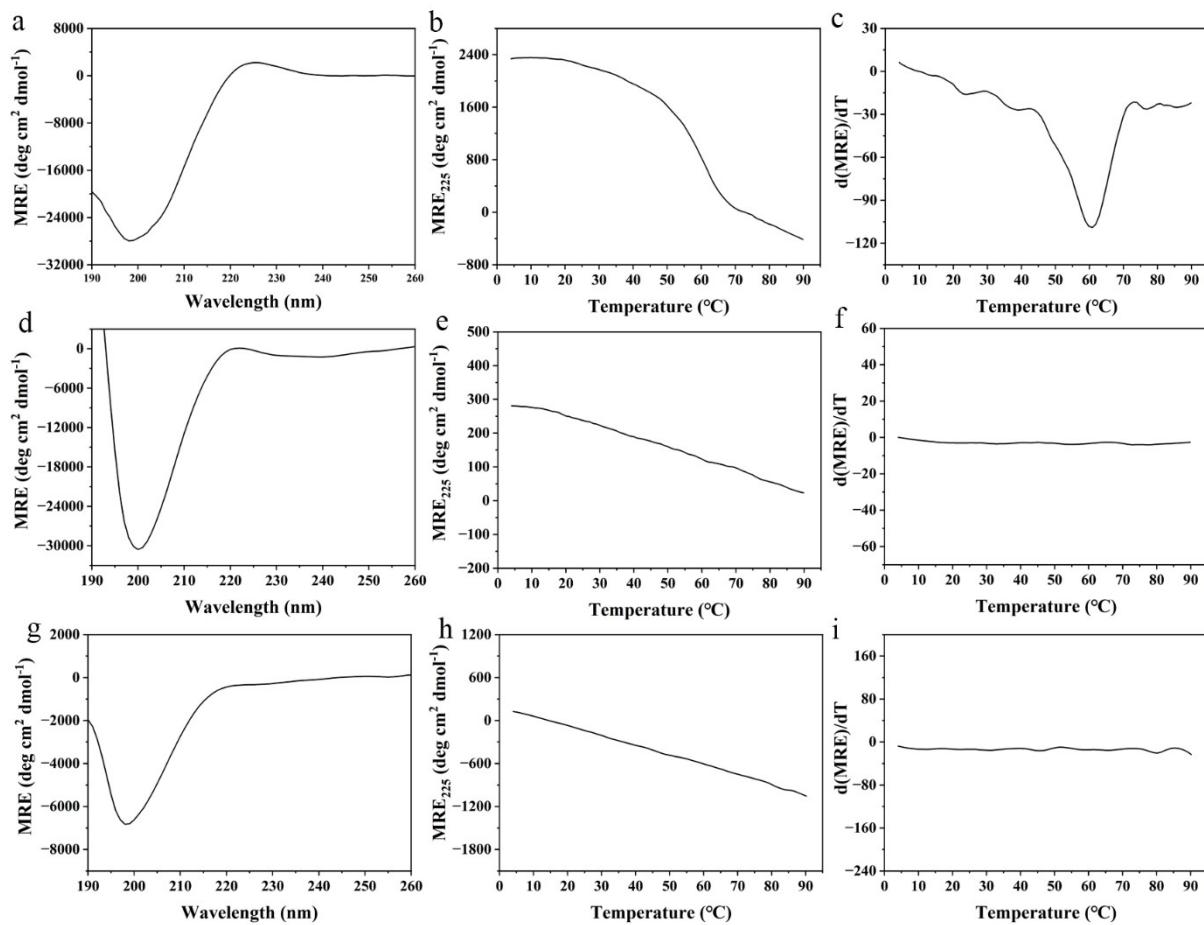


## Supplementary Information

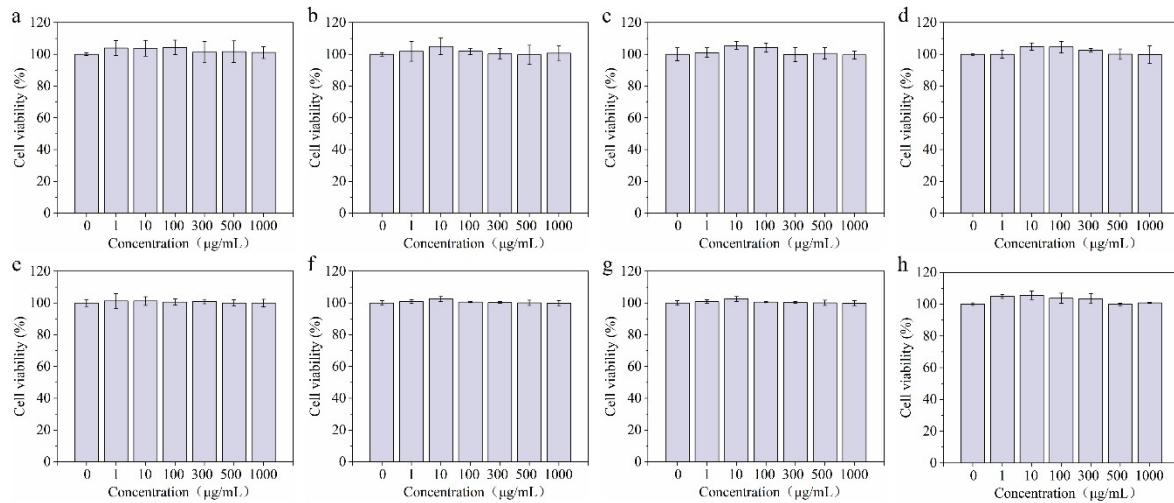
# Highly bioactive triple-helical nano collagens for accelerated treatment of photodamaged