Electronic Supplementary Information for

Dual-monomer molecularly imprinted polymer sensor for paracetamol voltammetric determination

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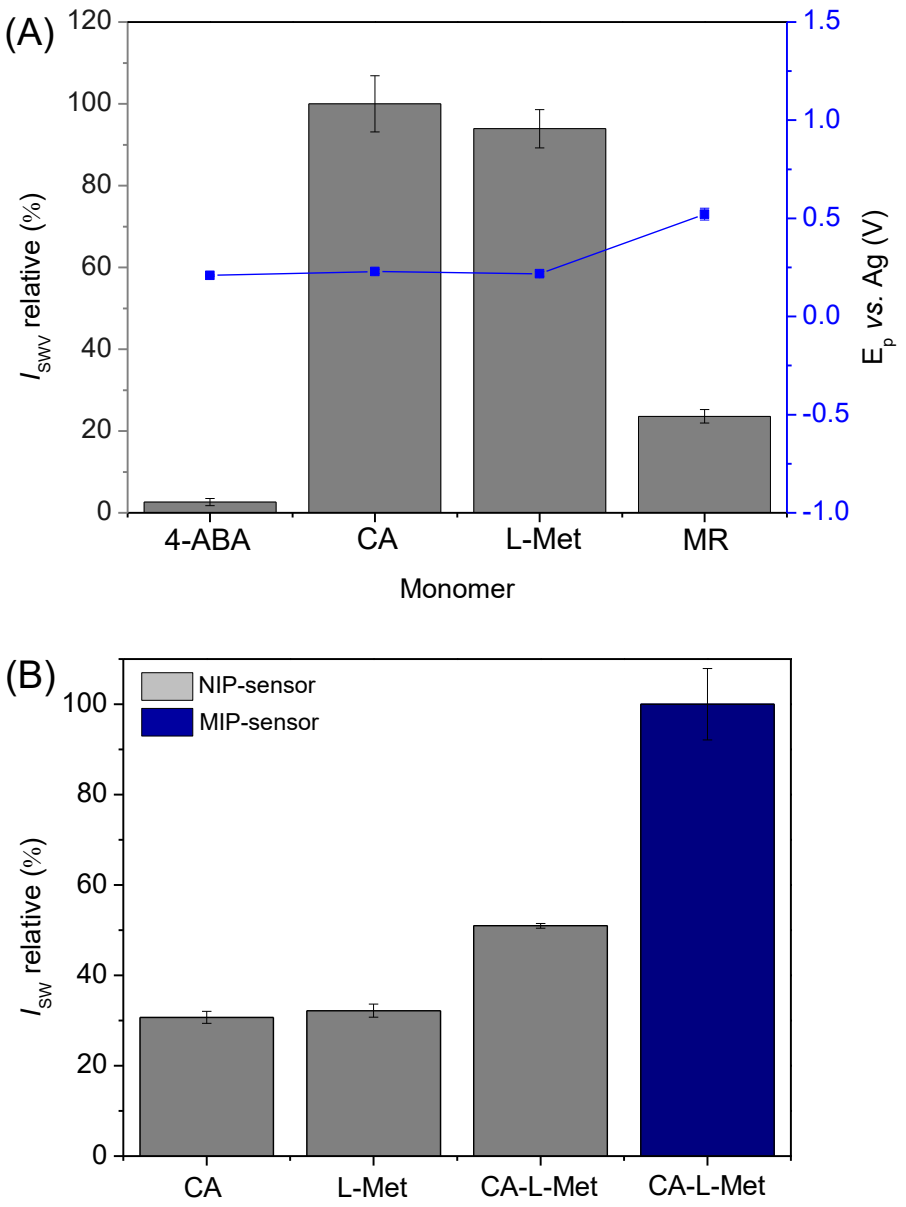

Fig. S1. (A) Relative SWV peak current (%) and peak potential values obtained for PAR oxidation using SPE modified with polymeric films produced by electropolymerization from different monomers (n = 3). (B) Relative SWV peak current (%) obtained for PAR using NIP and MIP sensors produced from the electropolymerization of one or two monomers (CA, L-Met or CA-L-Met). The current values were expressed as relative peak current percentages considering the highest response as 100%. Mean ± SD, n = 3.

