

Supplemental Information

Characterization of TLR4/MD-2-modified Au sensor surfaces. Towards the detection of molecular signatures of bacteria.

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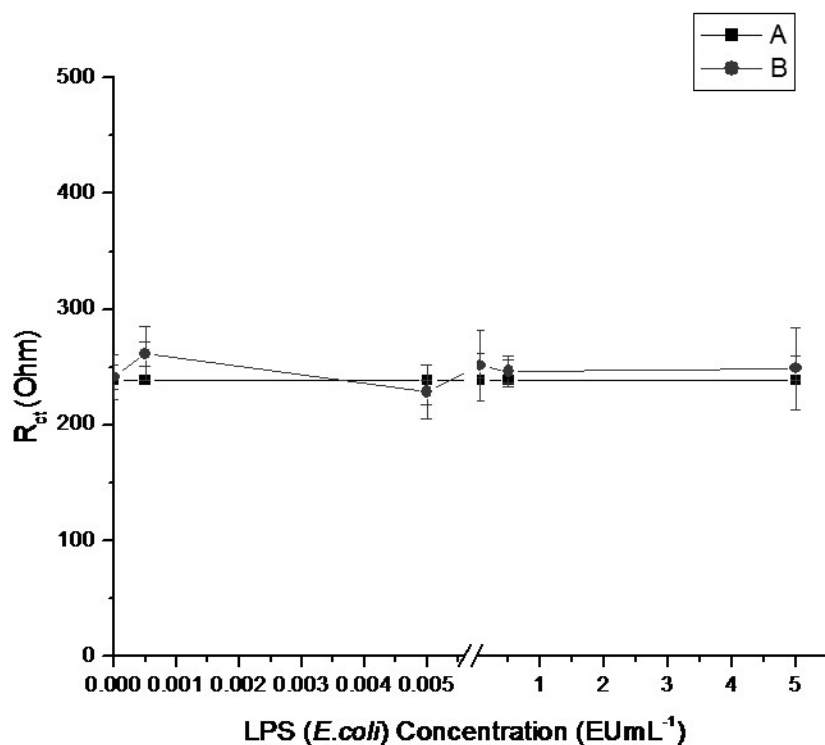


Fig. S 1 Investigation of the electrochemical behaviour of the Lip-NHS modified Au electrode LPS (*E. coli*). (A) Shows the R_{ct} value obtained for incubation in the absence of LPS and has been provided for comparison and (B) show the R_{ct} values for incubation at different concentrations of LPS

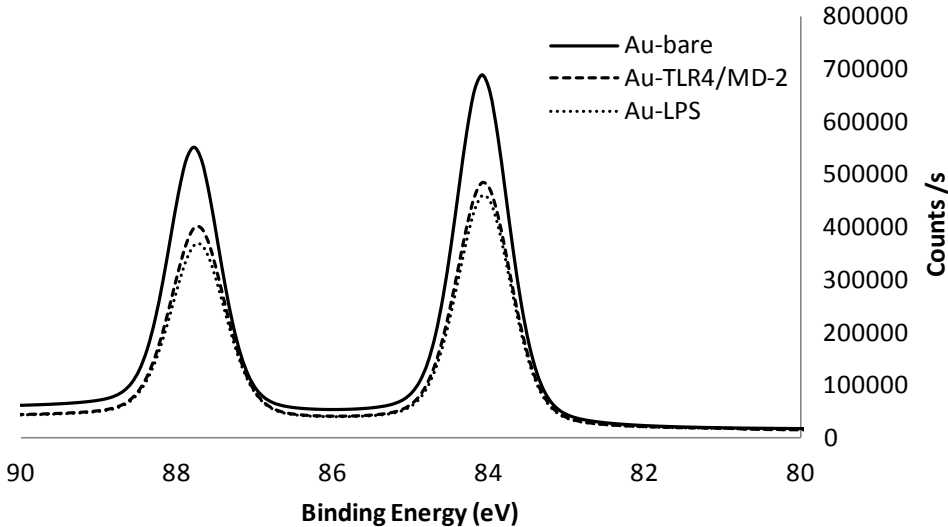


Fig. S 2 Au 4d XPS signals for bare Au, TLR4/MD-2-modified Au and LPS/TLR4-MD-2-modified Au. The attenuation of these Au 4d signals have been used for estimating the overlayer thicknesses.

Table S1 Equivalent circuit element values for TLR4/MD-2-modified electrodes after incubation in LPS from *E. coli* solutions at different concentrations. Values in parentheses represent the standard deviation for at least 5 electrode measurements.

