Electronic Supplementary Material (ESI) for RSC Advances.

Table S1. The phosphopeptides from α-casein, β-casein and milk tryptic digests were identified by MALDI-TOF mass analysis.

Peak Label	Number of phosphorylation	$[M+H]^+$	Peptide sequence	Type of material used
α-casein				
α1	1	1237.4	TVDME<u>S</u>TEVF	(1) (3)
α2	1	1253.5	TVDM^{o}E<u>S</u>TEVF	
α3	1	1466.6	TVDME<u>S</u>TEVFTK	(1)(2)(3)
α4	1	1482.6	TVDM^{o}E<u>S</u>TEVFTK	(1)(2)(3)
α5	2	1539.7	EQL<u>S</u>T<u>S</u>EENSKK	(1)(2)(3)
α6	1	1660.8	VPQLEIVPN<u>S</u>AEER	(1)(2)(3)
α7	1	1833.8	YLGEYLIVPN<u>S</u>AEER	(1)(2)(3)
α8	1	1847.6	DIGSE<u>S</u>TEDQAMEDIK	(1)(2)(3)
α9	2	1927.7	DIG<u>S</u>E<u>S</u>TEDQAMEDIK	(1)(2)(3)
α10	2	1943.7	DIG<u>S</u>E<u>S</u>TEDQAM^{o}EDIK	(1)(2)(3)
α11	1	1952.0	YKVPQLEIVPN<u>S</u>AEER	(1)(2)(3)
α12	1	2080.0	KYKVPQLEIVPN<u>S</u>AEER	
α13	4	2619.0	NTMEHV<u>SSS</u>EESII<u>S</u>QETYK	(1)(2)(3)
α14	4	2635.8	NTM^{o}EHV<u>SSS</u>EESII<u>S</u>QETYK	
α15	3	2678.0	VNEL<u>S</u>KDIG<u>S</u>E<u>S</u>TEDQAMEDIK	
α16	3	2695.0	VNEL<u>S</u>KDIG<u>S</u>E<u>S</u>TEDQAM^{o}EDIK	
α17	5	2703.5	Q*MEAE<u>S</u>I<u>SSS</u>EEIVPN<u>S</u>VEQK	(1)(2)(3)
α18	5	2720.9	QMEAE<u>S</u>I<u>SSS</u>EEIVPN<u>S</u>VEQK	(1)(2)(3)
α19	4	2747.1	NTMEHV<u>SSS</u>EE<u>S</u>IISQETYKQ	(1)(2)(3)
α20	3	2935.1	EKVNEL<u>S</u>KDIG<u>S</u>E<u>S</u>TEDQAMEDIK	(1)
α21	4	3008.0	NANEEEYSIG<u>SSS</u>EE<u>S</u>AEVATEEVK	(1)(2)(3)
α22	5	3088.0	NANEEEY<u>S</u>IG<u>SSS</u>EE<u>S</u>AEVATEEVK	(1) (3)
β-casein				
β1	1	2061.8	FQ<u>S</u>EEQQQTEDELQDK	(1)(2)(3)
β2	4	2353.8	NVPGEIVE<u>S</u>L<u>SSS</u>EESITR	(1)
β3	1	2432.0	IEKFQ<u>S</u>EEQQQTEDELQDK	
β4	1	2556.1	FQ<u>S</u>EEQQQTEDELQDKIHPF	(1)(2)(3)
β5	4	3122.3	RELEELNVPGEIVE<u>S</u>L<u>SSS</u>EESITR	(1)(2)(3)

<u>S</u>: Phosphorylated site; M^o: oxidation on methionine;
Tryptic digests of non-fat milk was captured by (1) GHOC; (2) GTOC; (3) GZOC.

