Electronic Supplementary Information (ESI)

Graphene oxide-based chemiluminescent sensing platform for label-free detection of trypsin and its inhibitors

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Table S1. The sequences of the peptide used in this study.

Peptide name	Sequence
P_1	Arg-Arg-Arg-Arg-Cys
P_2	Arg-Arg-Arg-Arg-Arg-Cys
P_3	Arg-Arg-Arg-Arg-Arg-Arg-Cys
P_4	Arg-Arg-Arg-Arg-Arg-Arg-Arg-Cys

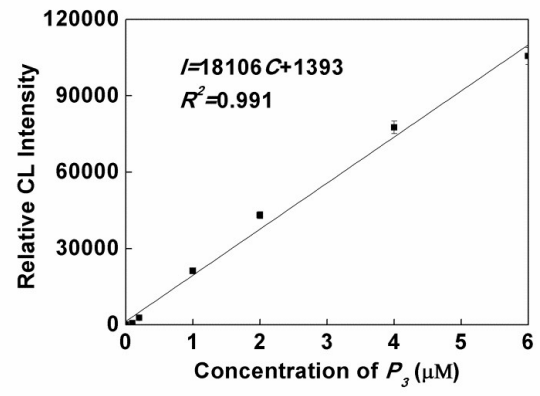

Figure S1. Linear relationship between the relative CL intensity and P_3 concentration. Experimental conditions: P_3, 0.1, 0.2, 1, 2, 4, 6 μM; luminol, 2.5 μM; $NaIO_4$, 10 μM.

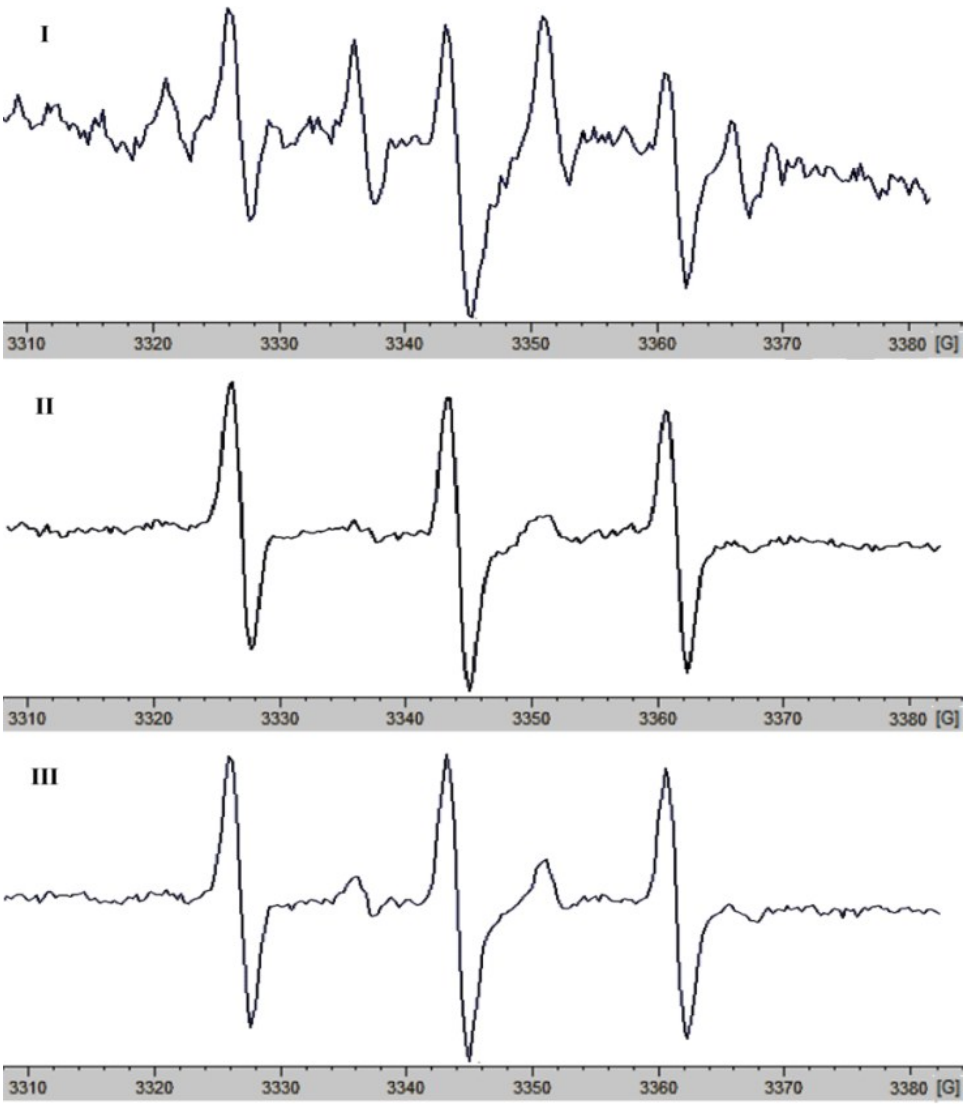

Figure S2. ESR spectra of aqueous DMPO solution with (I) $NaIO_4$-P_3, (II) $NaIO_4$-(P_3-GO complex), and (III) $NaIO_4$. Experimental conditions: microwave frequency, 9.407 GHz; power, 1.00 mW; modulation amplitude, 2.00 G; modulation frequency, 100 kHz; time constant, 20.48 ms; conversion time, 40.00 ms. The hyperfine coupling constants for DMPO-OH in (I) were $\alpha_N = \alpha_H = 1.5$ mT and g = 2.0061, respectively.

