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Supporting information

Hapten Synthesis and a Colloidal Gold Immunochromatographic Strip Assay to Detect Nitrofen and Bifenox in Fruits

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Fig. S1 Composition of the test strip (a) and the schematic for samples detection (b).

Fig. S2 The mass spectrum of NIT-1. (a) The total ion current spectrum of NIT-1 (b) The signal strength of the NIT-1 and structure, (c) The mass spectrum of NIT-1.

Fig. S3 The ^{1}H NMR test results of NIT-1.

Fig. S4 The ^{1}H NMR test results of compound 3.

Fig. S5 The mass spectrum of NIT-2. (a) The total ion current spectrum of NIT-1 (b) The signal strength of the NIT-2, (c) The mass spectrum of NIT-2.

Fig. S6 The ^{1}H NMR test results of NIT-2.

Fig. S7 Screening for successful pairs of coating antigen/serum. Criterion of success is ≥50% inhibition at 20 ng/mL NIT.

Fig. S8 Five strains of antibodies were deficient in ic-ELISA standards for two pesticides when coated with different antigens. (a) and (c) The coated antigen was homologous. (b) and (d) The coated antigen was heterologous.

Fig. S9 Optimize gold-labeled antibody resuspension.

Table S1. The titer of mAbs standard curve.

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Table S3. The affinity constant of mAb 5G7.

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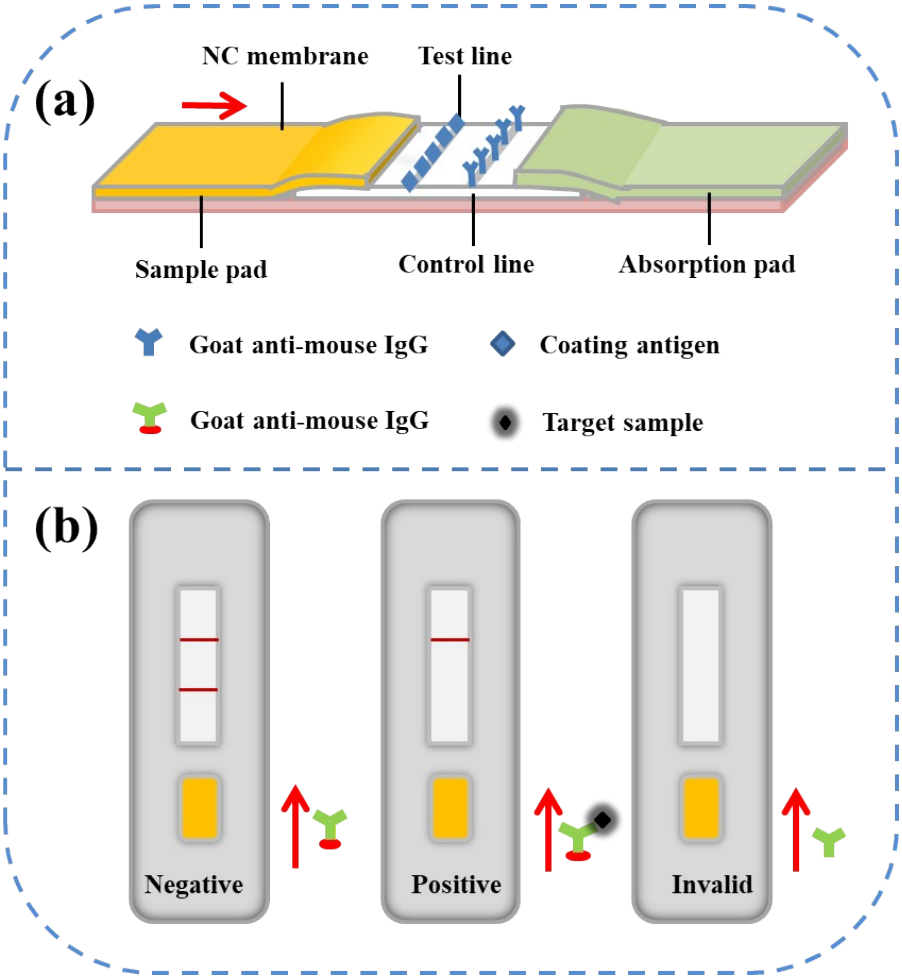