skin

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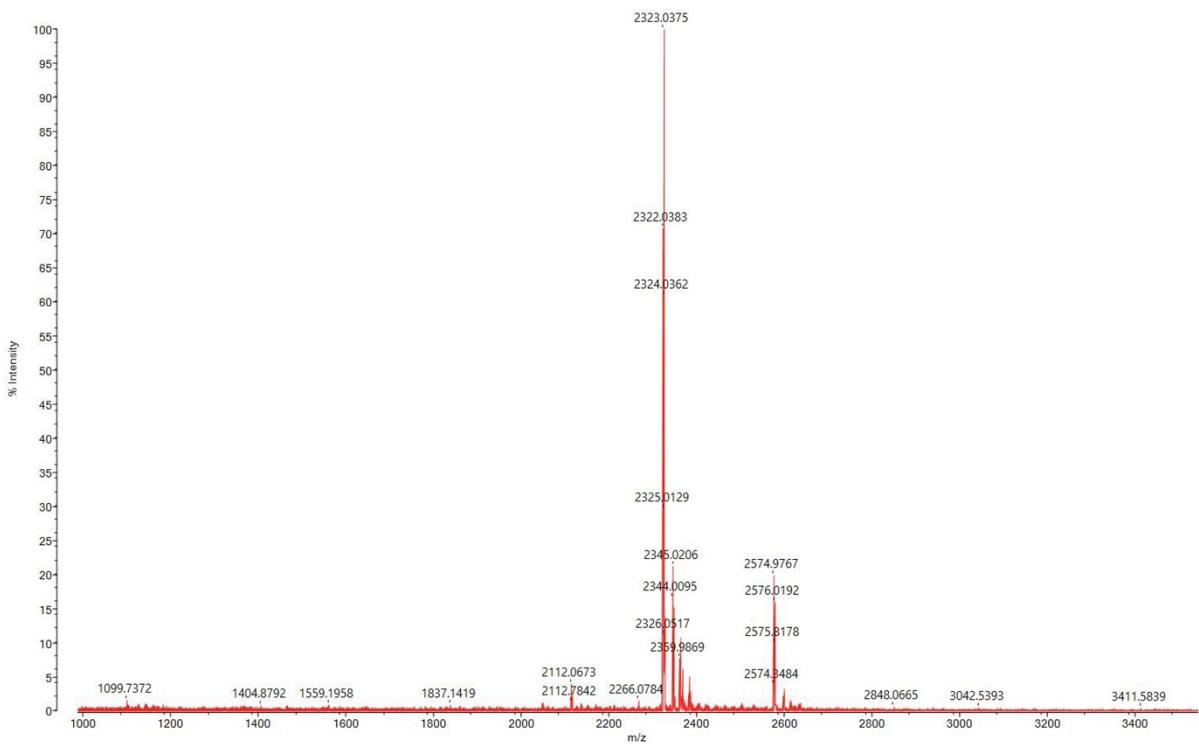
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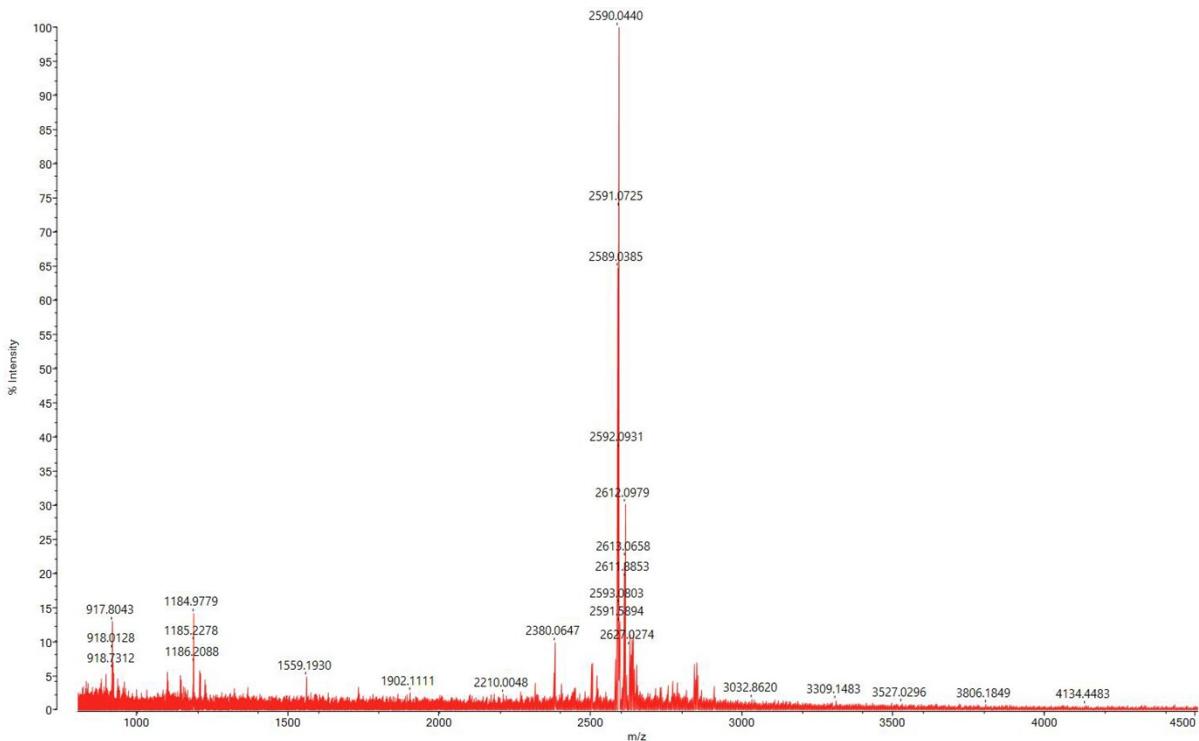
**Fig. S1** The thermal stability characterization of STP (a-c), SMP (d-f) and HCP (g-i). CD spectra (a, d, g), CD thermal unfolding (b, e, h) and the first derivative (d(MRE)/dT) of the thermal unfolding curves (c, f, i).



