

Supporting Information

pH-dependent Adsorption of Peptides on Montmorillonite for Resisting UV irradiation

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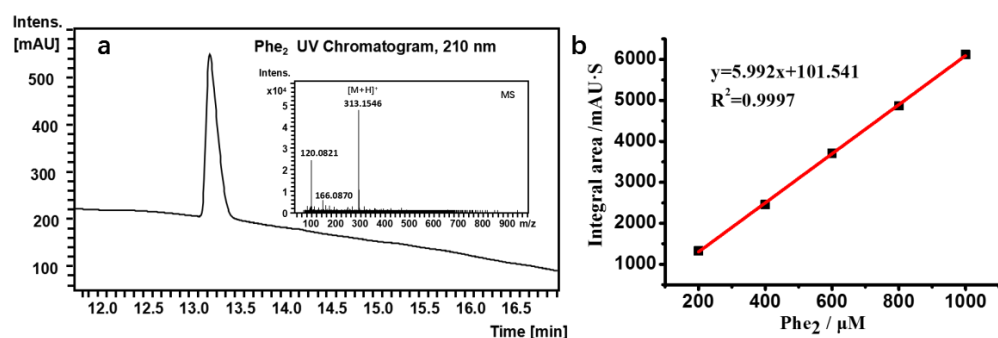


Figure S1. (a) LC-MS chromatograms recorded from the standard solution of Phe₂.

(b) Linearity curve of Phe₂.

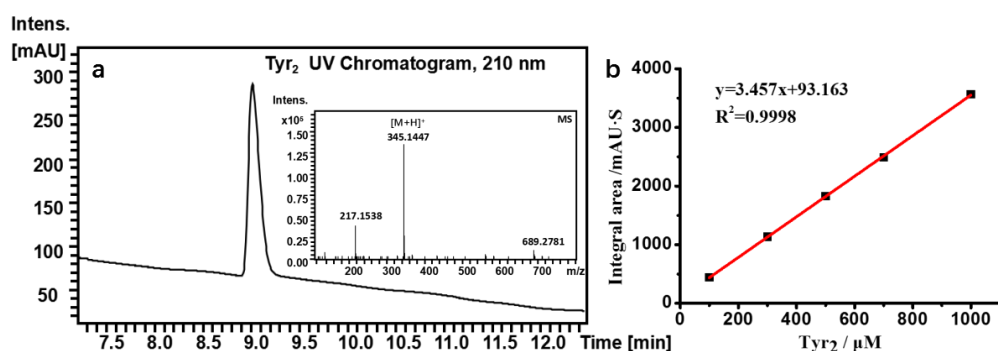


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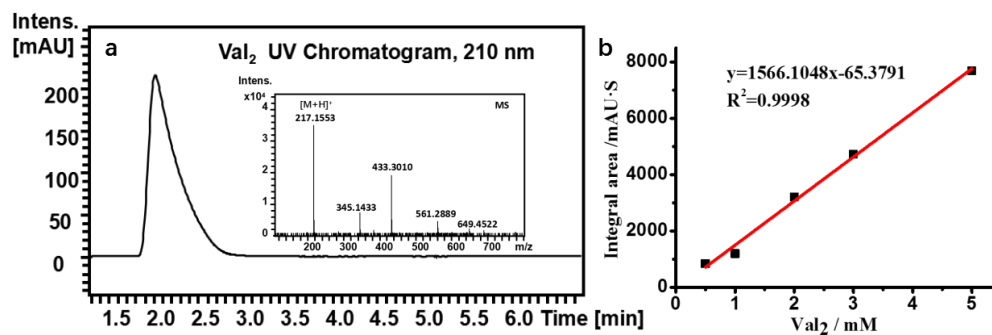