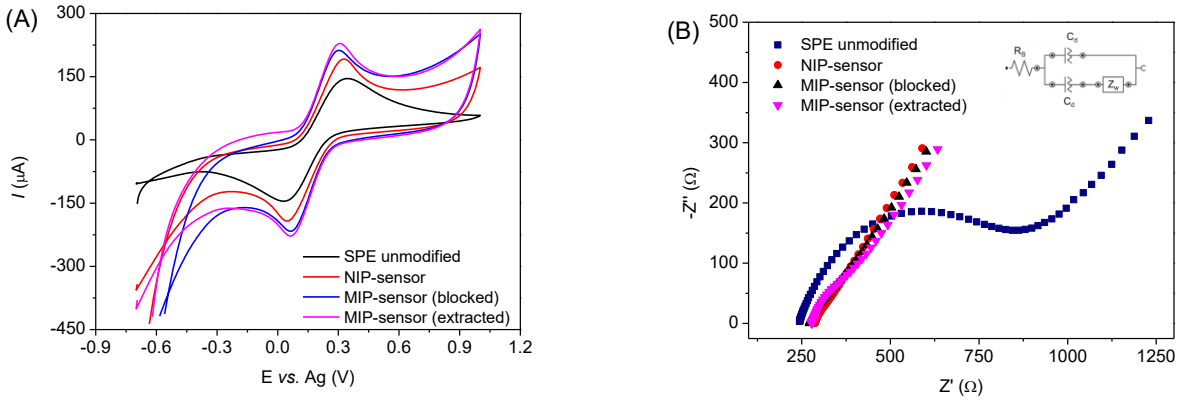

Fig. S2. (A) Cyclic voltammograms and (B) Nyquist diagrams obtained with different sensors in a solution of $[Fe(CN)_6]^{3-/4-}$ 5.0×10^{-3} mol L^{-1} in KCl 0.30 mol L^{-1}. Inset: Representation of the Randles equivalent circuit. EIS measurements were performed in open circuit potential (OCP), amplitude of 10 mV and frequency range of 10^5 to 0.01 Hz; and CV at a scan rate of 100.0 mV s^{-1}.

Table S1. Electrochemical parameters obtained from cyclic voltammograms and Nyquist diagrams (Figure S2) for different sensors.

Sensor	Current (μA)*		I_{pa}/I_{pc}	ΔE_p (V)	R_{ct} (Ω)*
	I_{pa}	I_{pc}			
SPE unmodified	38.8 ± 3.1	-38.1 ± 4.7	1.3	0.19	779.4 ± 2.9
NIP-sensor	123.6 ± 1.4	-98.7 ± 0.8	1.2	0.14	211.1 ± 0.1
MIP-sensor (blocked)	115.8 ± 3.6	-73.6 ± 3.6	1.6	0.14	255.7 ± 0.5
MIP-sensor (extracted)	116.8 ± 4.7	-81.7 ± 2.8	1.4	0.18	241.0 ± 0.5

*mean ± SD, n = 3

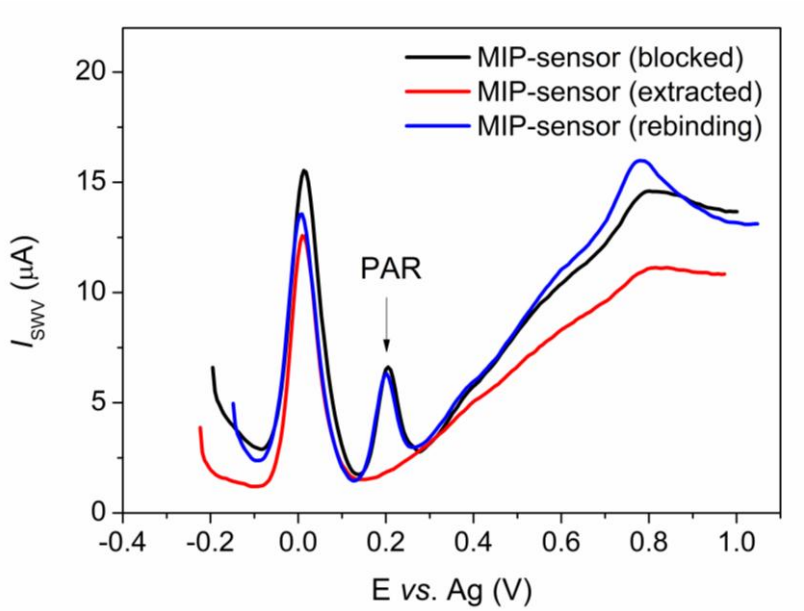

Fig. S3. Square wave voltammograms obtained in phosphate buffer solution (pH 7.0) using MIP-sensor before removal (template-blocked MIP), after template removal, and after rebinding (in solution containing PAR).