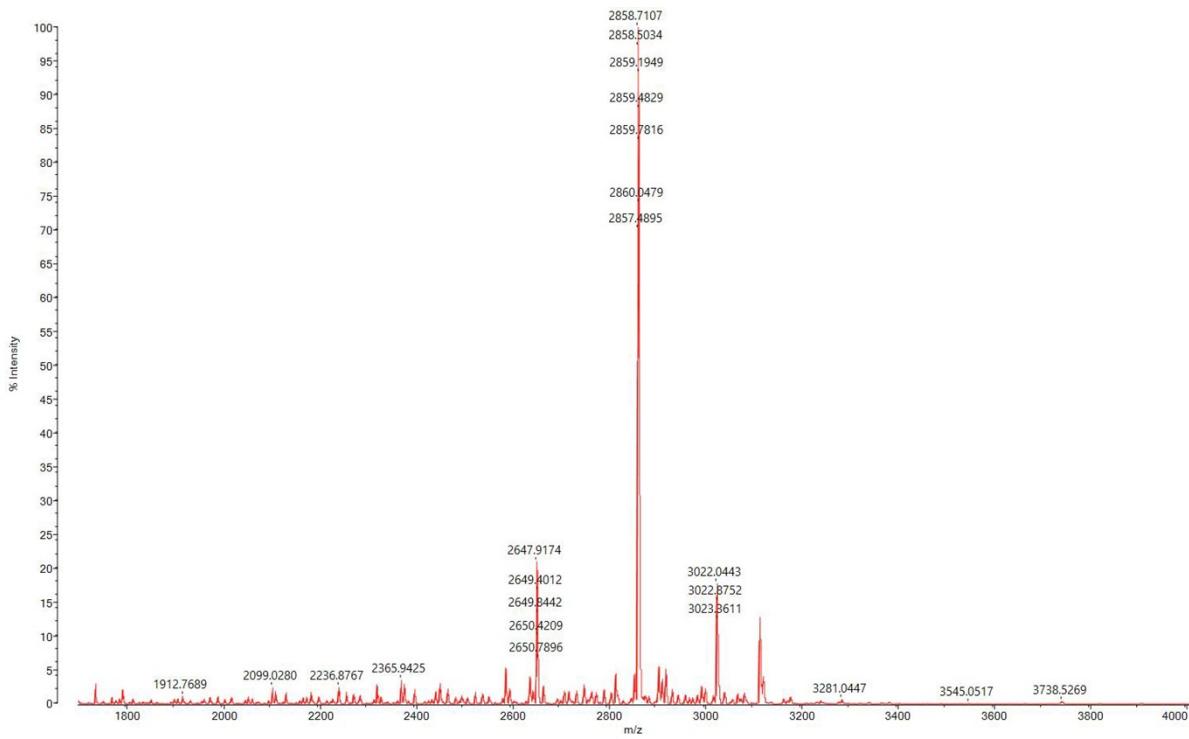
**Fig. S2** In vitro cytotoxicity of NC-1 (a), NC-2 (b), NC-3 (c), NC-4 (d), SMP (e), STP (f), HCP (g) and Col (h) groups at various concentration (0, 1, 