Single column figure/scheme (below)



Figure 2. ASV curves $v = (50 \text{ mV.s}^{-1})$ recorded at a SPMBE immersed in a 60-µL droplet containing Au^{III} released from the (solid lines) enlarged or (dotted lines) not pDNA-Au conjugates after their hybridization with (a, a') 0 ⁵ or (b, b') 30 nM tDNA. The catalytic growth was performed by incubating 100 µL of G_s for 30 min followed by the washing cycle with W_s.



Figure 3. TEM images of a pDNA-Au amount corresponding to a Au^{III} to concentration of 60 nM (a) before and (b) after the 30 min gold enhancement with G_s . The scale bars represent 100 nm.



Figure 4. TEM micrographs of gold nanoparticles released in G_S after the 15 gold enlargement step when performing the hybridization assay described in the Experimental Section in the presence of (a) 0 and (b) 30 nM tDNA sample. Scale bars represent 80 nM.



Figure 5. Variation of the gold-amplified ASV hybridization response with NaCl concentration in G_{s} -PEG obtained for $\diamond 0$, $\blacksquare 3$ fM and $\bullet 3$ pM tDNA concentrations.



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Figure 6. Calibration curves of tDNA obtained for the gold-based hybridization assay protocol described in the experimental section (A) involving or (B) not the gold amplification stage with G_s^* . Q_0 corresponds to the charge value obtained in the absence of tDNA and its average value was = $_{30} 0.028 \pm 0.006$ nC and = 11.30 ± 0.76 nC \odot without and \Box with gold enhancement, respectively. Error bars are the standard error calculated from the average of two or three measurements. Inset : Set of ASV curves recorded (v = 50 mV.s⁻¹) at a SPMBE.

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Autometallographic process

Figure 1. Schematic representation of the electrochemical DNA hybridization assay involving a colloidal gold label conjugate and its enlargement by 50 catalytic gold deposition.

Double column table (below)

Table 1. Influence of the composition of the growth media on the amplification of the gold-based ASV hybridization response

Entry	Growth supporting media ^a	$Q_{G, 0} (nC)^{b}$	Q _{G, tDNA} (nC) ^c	Q _{G, tDNA} Q _{tDNA}	Amplification Factor ^d
1	PEG / NaCl	9	22	147	100
2	H ₂ O	0.2	1.7	8.5	9
3	15 % PEG	1.4	1.9	13	3.8
4	0.3 M NaCl	0.040	0.25	1.7	1.6

^a Containing 3 μ M Au³⁺ + 30 μ M NH₂OH + 0.1 mM CTAB. ^{b, c} Gold-enhanced analytical response resulting from the integration of the anodic ⁶⁰ stripping peak current ^b in the absence and ^c in the presence of 30 pM tDNA. ^d Calculated from the following relation : Q_{G, DNA} - Q_{G,0} / Q_{iDNA} - Q₀ where Q₀ = 0.02 nC and Q_{iDNA} = 0.15 nC were the ASV hybridization responses measured with no amplification for 0 and 30 pM tDNA concentration, respectively.

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