Table S5: The comparative analysis of the present biosensor electrode LOD, LOQ and analytical sensitivity with other reported studies for MUC1 detection.[1]

Working electrode Composition	Detection Technique	Sample Matrices	LOD	LOQ	Analytical Sensitivity	Total Assay Time	Linear range	Ref.
AuNPs@GCE	EIS, DPV	Human Serum	30 nM	100 nM		>21 hrs	1.0 µM	[20]
AuNPs@Cu$_7$S$_4$@Cu/Mn-AzoPPOP	DPV and CA	Spiked Serum	0.72 fg/ml, 0.82 fg/ml	2.4 & 2.7 fg/ml		-NA-	1-10^4 fg/ml	[21]
PEI-AuNPs	SWV	Human Serum	0.53 ng/ml	1.8 ng/ml	--	~1.5 hrs	0.1-10^2 ng/ml	[22]
GCE modified by CdTe/PPy	DPV	PBS	0.05 nM	0.16 nM		>15 hrs	0.1-10^2 nM	[23]
Cu-MOF/AuPtNPs	DPV	Human Serum	3.33 fM	11.1 fM		~23 hrs	10-10^7 fM	[24]
Au-PtBNPs@CGO/FTO	DPV	Spiked Human Serum	0.79 fM	2.63 fM		~2 hrs	1 fM-100 nM	[25]
AuNPs-GO-PEDOT	DPV	Spiked Serum	1 fg/ml (0.031 fM)	3.3 fg/ml		>24.25 hrs	3.13 aM-31.2 nM	[26]
Ag-CuO integrated polyaniline	EIS	Spiked Serum	3.23 pg/ml	10.8 pg/ml	0.68 kΩ pg mL^{-1} cm^{-2}	~14.5 hrs	1-100 pg/ml	[27]
FTO/FeMOF@PdNR/ PDA/antiMUC1Ab /MCH	**EIS**	Human Serum	**0.074 fg/ml**	**0.24 fg/ml**	**1.39 x 10^3 Ω /fg ml^{-1}cm^{-2}**	**< 2 hrs**	**0.1-10^6 fg/ml**	**THIS WORK**
	CV (I$_{pa}$, I$_{pc}$)		**0.10 fg/ml, 0.08 fg/ml**	**0.37 fg/ml, 0.28 fg/ml**	**17.6 x 10^{-5} A/fg ml^{-1}cm^{-2}, 24.85 x 10^{-5} A/fg ml^{-1}cm^{-2}**			
	DPV		**0.08 fg/ml**	**0.26 fg/ml**	**14.45 x 10^{-5} A/fg ml^{-1}cm^{-2}**			

[1] GCE: Glassy carbon electrode; AuNP: Gold nanoparticles; PPOP: porphyrin-based porous organic polymers; CA: chrono-amperometry; PEI-AuNPs: polyethylenimine coated-gold nanoparticles, CdTe/PPy: cadmium telluride/polypyrrole, AuPtNPs; gold-platinum alloy nanoparticles, CGO: carboxylated graphene oxide, FTO: Fluorine-tin oxide, PEDOT: Poly(3,4-ethylenedioxythiophene; SWV: Square Wave Voltammetry; NA: non-assessable; PBS: Phosphate Buffer Salin e;