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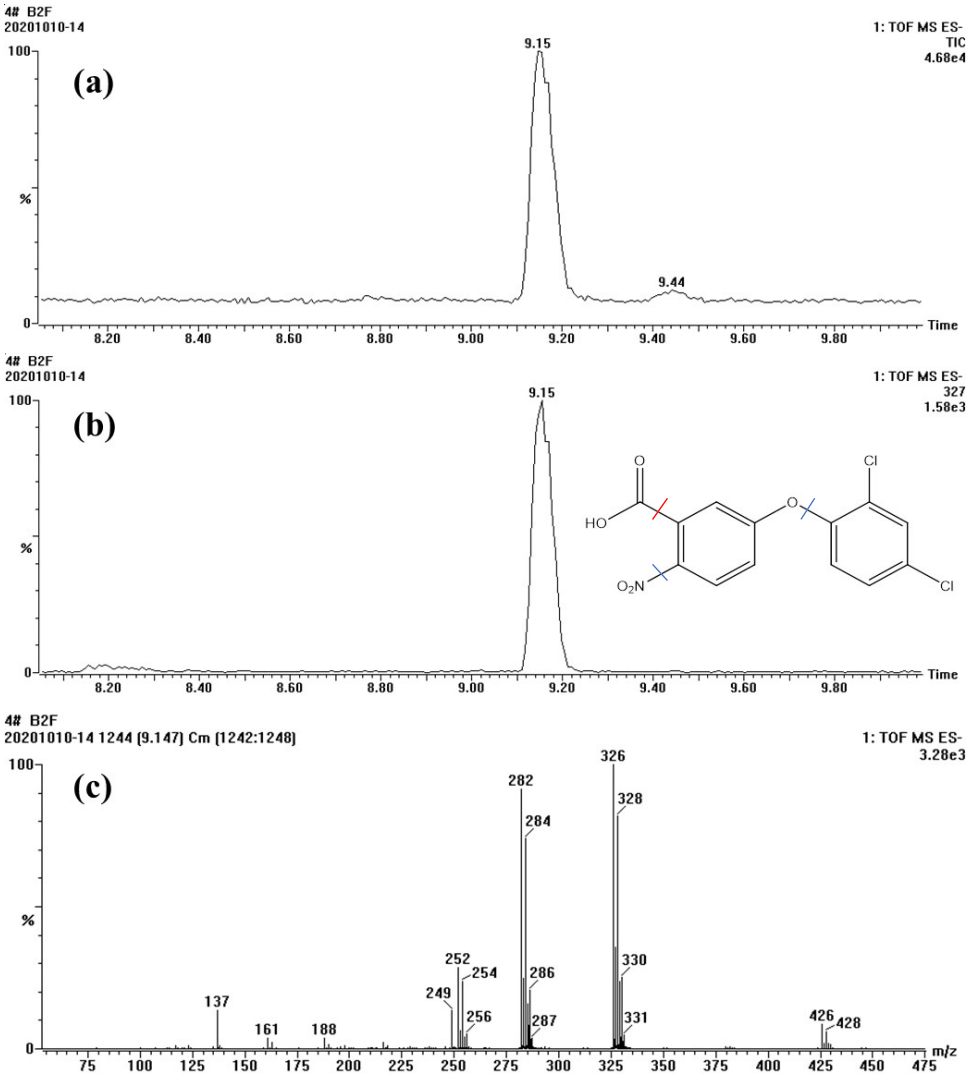