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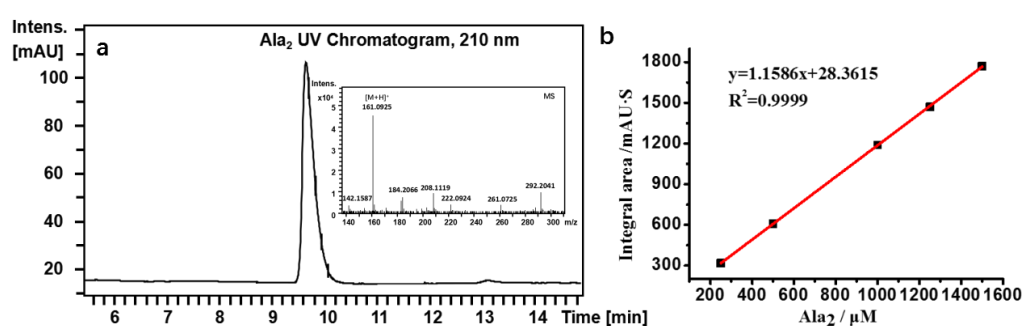


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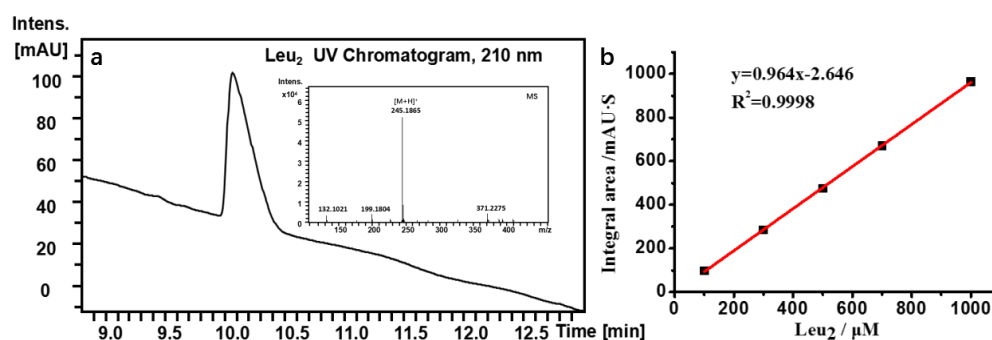


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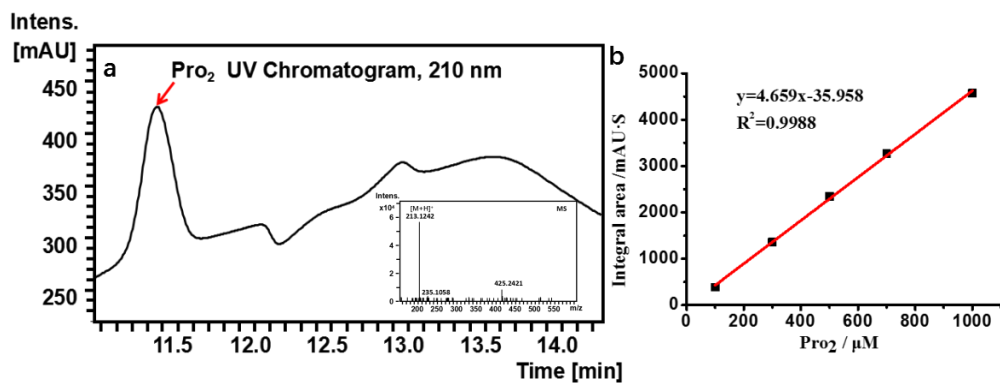