10, 100, 300, 500 and 1000 µg/mL).



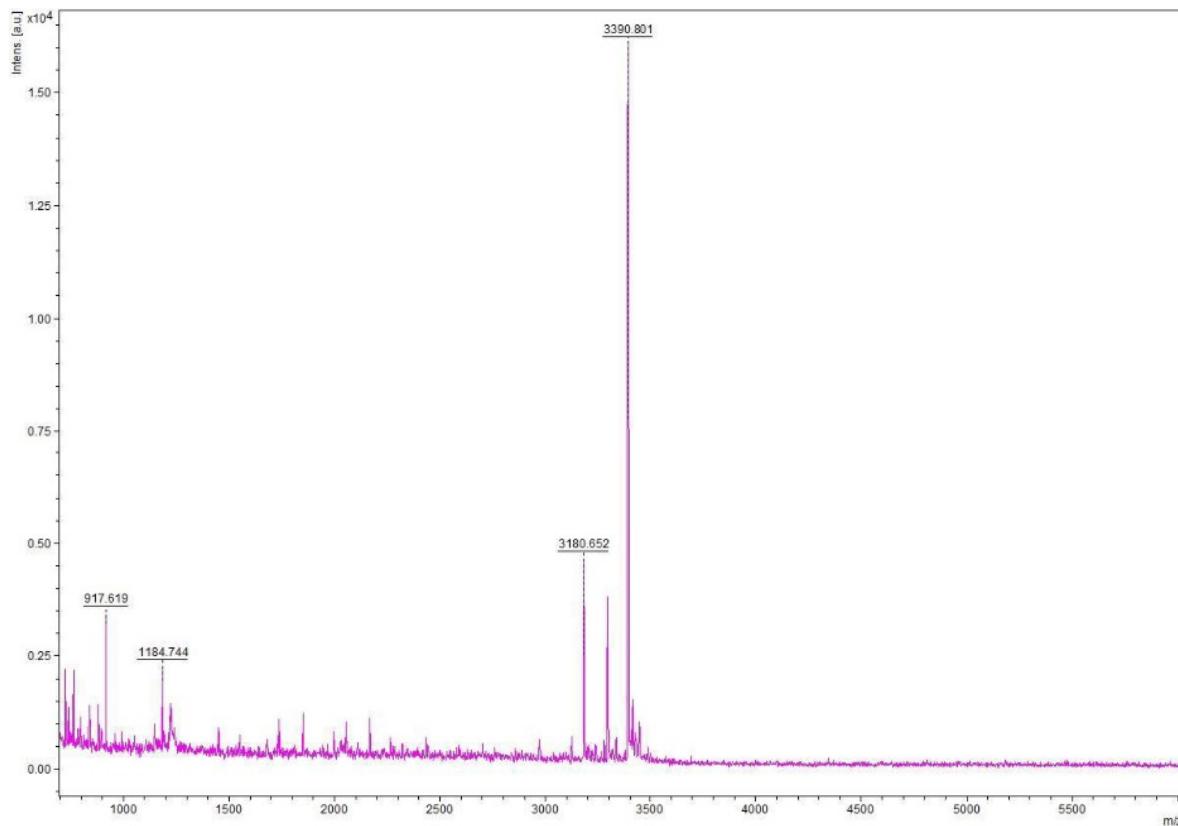
**Fig. S3** Mass spectrometry characterization of NC-1 with the sequence (GPO)<sub>3</sub>GFOGER(GPO)<sub>3</sub>.



