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**SUPPLEMENTARY MATERIAL:**

**Voltammetric Detection of Hg<sup>2+</sup> Using Peptide  
Functionalized Polymer Brushes**

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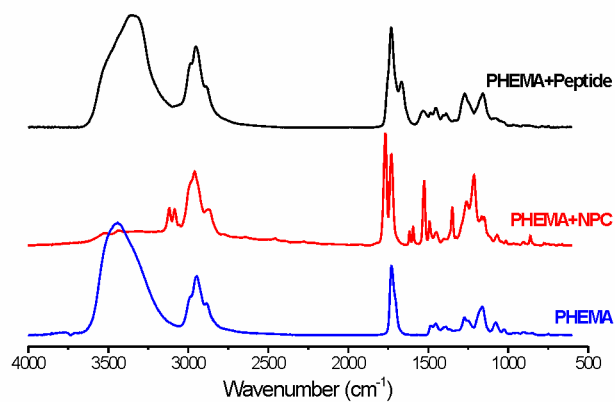
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+ 41 21 693 4866.

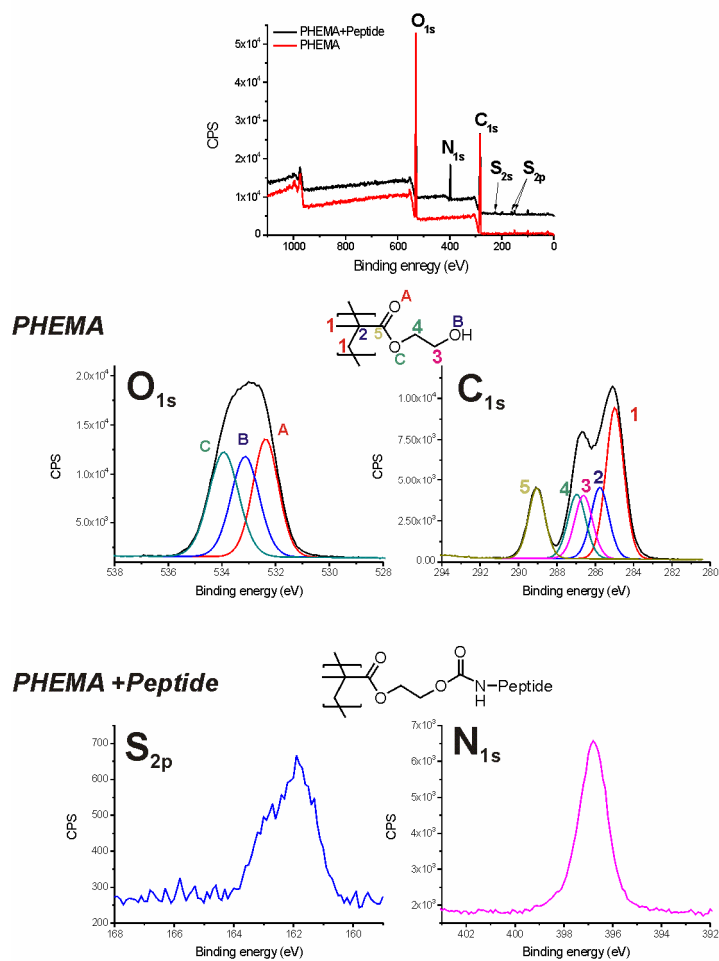
**Table S1.** Static water contact angles of different surfaces.

<b>Sample</b>	<b>Water contact angle (°)</b>
Gold surface	28° ± 2
Gold surface + ATRP initiator	79° ± 5
Gold surface + PHEMA brush	45° ± 4
Gold surface + peptide functionalized PHEMA brush	50° ± 3