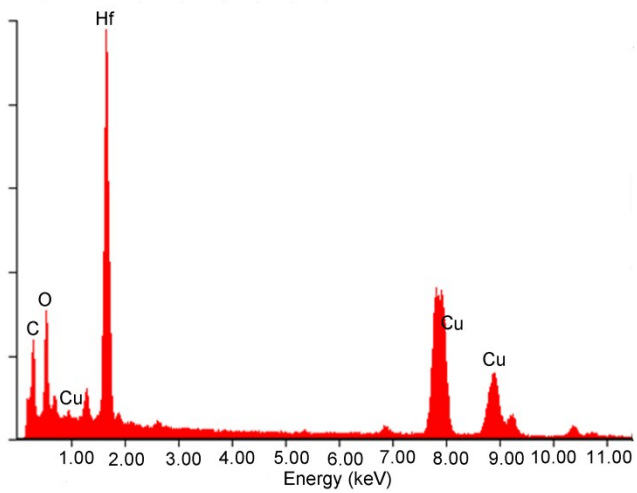

Fig. S1 Energy-dispersive X-ray analysis (EDXA) image of the GHOC.

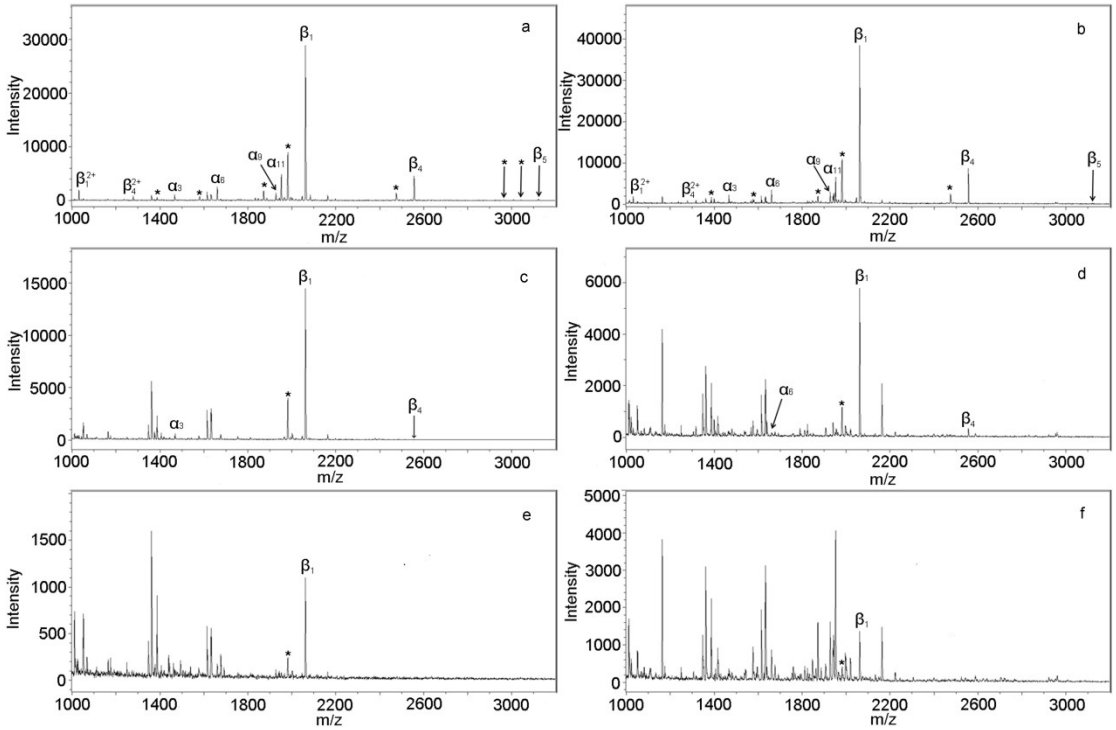

Fig. S2 MALDI-TOF mass spectra of the peptides from the mixtures of BSA and β-casein at a molar ratio of 1 : 10 enriched with (a) GTOC, (b) GZOC; the 1 : 100 mixtures enriched with (c) GTOC, (d) GZOC; The 1 : 1000 mixtures enriched with (e) GTOC, (f) GZOC. The metastable losses of phosphoric acid are labeled with *.