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Supporting information

Detection of target collagen peptides with single amino acid mutation using two fluorescent peptide probes

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Table S1. Design of the probe and target host-guest peptides.

Type	Amino Acid Sequence	Function
P^1	FAM-G$(POG)_{10}$	Probe
P^2	FAM-G$(PRGPOG)_5$	
G	G$(POG)_4$POG$(POG)_5$	Host-guest
A	G$(POG)_4$POA$(POG)_5$	
S	G$(POG)_4$POS$(POG)_5$	
R	G$(POG)_4$POR$(POG)_5$	

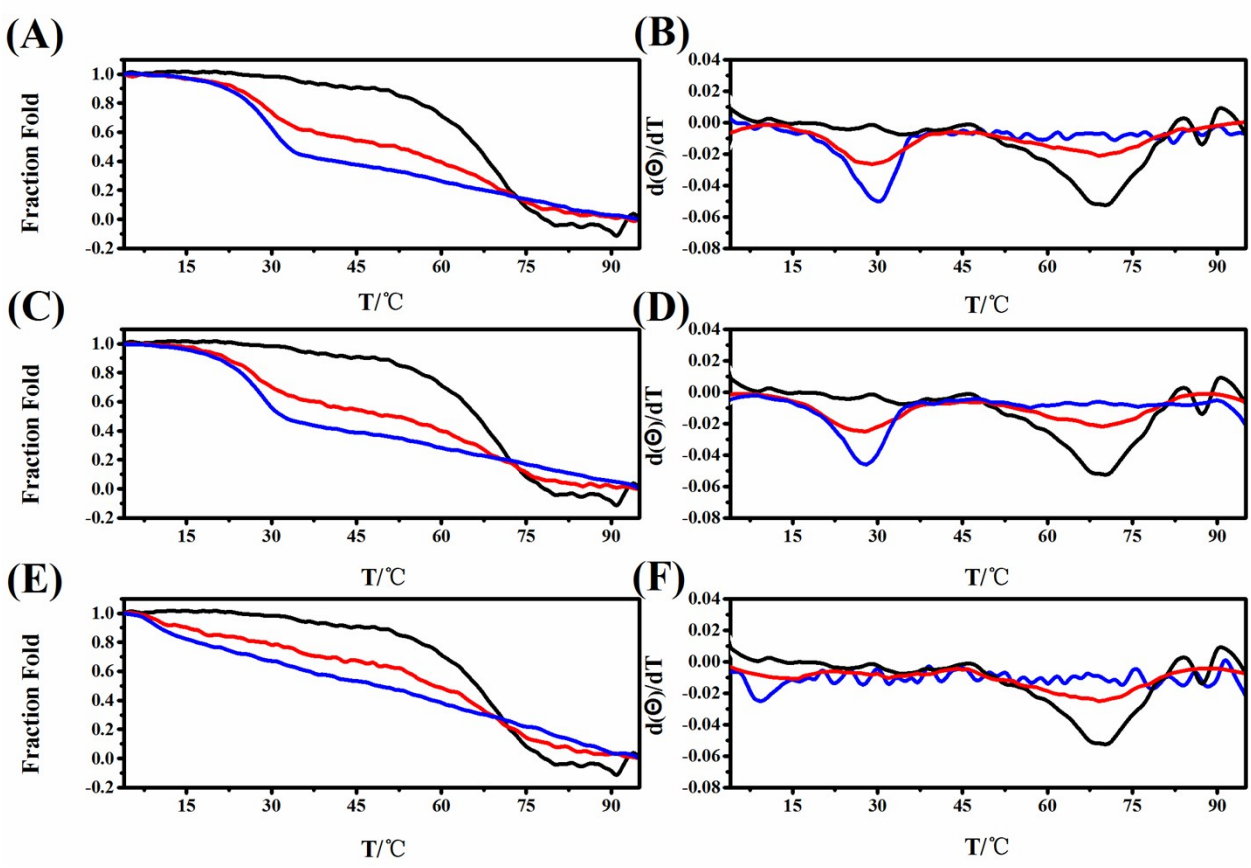

Figure S1. CD characterization of the mixtures of the probe peptide P^1 hybridized with various mutation peptides. CD thermal transitions (A) and the first derivative (d(MRE)/dT) (B) of the thermal transition curves of homotrimer P^1 (black), homotrimer A (blue) and the $1P^1$:2A mixture (red). CD thermal transitions (C) and the first derivative (d(MRE)/dT) (D) of the thermal transition curves of homotrimer P^1 (black), homotrimer S (blue) and the $1P^1$:2S mixture (red). CD thermal transitions (E) and the first derivative (d(MRE)/dT) (F) of the thermal transition curves of homotrimer P^1 (black), homotrimer R (blue) and the $1P^1$:2R mixture (red). The mixtures of peptide P^1 and each mutation peptide at a molar ratio of 1:2 (300 μM:600 μM) were prepared in 20 mM PBS buffer, pH 7.4, heated at 90 °C for 20 min, and then incubated at 4 °C for >24 hrs to drive the formation of heterotrimer. Solutions of each peptide alone were treated in a similar manner to produce homotrimers. Melting transitions were monitored by CD spectroscopy at 225 nm.