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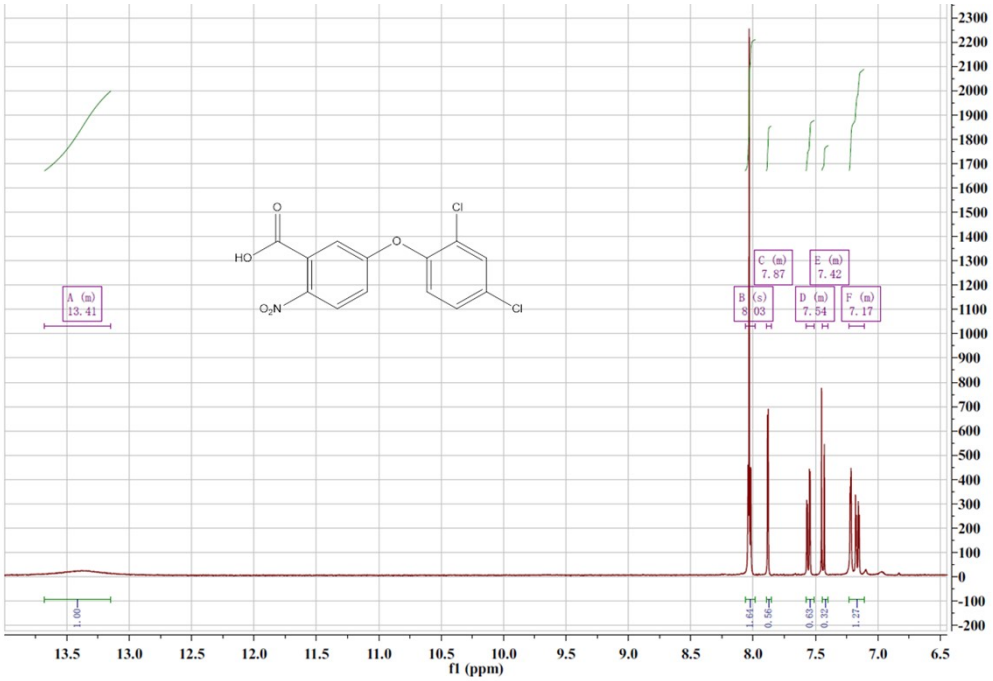


Fig. S3 The ^{1}H NMR test results of NIT-1.

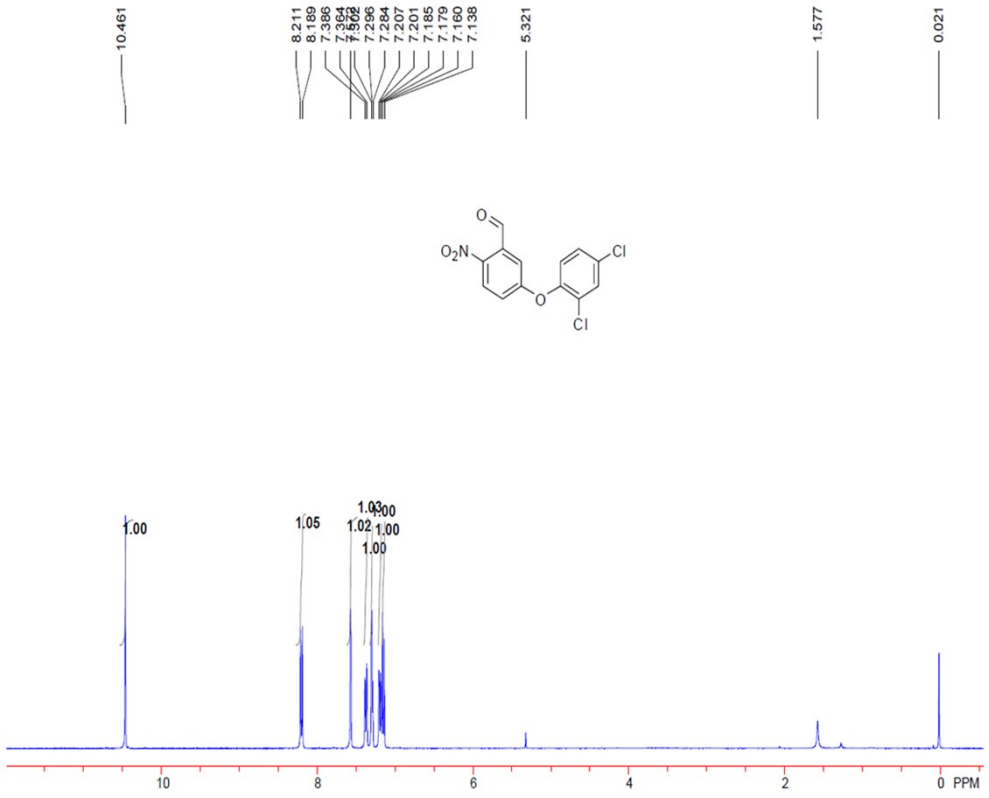


Fig. S4 The ^{1}H NMR test results of compound 3.