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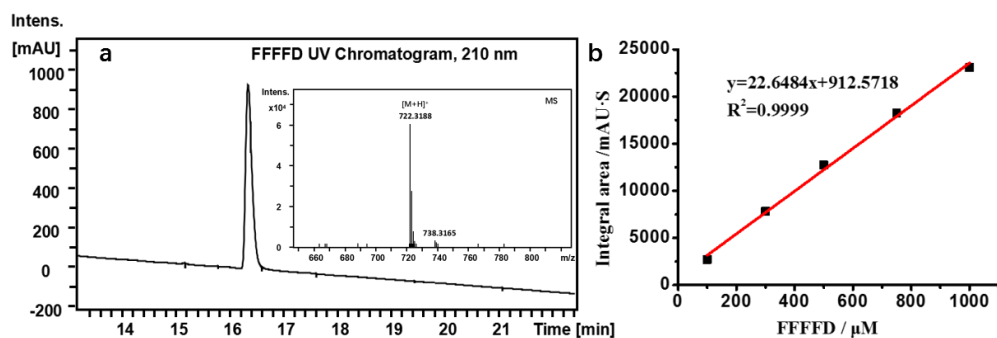


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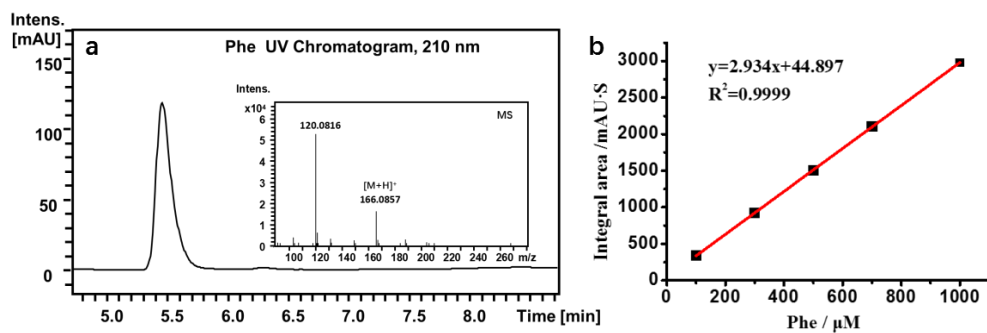


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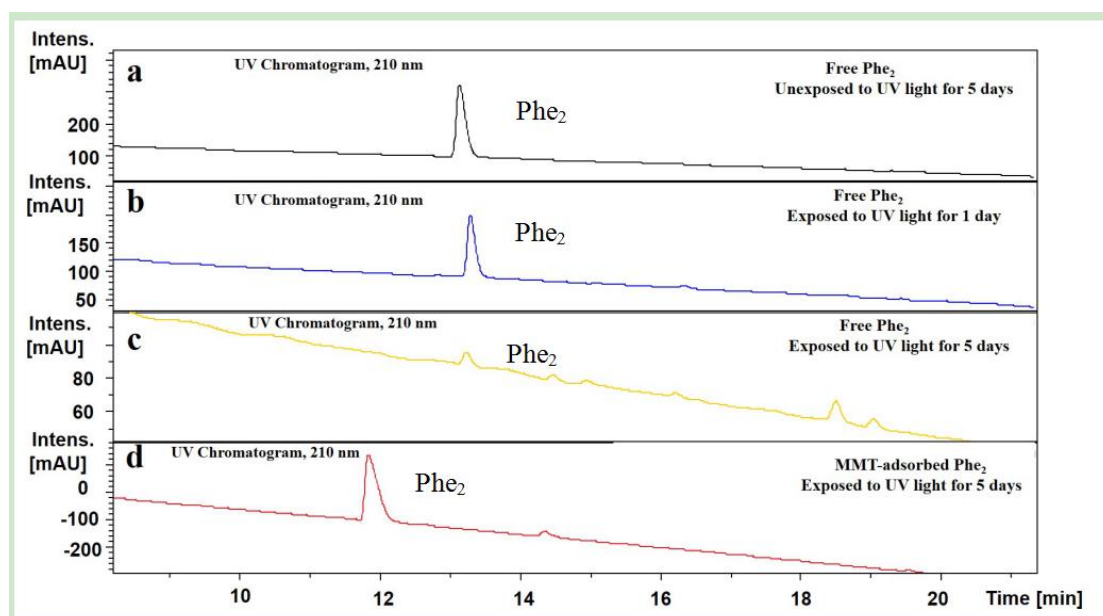


