

<Supplementary data>

Multivalent sialyllactose-levan-conjugated gold nanoparticles for efficient interaction with and colorimetric detection of influenza A virus

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	PCR	Sialyllactose levan AuNPs
Method	RNA detection	Colorimetric detection
Assay time	6~8 h	5 min
Equipment	PCR machine	No machine
Advantages	High sensitivity and specificity	Simple detection and short detection time
Disadvantages	High cost, need tools and skilled personnel	Low sensitive and specificity

Table S1. Comparison of PCR and sialyllactose levan AuNPs method

Nanomaterials	capture probe	Influenza virus subtype	Detection method	LOD	Detection time	Reference
Magnetite particle	Antibody	H5N2	MALD-TOF-MS	$\sim 10^3$ EID ₅₀ /ml (3.5×10^4 PFU)	hours	[24]
Quantum dot	Antibody	H5N1	Fluorescence detection	1~200nM	hours	[25]
Gold nanoparticle	Antibody	H3N2	Colorimetric detection	7.8 HAU(7.8×10^5 PFU)	30min	[26]
	Sialic acid	Influenza B	Colorimetric detection	0.156vol % (512 HAU) (7.9×10^4 PFU)	minutes	[29]
	2,6Sialyllactose-levan	H1N1	Colorimetric detection	7.4×10^3 PFU	5 min	This study
	2,3 Sialyllactose levan	H5N2	Colorimetric detection	4.2×10^3 PFU	5 min	This study

The approximate conversion factors are $1 \text{ HAU} \approx 1 \times 10^5 \text{ PFU}$ and $10^6 \text{ EID/50 mL} \approx 0.7 \times 10^6 \text{ PFU mL}^{-1}$,

Table S2. An overview on recently reported nanomaterial-based optical methods for the determination of detection of influenza virus