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Supplementary Information

Detection of chymase activity using the specific peptide probe conjugated onto gold nanoparticles

Hui-Fang Chang[† a b], Yu-Ling Sun[† c], Fang-Yuan Yeh[a], I-Hua Tseng[a], Chia-Chu Chang[d e] and Chih-Sheng Lin[a]

[a] Department of Biological Science and Technology, National Chiao Tung University, Hsinchu, Taiwan

[b] Division of Endocrinology, Department of Internal Medicine, Hsinchu Mackay Memorial Hospital, Hsinchu, Taiwan

[c] Aquatic Technology Laboratories, Agricultural Technology Research Institute, Hsinchu, Taiwan

[d] School of Medicine, Chung-Shan Medical University, Taichung, Taiwan

[e] Department of Internal Medicine, Changhua Christian Hospital, Changhua, Taiwan

[†] These authors contributed equally to the manuscript.

Correspondence should be addressed to Chih-Sheng Lin (lincs@mail.nctu.edu.tw).

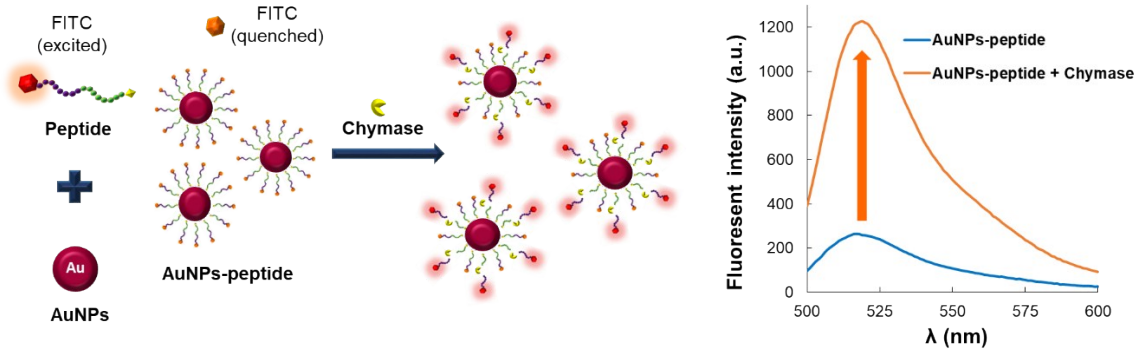

Figure S1. Illustration of the AuNPs-peptide probe catalyzed by chymase. The peptide labeled with FITC was modified onto the AuNPs in advance. Due to the quenching effect of AuNPs, there was only slight fluorescent signals detected. After the treatment of chymase, the peptide substrate was catalyzed by chymase and drifted away from the surface of AuNPs. The distance-dependent quenching effect decreased and the fluorescent signal was significantly recovered.

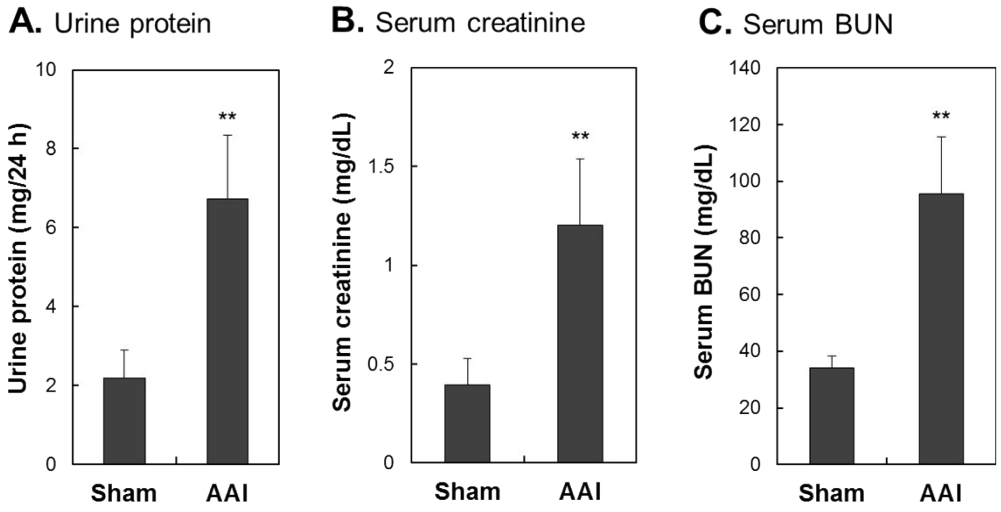

Figure S2. Urine and serum biochemical determinations of the Sham and AAI-induced nephropathy mice. The changes of urine protein **(A)**, serum creatinine **(B)** and serum BUN **(C)** levels were determined in the Sham mice and AAI-treated mice. All of values were expressed as the mean ± SD from each group (n = 9). ** indicates $p < 0.01$ compared with the Sham group.

