Electronic Supplementary Material (ESI) for Analytical Methods.

Supporting Information

A Label-free Small Molecular Hydrogel-based Electrochemical Immunosensor for Ultrasensitive Detection of Deoxynivalenol

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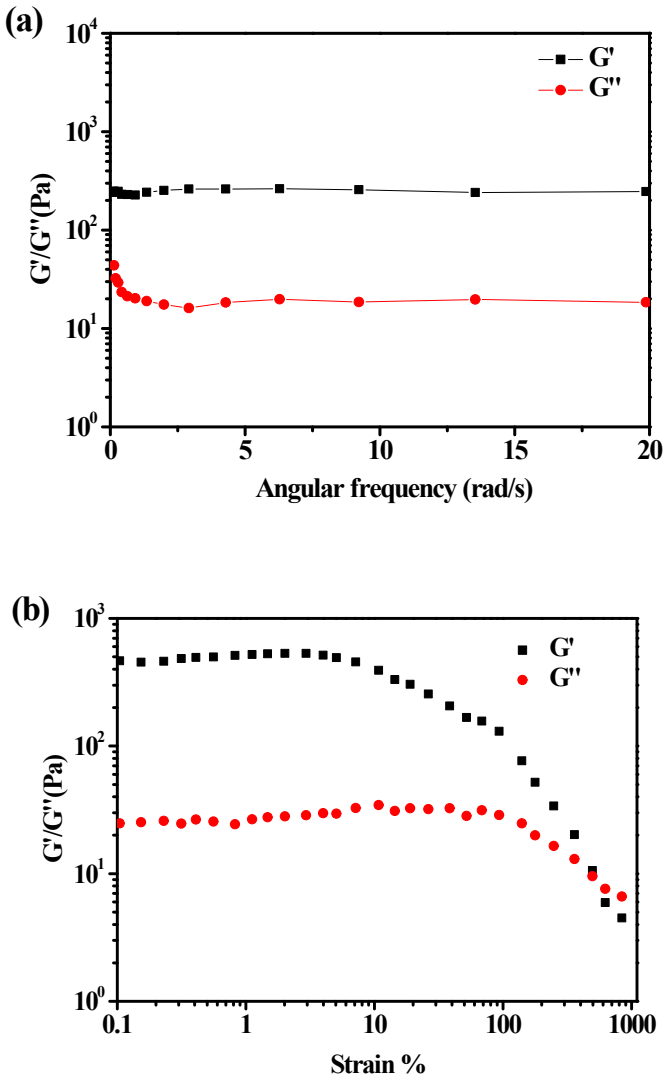

Figure S1. (a) Dynamic frequency sweep and (b) dynamic strain sweep of 3% w/v G-PyB KCl hydrogel.

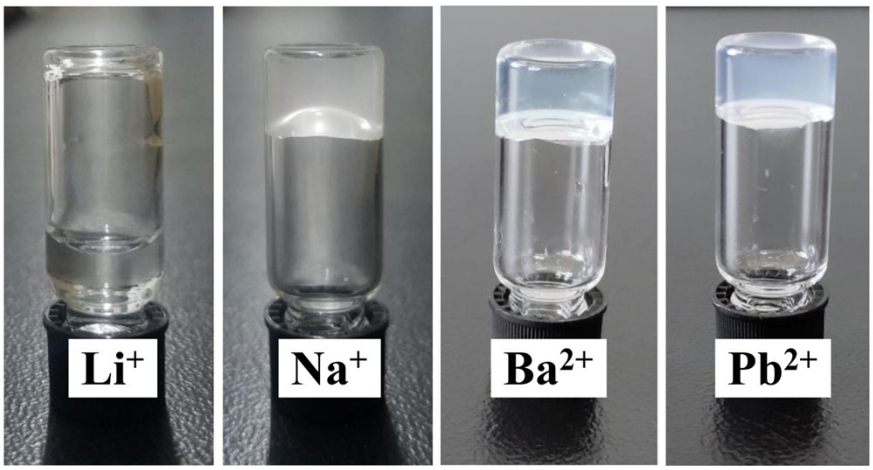

Figure S2. Images of G-PyB/M^{n+} samples (4% w/v in guanosine for Li^+ and Na^+, 2% w/v for Ba^{2+} and Pb^{2+}).

Table S1. T_{gel} and CGC of G-PyB/M^{n+} hydrogels.

	G-PyB/Li^+	G-PyB/Na^+	G-PyB/K^+	G-PyB/Pb^{2+}	G-PyB/Ba^{2+}
T_{gel} (°C)	-	Weak	40.8-47.5	50.5-55.4	39.0-41.9
CGC (g mL^{-1})	-	> 2%	1.1%	0.67%	0.71%

Note: The concentration of G-PyB/Li^+ and G-PyB/Na^+ for T_{gel} tests was 4% w/v in guanosine, other samples were 2% w/v.