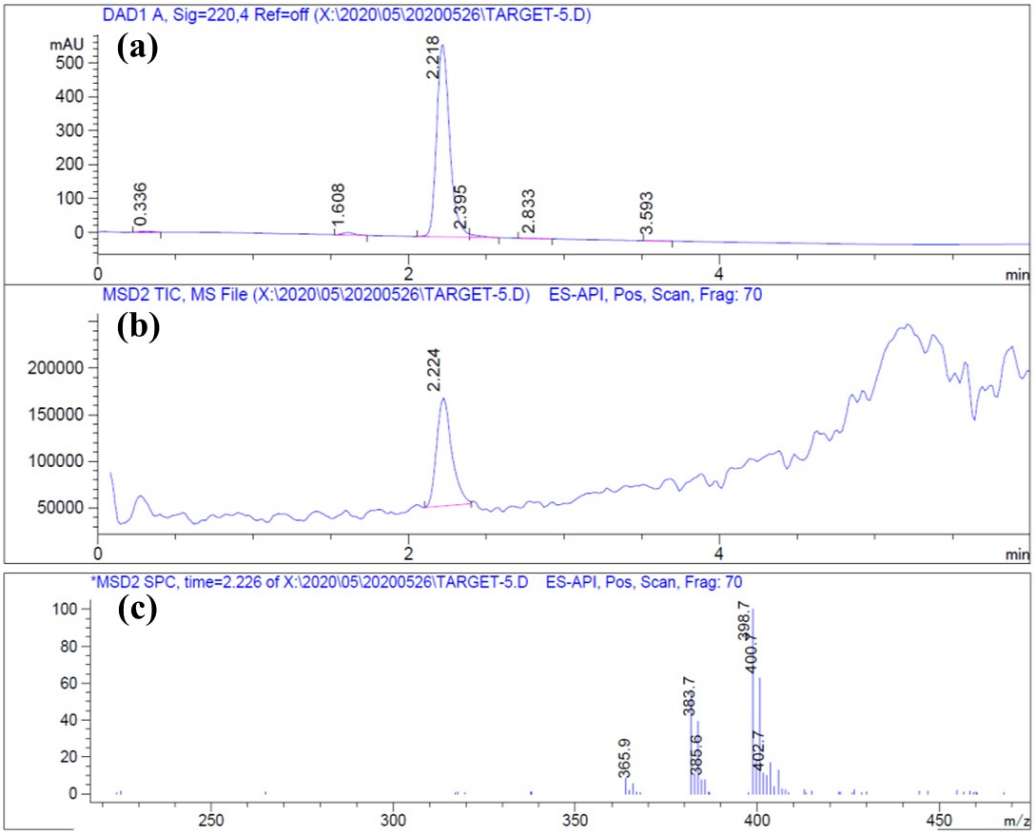


Fig. S5 The mass spectrum of NIT-2. (a) The total ion current spectrum of NIT-1 (b) The signal strength of the NIT-2, (c) The mass spectrum of NIT-2.