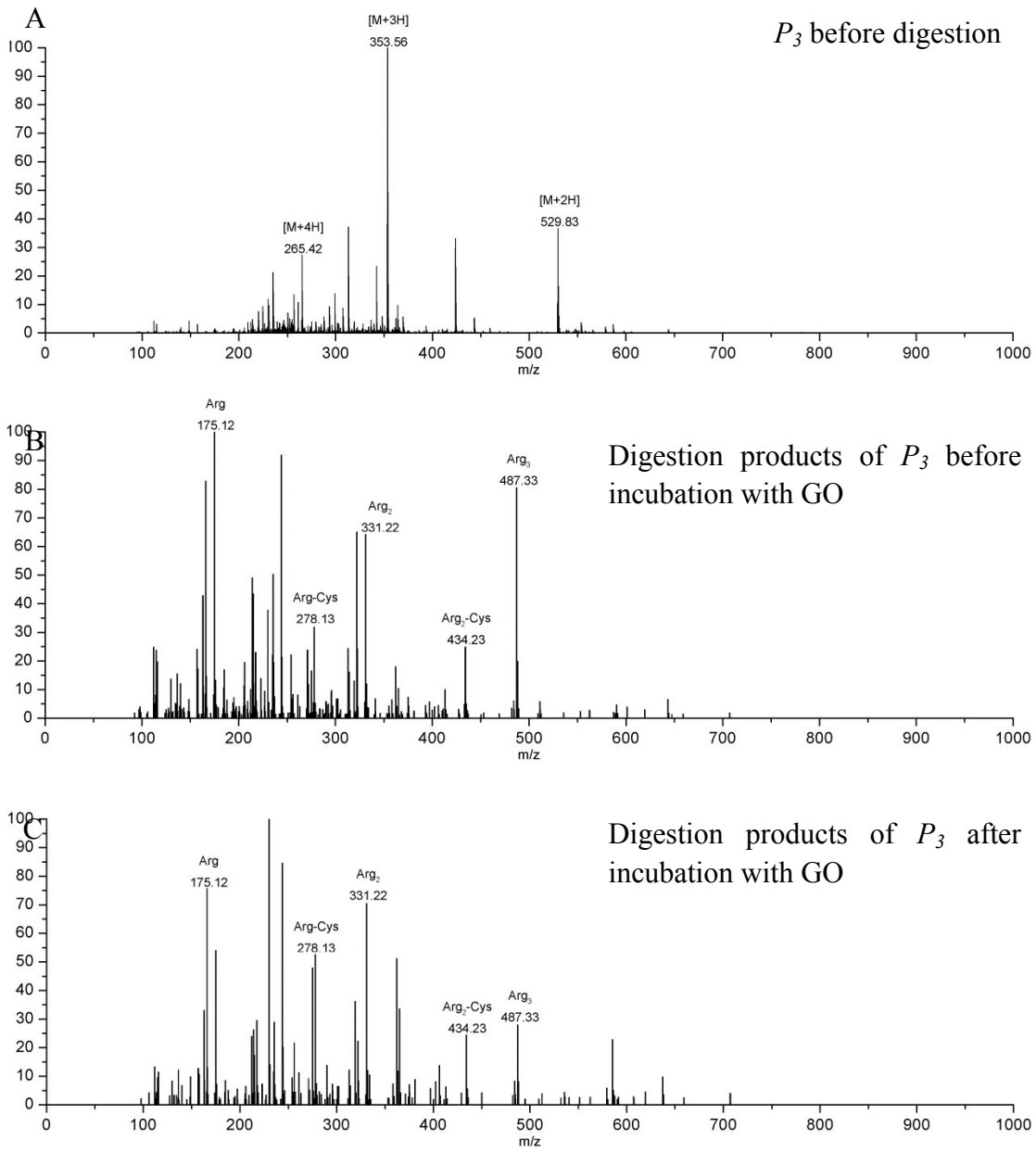

Figure S3. MS spectra of P_3 (A) and digestion products of P_3 (B, C) under different conditions. P_3 120 μM; trypsin, 10 μM; GO, 2 mg mL^{-1}.