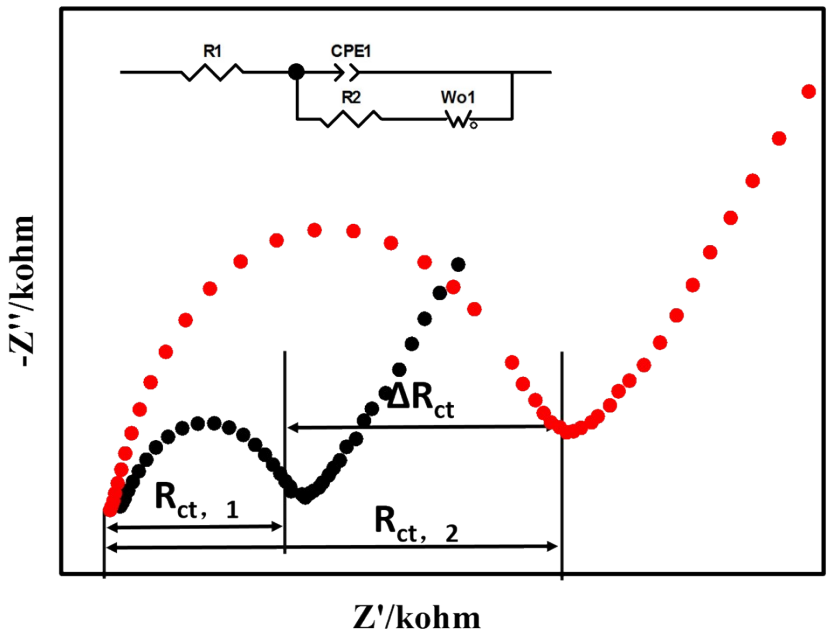

Figure S3. EIS Nyquist plots and equivalent circuit.

Table S2. Comparison of the proposed immunosensor and other electrochemical biosensor for detecting of DON using different sensing materials.

Sensitive materials	Method	Linear range	Detection limit	Refs
G/PyB KCl hydrogel	EIS	0.001-0.5 ng mL^{-1}	0.43 pg mL^{-1}	this work
AuNPs-PPy/ErGO	DPV	0.05-1 ppm	8.6 ppb	ref[1]
AuNPs/p-aminothiophenol/folic acid	EIS	0.1-20 μg mL^{-1}	0.03 μg mL^{-1}	ref[2]
AuNp/G/$PhNO_2$	EIS	6-30 ng mL^{-1}	0.3μg mL^{-1}	ref[3]
SMNTs/chitosan	DPV	0.01-1000 ng mL^{-1}	5 pg mL^{-1}	ref[4]
C60-FC-IL	EIS	0.001-0.3 ng mL^{-1}	0.3 pg mL^{-1}	ref[5]
NPCo/Co_3O_4-Au	ECL	0.005-100 ng mL^{-1}	1 pg mL^{-1}	ref[6]
Al-MOF	EIS	0.001- 0.5 ng mL^{-1}	0.70 pg mL^{-1}	ref[7]
CdS NP	ASV	610 - 6210 μg kg^{-1}	342.4 μg kg^{-1}	ref[8]
AuNPs/ITO	DPV	0.2 - 60 ppb	35 pg mL^{-1}	ref[9]
BCN-800	EIS	0.001-0.5 ng mL^{-1}	0.32 pg mL^{-1}	ref[10]
Bi_2O_3	DPV	24 -1400 μg L^{-1}	7.1 ug L^{-1}	ref[11]

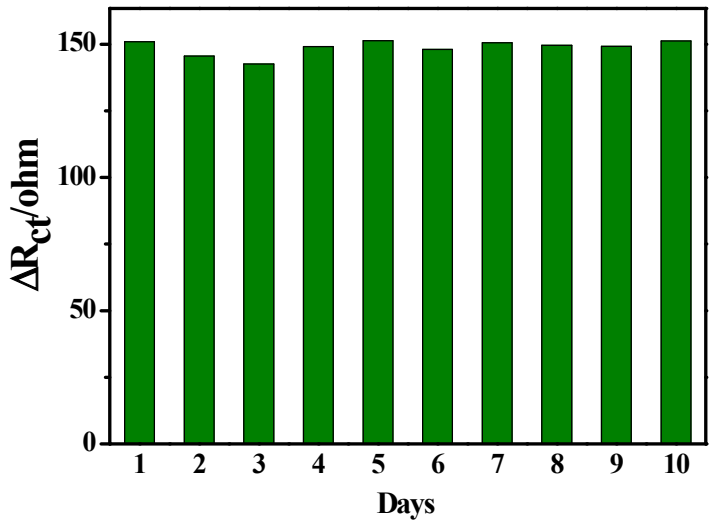

Figure S4. Stability of the immunosensor for detection of DON (0.001 ng mL^{-1}).

References

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