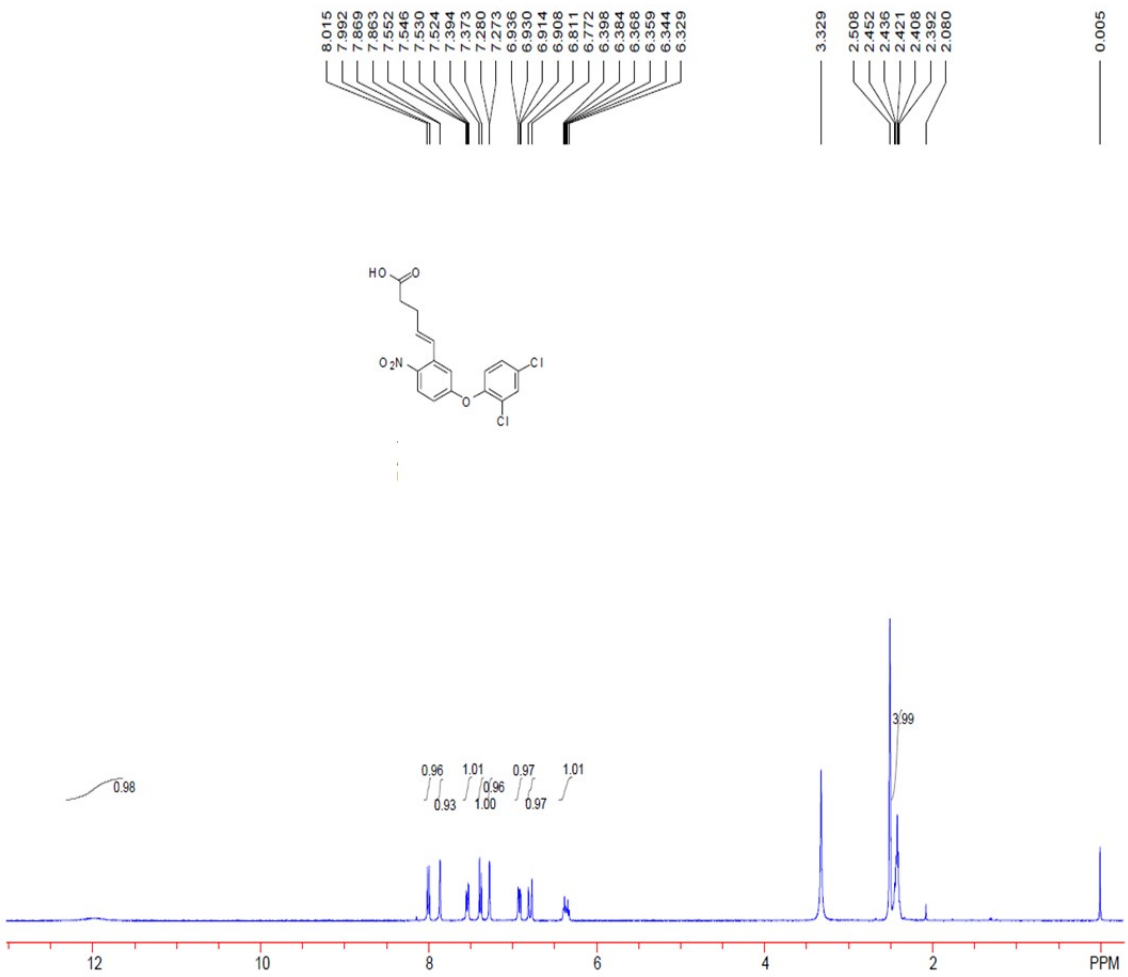
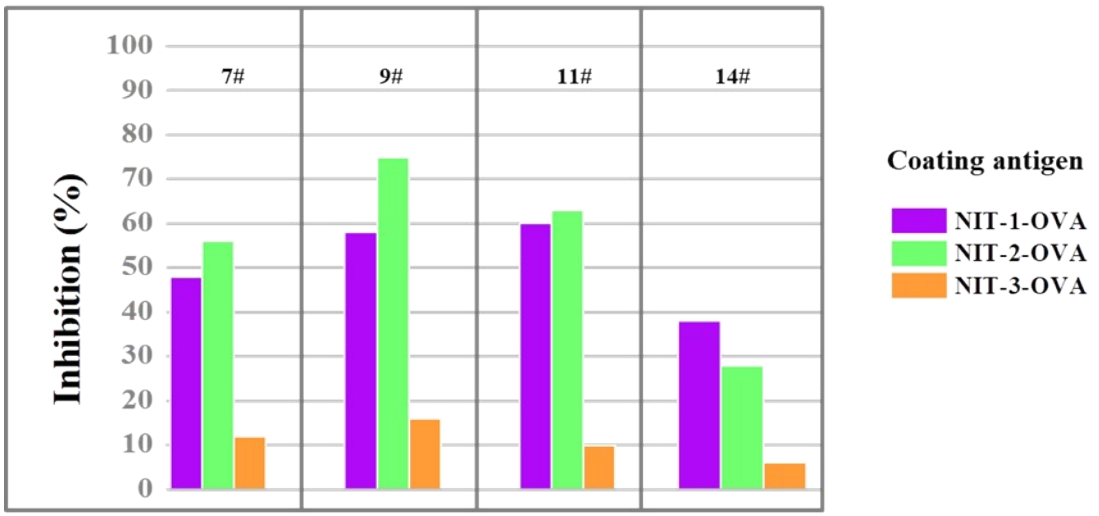


