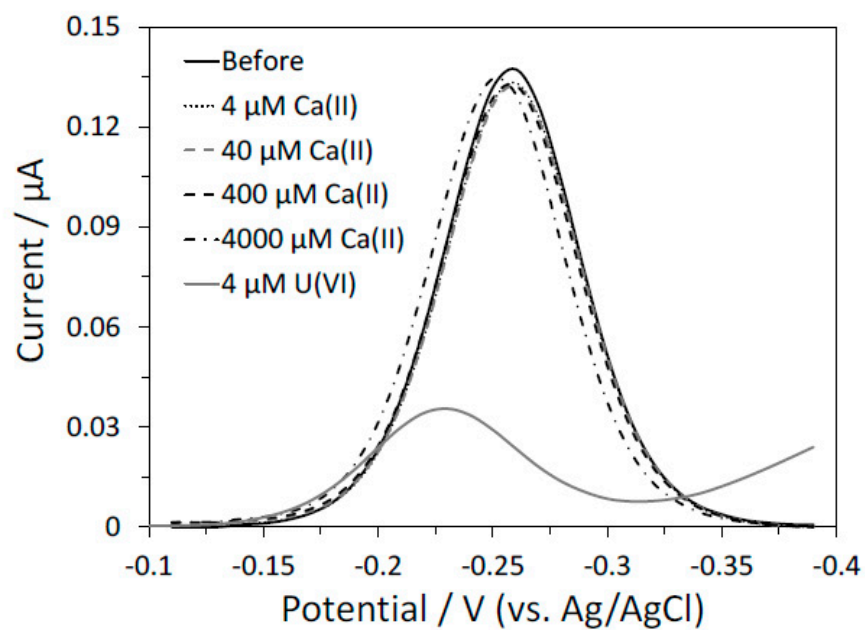
**Figure S1.** Structures of the (A) U-pT-12 and (B) U-12 peptide probes used in this study.



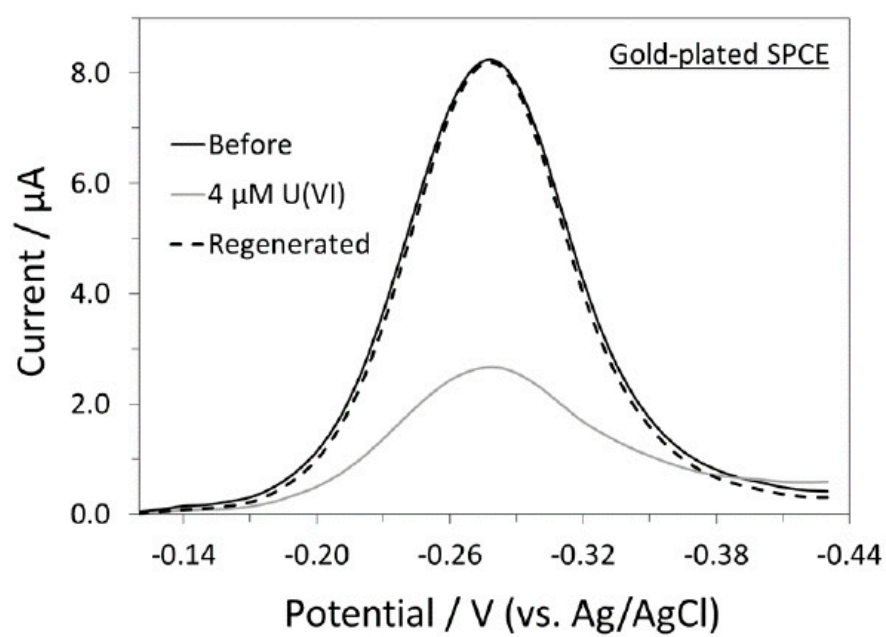
**Figure S2.** (A) Schematic illustration of the E-PB U(VI) sensor fabricated using the U-12 peptide probe. (B) CVs of the sensor recorded at 10 Hz in a Phys2 buffer in the absence and presence of 4  $\mu\text{M}$  U(VI).



**Figure S3.** CV scan rate-dependent current responses of the **U-pT-12** sensor in the absence and presence of 4  $\mu\text{M}$  U(VI) in a Phys2 buffer. The cathodic peak currents were used to obtain this plot; however, the anodic peak currents could also be used, and the results were found to be similar.



**Figure S4.** ACVs of the **U-pT-12** sensor recorded at 10 Hz in a Phys2 buffer in the absence and presence of 4, 40, 400, 4000  $\mu\text{M}$  Ca(II), and 4  $\mu\text{M}$  U(VI).



**Figure S5.** ACVs of the U-pT-12 sensor fabricated on a gold-plated SPCE in the absence and presence of 4  $\mu\text{M}$  U(VI), and after sensor regeneration.