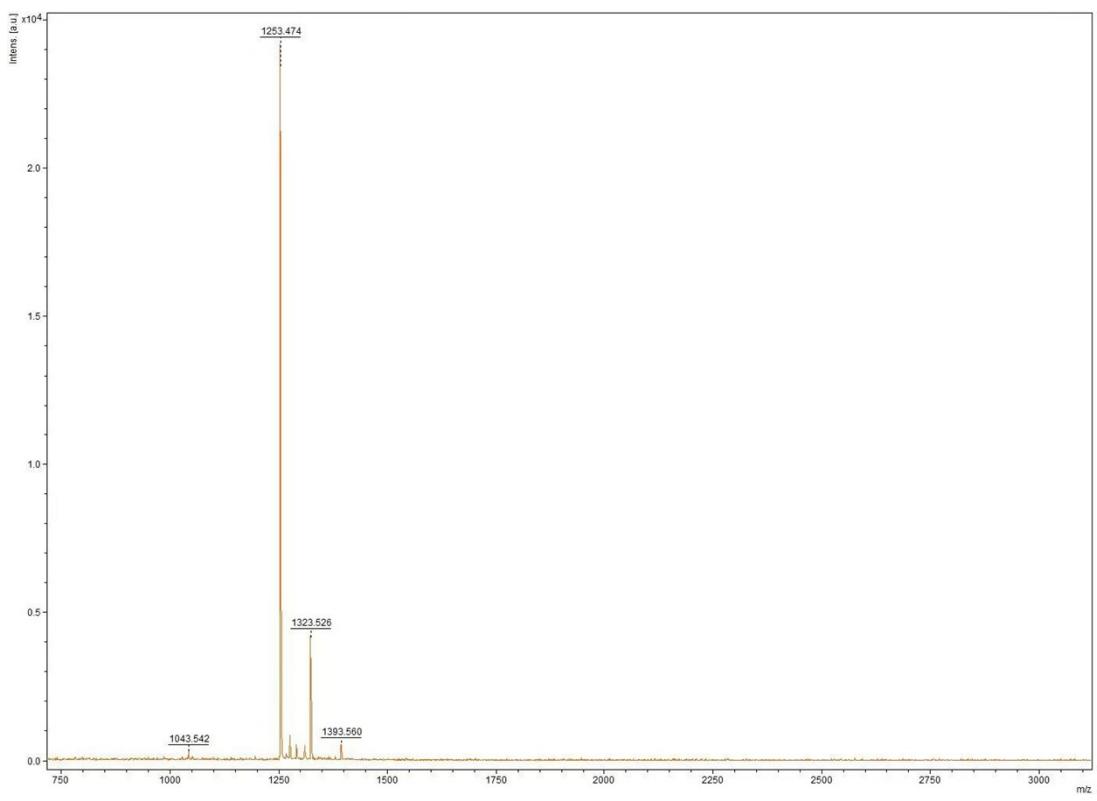
**Fig. S4** Mass spectrometry characterization of NC-2 with the sequence (GPO)<sub>3</sub>GFOGER(GPO)<sub>4</sub>.



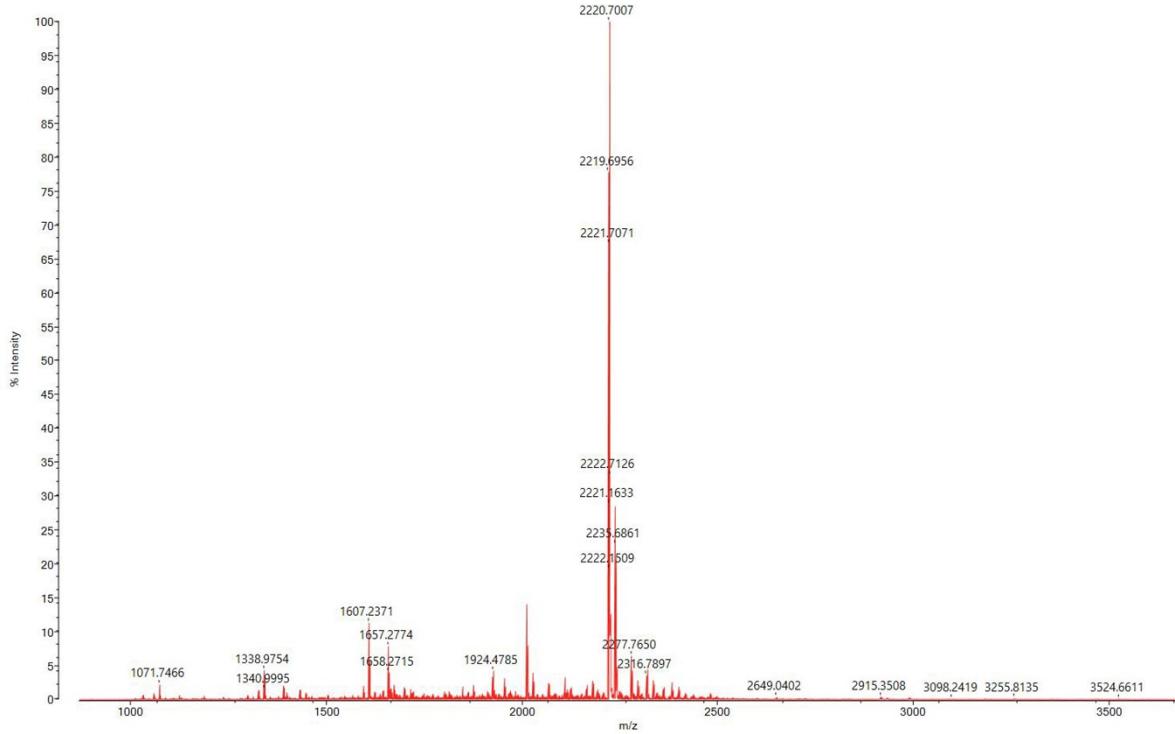
**Fig. S5** Mass spectrometry characterization of NC-3 with the sequence (GPO)<sub>4</sub>GFOGER(GPO)<sub>4</sub>.



**Fig. S6** Mass spectrometry characterization of NC-4 with the sequence (GPO)<sub>5</sub>GFOGER(GPO)<sub>5</sub>.



**Fig. S7** Mass spectrometry characterization of SMP with the sequence GPOGFOGERGPO.



**Fig. S8** Mass spectrometry characterization of STP with the sequence  $(GPO)_8$ .