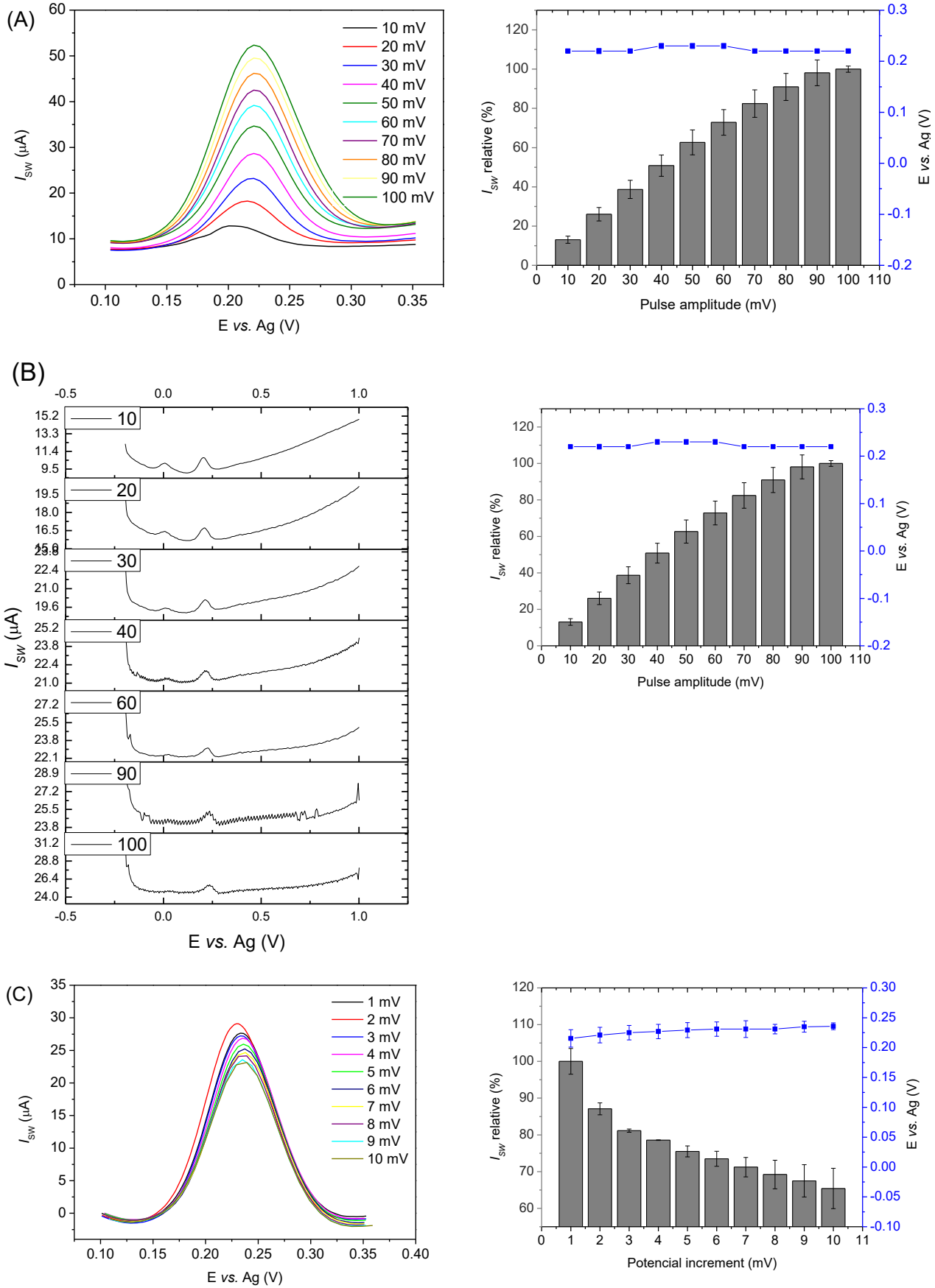

Fig. S4. Voltammograms and relative currents obtained by SWV for a 1.0×10^{-5} mol L^{-1} PAR solution using the MIP-sensor at different values of: (A) pulse amplitude, (B) pulse frequency, and (C) potential increment (mean ± SD, n = 3).

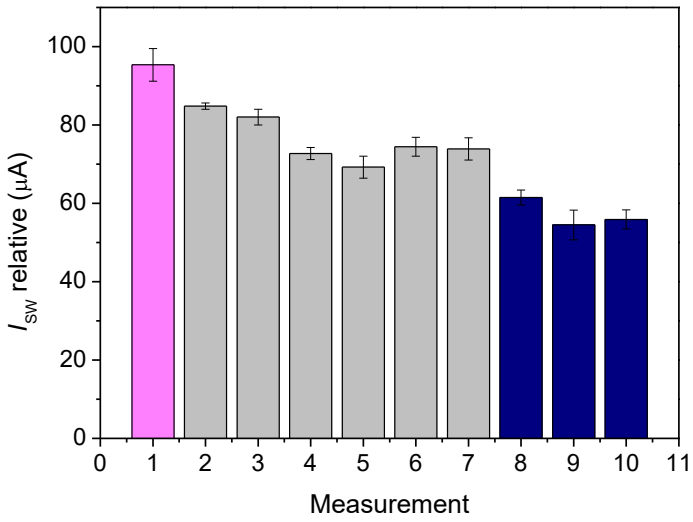

Fig. S5. Relative currents obtained for 10 successive SWV measurements in a 1.0×10^{-5} mol L^{-1} PAR solution, using MIP sensor (mean ± SD, n = 3 sensors).