Equivalent Circuit elements (LPS <i>E.coli</i>)							
LPS Concentration (EUmL ⁻¹)	R _s (Ω·cm ²)	Capacitanc e (F/cm ²)	R _{dl} (Ω·cm ²)	CPE (F/s ^{1/2} ·cm ²)	n	R _{ct} (Ω·cm ²)	W (μF ^{1/2} cm ²)
0	0.8	1.4 × 10 ⁻⁵	1.4	5.2 × 10 ⁻⁵	0.8	250.8	0.02
	(0.5)	(3.5 × 10 ⁻⁶)	(0.1)	(1.5 × 10 ⁻⁵)	(0.02)	(11.3)	(0.01)
0.0005	1.0	1.4 × 10 ⁻⁵	1.4	6.8 × 10 ⁻⁵	0.8	261.2	0.01
	(0.6)	(5.6 × 10 ⁻⁶)	(0.1)	(9.5 × 10 ⁻⁶)	(0.01)	(22.3)	(0.01)
0.005	0.6	1.8 × 10 ⁻⁵	1.4	9.0 × 10 ⁻⁵	0.8	375.6	0.02
	(0.6)	(3.8 × 10 ⁻⁶)	(0.2)	(5.1 × 10 ⁻⁶)	(0.01)	(18.7)	(0.01)
0.05	1.1	1.4 × 10 ⁻⁵	1.4	7.2 × 10 ⁻⁵	0.8	543.5	0.01
	(0.8)	(8.6 × 10 ⁻⁶)	(0.1)	(6.9 × 10 ⁻⁶)	(0.01)	(24.3)	(0.02)
0.5	1.0	1.6 × 10 ⁻⁵	1.4	4.5 × 10 ⁻⁵	0.8	712.6	0.01
	(0.5)	(4.6 × 10 ⁻⁶)	(0.1)	(7.6 × 10 ⁻⁶)	(0.01)	(29.1)	(0.01)
5	1.5	1.3 × 10 ⁻⁵	1.5	4.5 × 10 ⁻⁵	0.8	960.3	0.02
	(0.6)	(4.5 × 10 ⁻⁶)	(0.2)	(1.1 × 10 ⁻⁵)	(0.03)	(33.5)	(0.02)

Table S2 Equivalent circuit element values for TLR4/MD-2-modified electrodes after incubation in LPS from *Salmonella* solutions at different concentrations. Values in parentheses represent the standard deviation for at least 5 electrode measurements.

Equivalent Circuit elements (LPS (<i>Salmonella</i>))							
LPS Concentration (EUmL ⁻¹)	R _s (Ω·cm ²)	Capacitance (F/cm ²)	R _{dl} (Ω·cm ²)	CPE (F/s ^{1/2} ·cm ²)	n	R _{ct} (Ω·cm ²)	W (μF ^{1/2} cm ²)
0	0.7	9.9 × 10 ⁻⁶	1.8	1.7 × 10 ⁻⁵	0.8	261.8	0.01
	(0.2)	(5.5 × 10 ⁻⁶)	(0.3)	(6.3 × 10 ⁻⁶)	(0.01)	(14.3)	(0.01)
0.0005	0.8	9.6 × 10 ⁻⁶	1.7	1.9 × 10 ⁻⁵	0.8	277.6	0.01
	(0.2)	(4.2 × 10 ⁻⁶)	(0.1)	(4.5 × 10 ⁻⁶)	(0.01)	(31.3)	(0.01)
0.005	1.4	1.1 × 10 ⁻⁵	1.4	1.6 × 10 ⁻⁵	0.9	389.8	0.01
	(0.8)	(8.8 × 10 ⁻⁶)	(0.1)	(2.1 × 10 ⁻⁶)	(0.02)	(28.7)	(0.01)
0.05	0.6	1.0 × 10 ⁻⁵	1.8	1.4 × 10 ⁻⁵	0.9	568.9	0.01
	(0.5)	(5.3 × 10 ⁻⁶)	(0.2)	(3.9 × 10 ⁻⁶)	(0.01)	(22.4)	(0.02)
0.5	1.2	9.6 × 10 ⁻⁶	1.8	2.5 × 10 ⁻⁵	0.8	739.6	0.03
	(0.4)	(3.9 × 10 ⁻⁶)	(0.1)	(6.3 × 10 ⁻⁶)	(0.02)	(26.8)	(0.01)
5	0.8	9.2 × 10 ⁻⁶	1.5	2.5 × 10 ⁻⁵	0.8	1002.3	0.01
	(0.7)	(3.5 × 10 ⁻⁶)	(0.2)	(4.6 × 10 ⁻⁶)	(0.02)	(38.4)	(0.02)