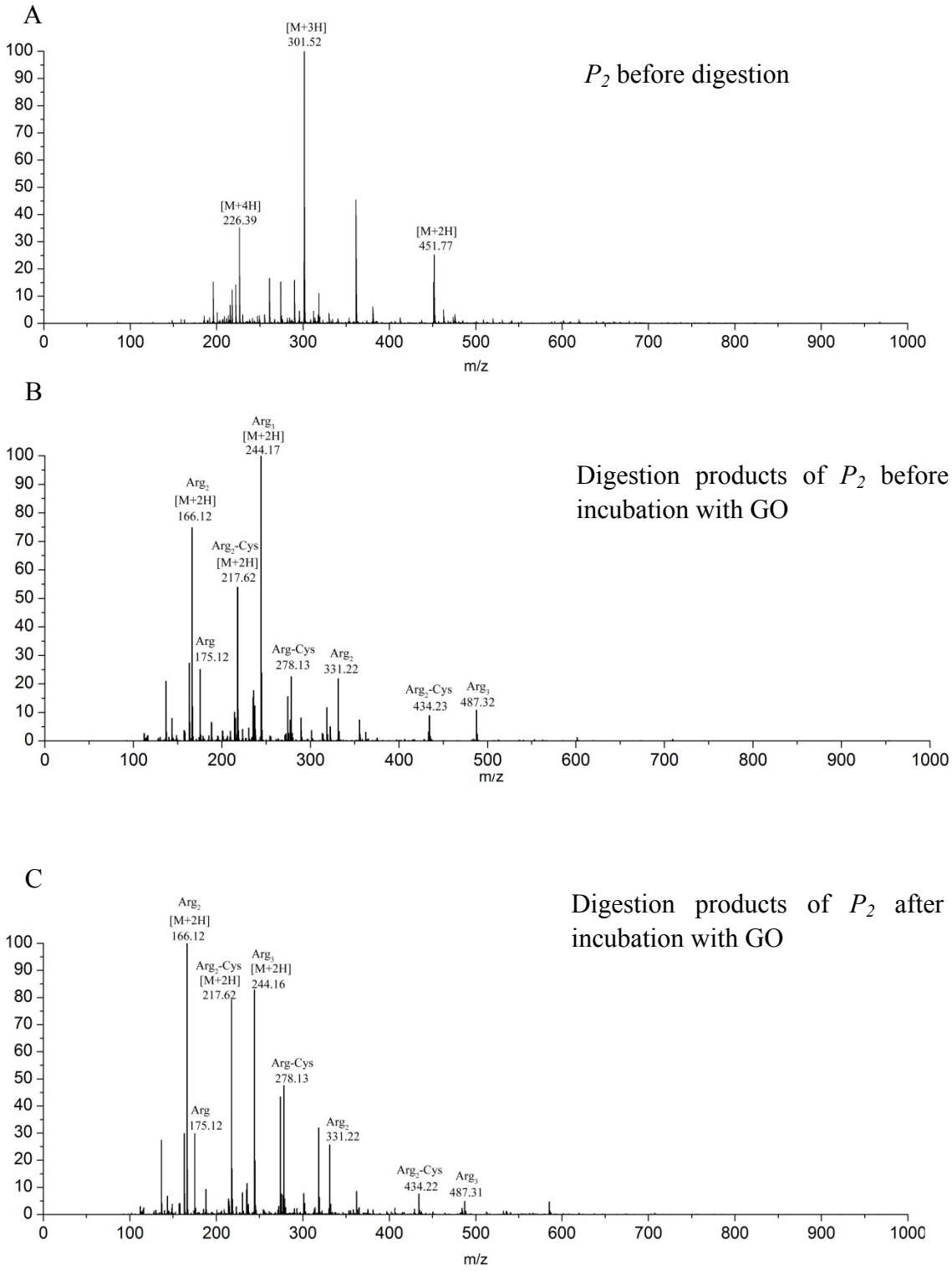

Figure S4. MS spectra of P_2 (A) and digestion products of P_2 (B, C) under different conditions. P_2 120 μM; trypsin, 10 μM; GO, 2 mg mL^{-1}.

Table S2 Comparison of assay performance and assay time for different trypsin assay methods

Analytical method	Label	Detection limit	Linear range	Assay time	Ref
Laser-induced fluorescence	HRP	0.87 ng mL^{-1}	0-580 ng mL^{-1}	26 min	S1
Fluorescent assay	label free	2 ng mL^{-1}	0.01-100 μg mL^{-1}	2 h	S2
Fluorescent assay	label free	20 ng mL^{-1}	0-450 ng mL^{-1}	6 h	S3
Electrochemical assay	electroactive species (P)	1 ng mL^{-1}	1-1000 ng mL^{-1}	2 h	S4
Electrochemical assay	label free	10 ng mL^{-1}	0.1-1000 μg mL^{-1}	2.3 h	S5
Colorimetric assay	label free	0.6 μg mL^{-1}	0.9-1000 μg mL^{-1}	2 h	S6
Colorimetric assay	label free	2 ng mL^{-1}	2.5-200 ng mL^{-1}	10 min	S7
CL detection (This work)	label free	0.18 ng mL^{-1} (7.3 pM)	0.48-240 ng mL^{-1} (0.02-10 nM)	30 min	-
CL detection	label free	0.7 ng mL^{-1}	0-100 ng mL^{-1}	60 min	S8

References

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