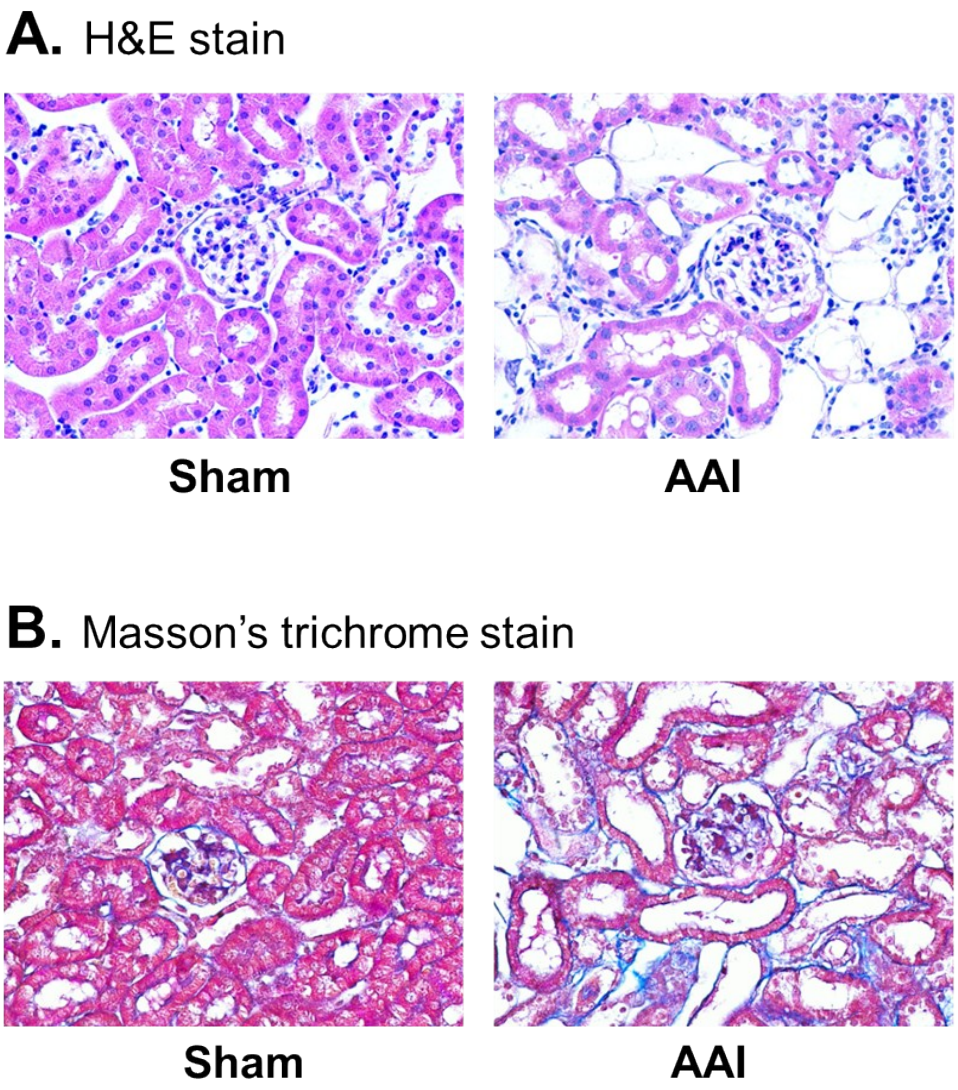

Figure S3. Pathologic findings of the Sham and AAI-induced nephropathy mice. The Hematoxylin-eosin (H&E) **(A)** and Masson's trichrome **(B)** stained kidney tissue sections were from the Sham mice and AAI-treated mice. Compared with the sham group, the AAI group showed severe white blood cells infiltration, intrarenal fibrosis (blue color by trichrome stained) and severe interstitial tissue damage.

Table S1. The characteristics of the peptide

Mw of peptide	pI of peptide	Charge of peptide	Attribute of peptide
1975.06	3.98	-3	Acidic
Peptide sequence		DRVYIHPFHLDDDDDC	
Cleavage site of peptide		(F) Phe -|- (H) His	
Peptide treated with chymase		DRVYIHPF -|- HLDDDDDC	

Table S2. The chymase activity in different tissue homogenates of normal C57BL/6 mice (n = 9)

Tissue	Chymase activity
Heart	4.25 ± 0.25 [a]
Liver	2.02 ± 0.17 [a]
Spleen	3.16 ± 0.53 [a]
Lung	8.31 ± 1.19 [a]
Kidney	5.35 ± 1.26 [a]
Testis	4.62 ± 0.94 [a]
Brain	12.18 ± 2.38 [a]
Serum	10.09 ± 1.60 [b]

[a] Chymase activity is μg/g protein of tissue homogenate.

[b] Chymase activity is ng/mL of blood.