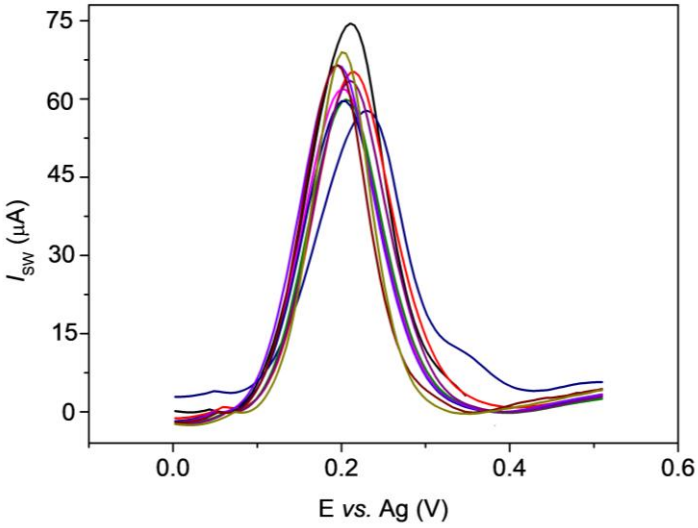

Fig. S6. Square wave voltammograms obtained in a 1.0×10^{-5} mol L^{-1} PAR solution using 10 MIP sensors for reproducibility study (n = 10).

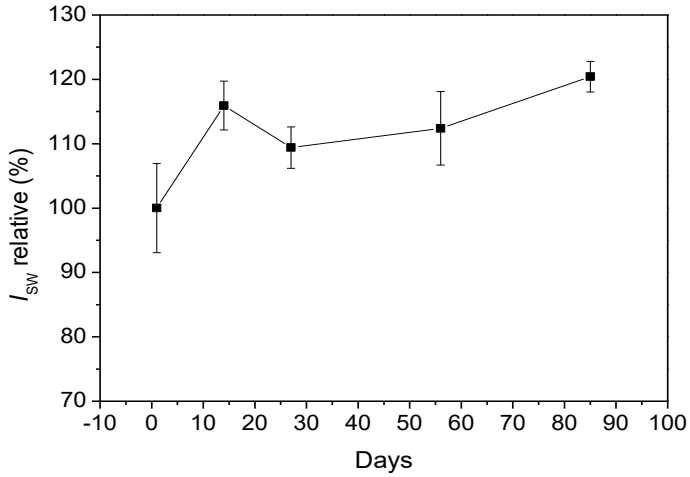

Fig. S7. Relative currents obtained in 1.0×10^{-5} mol L^{-1} PAR solution using MIP sensor for stability study (mean ± SD, n = 3). The initial SWV current (I_0) was considered 100%. The sensors were stored in a dry place at room temperature (20-30°C) and without humidity control.

Table S2. Responses obtained by SWV using the MIP and NIP sensors in a aqueous solution containing individually: paracetamol (5.0×10^{-5} mol L^{-1}); ascorbic acid, uric acid and diclofenac (1.0×10^{-5} mol L^{-1}); 17α-ethinylestradiol, citric acid, ciprofloxacin and glucose (1.0×10^{-4} mol L^{-1}); ibuprofen and erythromycin (1.0×10^{-3} mol L^{-1}) (n=3; mean ± SD).

Compound	I_{SWV} MIP-sensor (μA)	I_{SWV} NIP-sensor (μA)	E_p (V)
Paracetamol	295.0 ± 1.0	173.5 ± 0.60	+0.20
17 α-Ethinylestradiol	3.84 ± 0.31	5.26 ± 0.27	+0.50
Ascorbic acid	0.78 ± 0.30	3.10 ± 1.90	+0.60
Citric acid	0.53 ± 0.33	1.66 ± 0.83	+0.75
Uric acid	0.820 ± 0.18	2.15 ± 0.65	+0.75
Ciprofloxacin	8.62 ± 0.66	1.35 ± 1.07	+0.70
Diclofenac	1.74 ± 0.38	4.38 ± 0.14	+0.35 *
Erythromycin	0.0 ± 0.0	0.0 ± 0.0	-
Glucose	0.49 ± 0.18	1.55 ± 0.38	+0.70
Ibuprofen	0.0 ± 0.0	0.0 ± 0.0	-

* Peak of this compound partially overlaps with the peak of paracetamol, without generating significant interference.