Figure S9. HPLC chromatograms of Phe₂ exposed to UV at 254 nm with and without MMT addition for 1 day and 5 days. (a) The HPLC chromatogram of free Phe₂ unexposed to UV for 5 days. (b) The HPLC chromatogram of free Phe₂ exposed to UV for 1 days. (c) The HPLC chromatogram of free Phe₂ exposed to UV for 5 days. (d) The HPLC chromatogram of MMT-adsorbed Phe₂ exposed to UV for 5 days.

Table S1. Adsorption and desorption rate of peptides on MMT at different pH for 30 min with standard deviation.

Sample name	Adsorption Rate/%		Desorption Rate /%
	pH=10	pH=3	pH=10
Phe ₂	13.45% (0.47)	97.57% (0.17)	88.41% (0.51)
Tyr ₂	2.09% (0.07)	80.25% (0.11)	97.25% (4.08)
Val ₂	5.14% (2.39)	62.36% (1.41)	96.02% (8.41)
Ala ₂	3.99% (4.06)	77.04% (1.18)	96.39% (0.34)
Leu ₂	2.51% (3.56)	62.14% (0.25)	98.23% (0.73)
Pro ₂	30.53% (0.71)	90.09% (0.48)	63.55% (2.98)
FFFFD	1.81% (0.66)	99.38% (0.012)	87.79% (0.15)
Phe	33.36% (0.63)	47.46% (1.04)	65.79% (1.65)

Note: The numbers in the brackets stand for standard deviation.

Table S2. Experimental grouping designs.

Group	pH=3	pH=10	MMT	Without MMT
1	√		√	
2	√			√
3		√	√	
4		√		√

Table S3. MMT protection of peptides under UV radiation with standard deviation.

Survival Rate/% Sample	Items	MMT-adsorbed Sample				Free Sample			
		pH=10		pH=3		pH=10		pH=3	
		1 day	5 days	1 day	5 days	1 day	5 days	1 day	5 days
Phe ₂		77.82% (3.42)	15.96% (0.25)	90.86% (0.78)	83.58% (1.79)	54.9% (4.04)	23.16% (1.72)	44.49% (2.32)	2.77% (0.25)
Tyr ₂		50.72% (1.69)	33.29% (1.20)	79.39% (0.63)	66.42% (2.67)	61.55% (4.61)	41.98% (3.09)	64.77% (0.33)	44.69% (1.26)
Val ₂		84.16% (2.08)	56.23% (1.38)						
		63.29% (8.26)	50.76% (1.67)	83.74% (0.66)	68.41% (1.34)	85.25% (2.37)	60.47% (0.87)	76.14% (2.62)	14.03% (4.22)
Ala ₂		84.55% (1.85)	27.17% (1.85)	87.43% (3.52)	79.31% (0.29)	82.76% (3.73)	19.16% (3.46)	79.63% (1.70)	15.92% (0.02)
Leu ₂		18.78% (1.59)	17.36% (1.58)	92.3% (3.89)	78.61% (0.99)	87.31% (4.89)	44.56% (3.31)	86.72% (5.54)	42.75% (5.61)
Pro ₂		73.38% (0.76)	15.45% (3.45)	46.57% (0.65)	45.41% (2.45)	21.12% (1.16)	trace	35.72% (9.39)	6.49% (1.36)
FFFFD		79.87% (1.33)	64.56% (3.43)	80.36% (6.26)	53.3% (14.20)	17.87% (8.31)	3.55% (1.48)	31.49% (3.53)	4.27% (1.60)
Phe				88.41% (0.58)	75.52% (0.93)	7.5% (0.33)	1.49% (0.56)	86.83% (3.67)	70.63% (7.12)

Note: The numbers in the brackets stand for standard deviation.