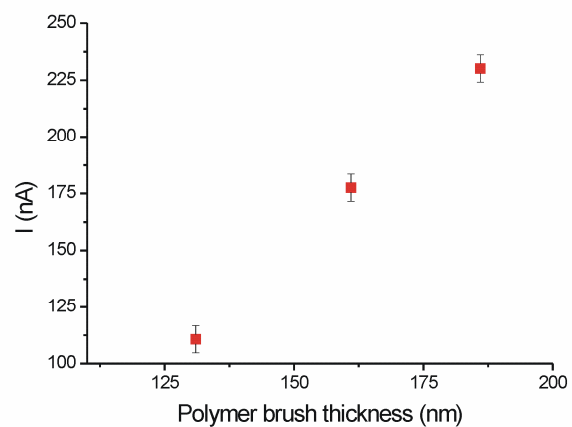




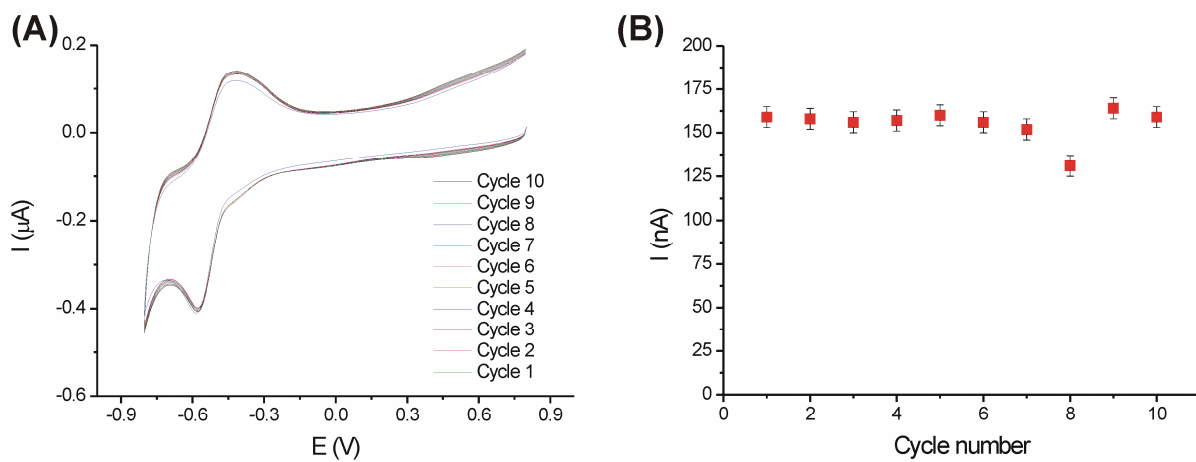
**Figure S2.** FTIR spectra of a PHEMA brush, an NPC activated PHEMA brush and a PHEMA brush post-modified with the mercury binding peptide (polymer brush thickness ~ 180 nm).



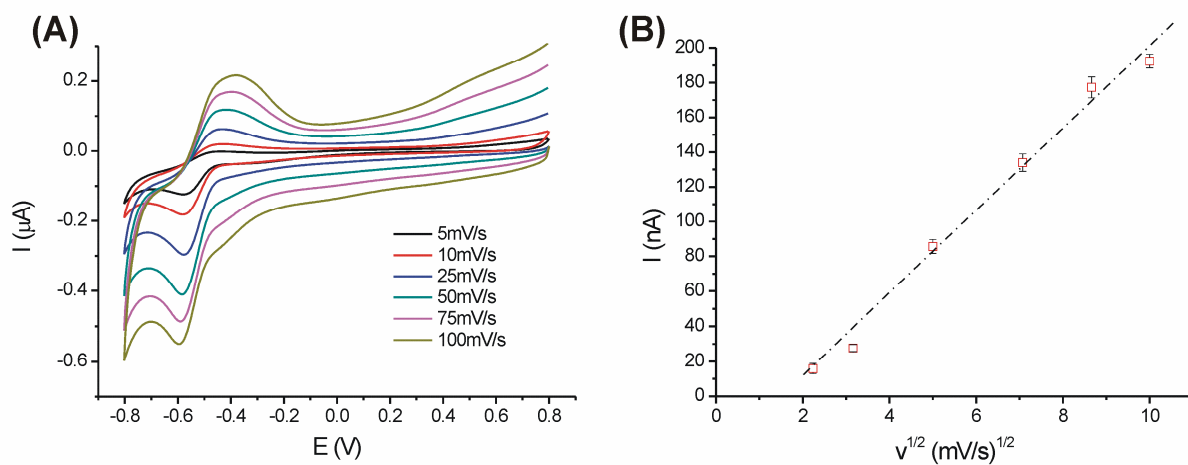
**Figure S3.** XPS survey scan and O<sub>1s</sub>, C<sub>1s</sub>, S<sub>2p</sub> and N<sub>1s</sub> high-resolution spectra of a PHEMA brush and of a PHEMA brush modified with the Hg<sup>2+</sup> binding peptide (polymer brush thickness ~ 180 nm).