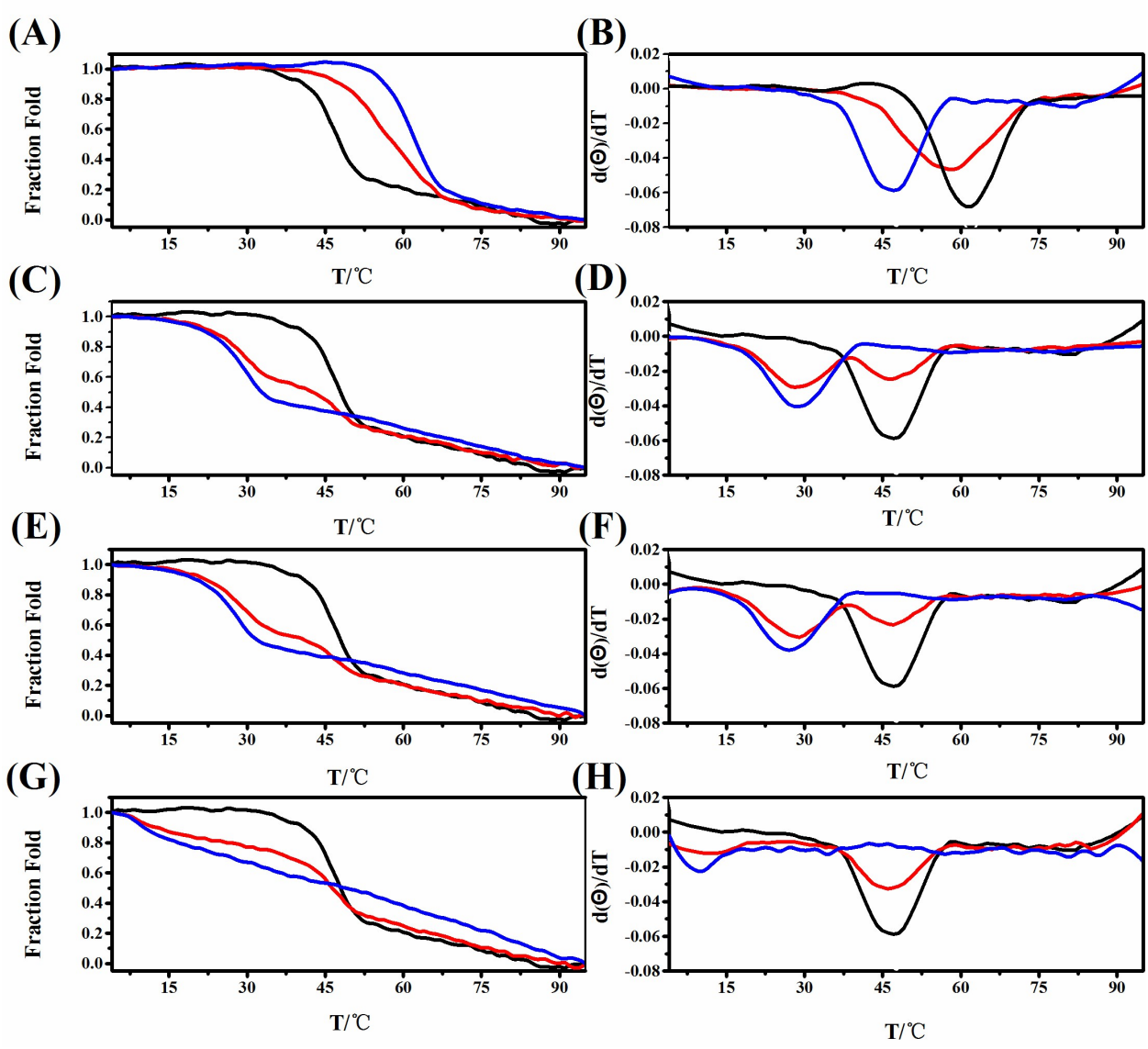

Figure S2. CD characterization of the mixtures of the probe peptide P^2 hybridized with the target peptides. CD thermal transitions (A) and the first derivative (d(MRE)/dT) (B) of the thermal transition curves of homotrimer P^2 (black), homotrimer G (blue) and the $1P^2$:2G mixture (red). CD thermal transitions (C) and the first derivative (d(MRE)/dT) (D) of the thermal transition curves of homotrimer P^2 (black), homotrimer A (blue) and the $1P^2$:2A mixture (red). CD thermal transitions (E) and the first derivative (d(MRE)/dT) (F) of the thermal transition curves of homotrimer P^2 (black), homotrimer S (blue) and the $1P^2$:2Smixture (red). CD thermal transitions (G) and the first derivative (d(MRE)/dT) (H) of the thermal transition curves of homotrimer P^2 (black), homotrimer R (blue) and the $1P^2$:2R mixture (red). The mixtures of peptide P^2 and each target peptide at a molar ratio of 1:2 (300

μM:600 μM) were prepared in 20 mM PBS buffer, pH 7.4, heated at 90 °C for 20 min, and then incubated at 4 °C for >24 hrs to drive the formation of heterotrimer. Solutions of each peptide alone were treated in a similar manner to produce homotrimers. Melting transitions were monitored by CD spectroscopy at 225 nm.