Fig. S6 The ^{1}H NMR test results of NIT-2



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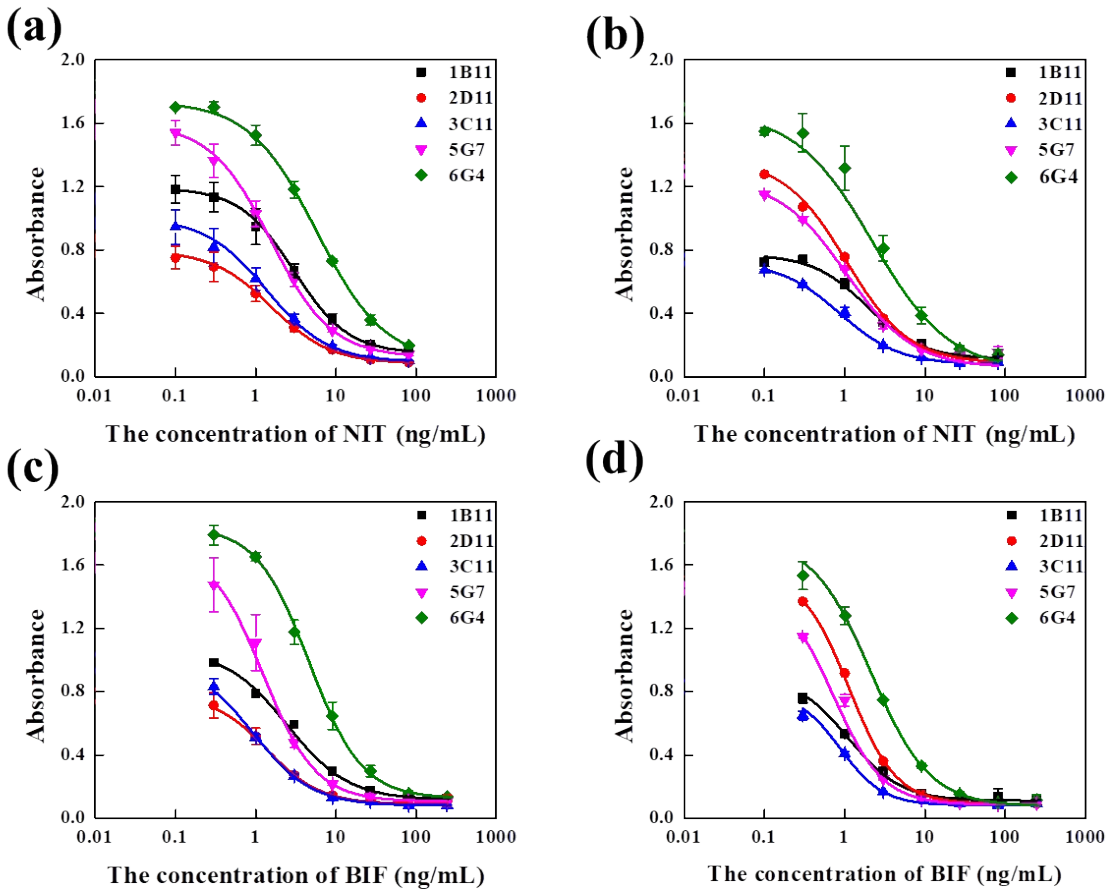