**Figure S4.** Cyclic voltammetry re-oxidation peak current intensity as a function of polymer brush thickness. ( $[\text{Hg}^{2+}] = 10 \mu\text{M}$ ; CV scan rate 50mV/s).

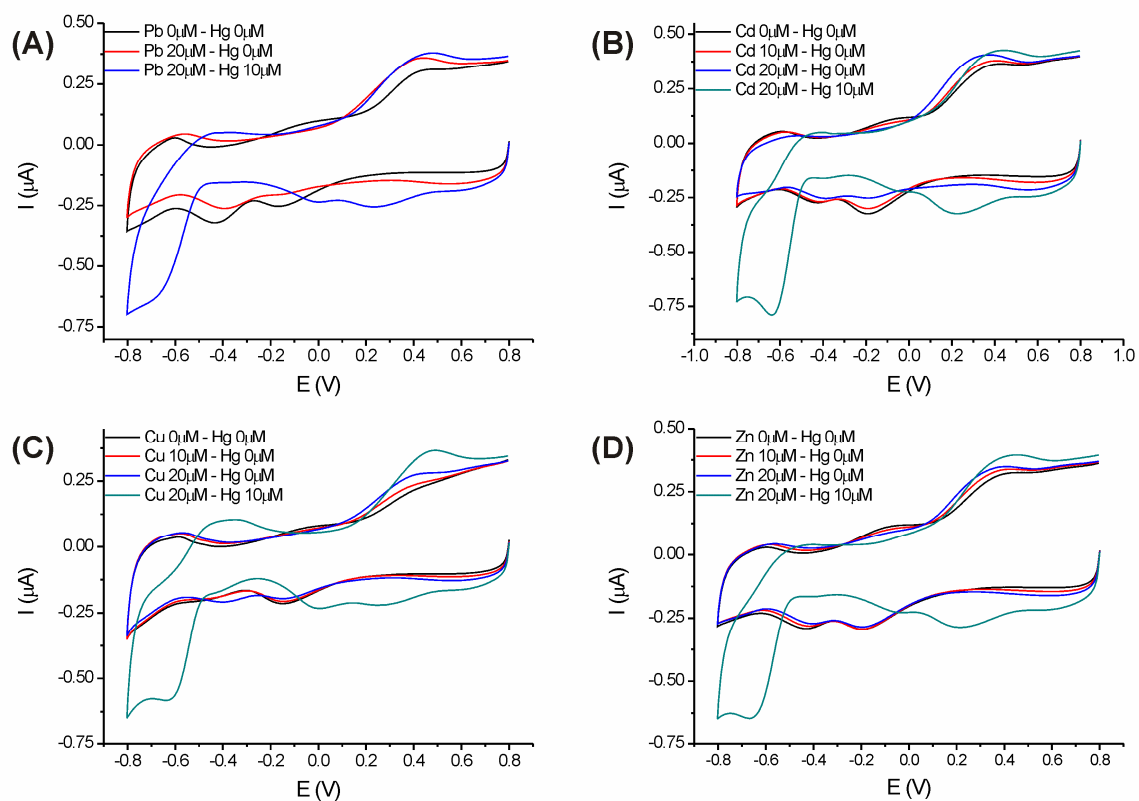


**Figure S5.** (A) Cyclic voltammograms and (B) corresponding re-oxidation peak intensity versus cycle number recorded upon exposure of a peptide functionalized polymer coated AuNP-IrMA to 8  $\mu\text{M}$   $\text{Hg}^{2+}$  (CV scan rate 50mV/s, brush thickness  $\sim$  131 nm).



**Figure S6.** (A) Cyclic voltammograms and (B) re-oxidation current intensity versus square root of the scan rate recorded using a peptide functionalized polymer coated AuNP-IrMA upon exposure to a 8  $\mu\text{M}$   $\text{Hg}^{2+}$  solution (CV scan rate 50mV/s, brush thickness  $\sim$  131 nm).





**Figure S7.** Cyclic voltammograms recorded using a 186 nm thick peptide functionalized polymer brush modified AuNP-IrMA upon exposure to various (mixed) heavy metal ion solutions.