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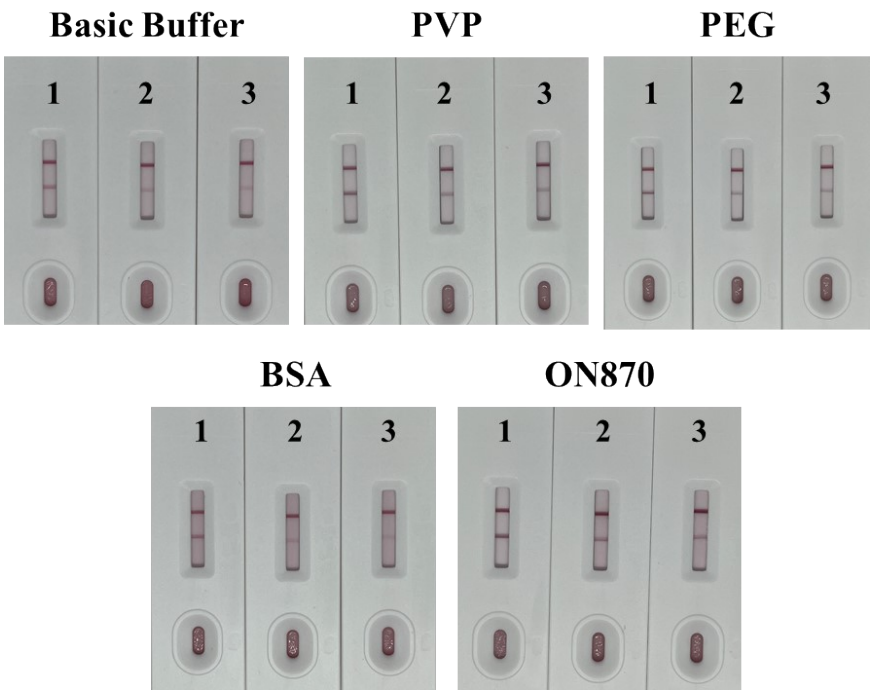


Fig. S9 Optimize gold-labeled antibody resuspension.

Table S1. The titer of mAbs standard curve.

Coating antigen (0.1mg/mL)	NIT-1-BSA				NIT-1-ABSA				NIT-2-BSA				NIT-2-ABSA			
	2#		3#		7#		9#		11#		14#		17#		18#	
	DF		DF		DF		DF		DF		DF		DF		DF	
	1000	9000	1000	9000	1000	9000	1000	9000	1000	9000	1000	9000	1000	9000	1000	9000
NIT-1-OVA	+++	+++	+++	+++	+++	+++	+++	+++	+++	++	+++	++	++	+	+	+
NIT-2-OVA	++	+	+	++	+++	+++	+++	+++	+++	+++	+++	+++	++	+	++	++
NIT-3-OVA	+	-	-	-	+	-	+	-	+	-	+	-	-	-	-	-

Annotation：-, absorbance <0.8; +, absorbance 0.8-1.2; ++, absorbance 1.2-2.0d; +++, absorbance >2.0; DF is short for dilution fold.

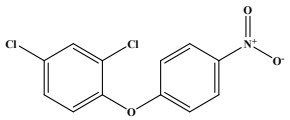
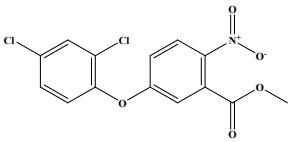
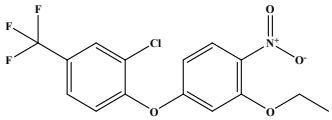
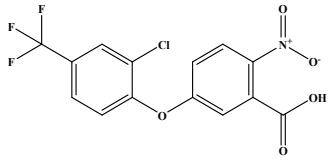
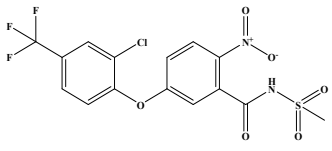
Table S2. The IC_{50} values of mAbs.

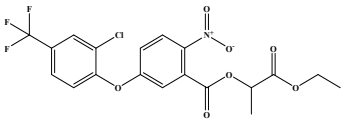
mAbs	Homologous coatings		Heterologous coatings	
	BIF（ng/mL）	NIT（ng/mL）	BIF（ng/mL）	NIT（ng/mL）
1B11	2.98	2.46	1.89	1.10
2D11	1.57	1.38	1.04	1.12
3C11	1.35	0.92	0.86	0.87
5G7	1.54	1.22	1.04	0.73
6G4	5.76	4.64	2.20	2.11

Table S3. The affinity constant of mAb 5G7.

Antigen	Affinity constant
Homologous coatings	2.01×10^{10}
Heterologous coatings	1.54×10^{7}

Table S4. Cross-reactivity of mAb with NIT and analogues.

Chemical compound	Structure	IC_{50}(ng/mL)	Cross-reaction (%)
Nitrofen		0.87	100
Bifenox		0.86	101
Oxyfluorfen		>5	<11.8
Acifluorfen		>5	<11.8
Fomesafen		>5	<11.8

Lactofen		>5	<11.8