

Synergistic effect of L-carnosine and hyaluronic acid in their covalent conjugates on the antioxidant abilities and the mutual defense against enzymatic degradation

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SUPPORTING INFORMATION

Table S1. List of the hydrolytic fragments formed by the HyAse-mediated digestion (24 h) of HyCar20. The species report the number of the Hy repetitive units (HA) and that of carnosine (Car).

Species	Exp. MW	Theor. MW	Δm	ppm
HA ₃	1155.345	1155.345	0.000	0
HA ₃ Car	1363.445	1363.441	0.004	3
HA ₄	1534.460	1534.456	0.004	2
HA ₃ Car-GlcA	1539.475	1539.473	0.002	1
HA ₄ Car	1742.550	1742.552	-0.002	-1
HA ₄ Car ₂	1950.630	1950.648	-0.018	-9
HA ₅ Car	2121.630	2121.664	-0.034	-16
HA ₅ Car ₂	2329.760	2329.760	0.000	0
HA ₆ Car ₂	2708.880	2708.871	0.009	3
HA ₇ Car ₂	3087.949	3087.983	-0.034	-11
HA ₇ Car ₃	3296.121	3296.079	0.042	13
HA ₈ Car ₃	3675.129	3675.190	-0.061	-17
HA ₈ Car ₄	3883.289	3883.286	0.003	1
HA ₉ Car ₃	4054.301	4054.302	-0.001	0
HA ₉ Car ₄	4262.402	4262.398	0.004	1
HA ₉ Car ₅	4470.437	4470.494	-0.057	-13
HA ₁₀ Car ₄	4641.517	4641.509	0.007	2
HA ₁₀ Car ₅	4849.723	4849.605	0.117	24
HA ₁₁ Car ₄	5020.629	5020.621	0.008	2
HA ₁₀ Car ₆	5057.589	5057.701	-0.112	-22
HA ₁₁ Car ₅	5228.648	5228.717	-0.069	-13
HA ₁₁ Car ₆	5436.750	5436.813	-0.063	-12
HA ₁₂ Car ₅	5607.673	5607.828	-0.155	-28
HA ₁₁ Car ₇	5644.967	5644.909	0.058	10
HA ₁₂ Car ₆	5816.080	5815.924	0.156	27
HA ₁₃ Car ₅	5987.081	5986.940	0.141	24
HA ₁₂ Car ₇	6024.029	6024.020	0.009	1
HA ₁₃ Car ₆	6194.944	6195.036	-0.092	-15
HA ₁₃ Car ₇	6403.036	6403.132	-0.096	-15
HA ₁₄ Car ₆	6574.226	6574.147	0.079	12
HA ₁₃ Car ₈	6611.243	6611.228	0.015	2
HA ₁₄ Car ₇	6782.258	6782.243	0.015	2
HA ₁₄ Car ₈	6990.150	6990.339	-0.189	-27
HA ₁₅ Car ₇	7161.208	7161.355	0.853	-20
HA ₁₅ Car ₈	7369.314	7369.451	-0.137	-19
HA ₁₅ Car ₉	7577.445	7577.547	-0.102	-13
HA ₁₆ Car ₈	7748.605	7748.562	0.043	6
HA ₁₆ Car ₉	7956.788	7956.658	0.130	16
HA ₁₇ Car ₉	8335.607	8335.770	-0.163	-20

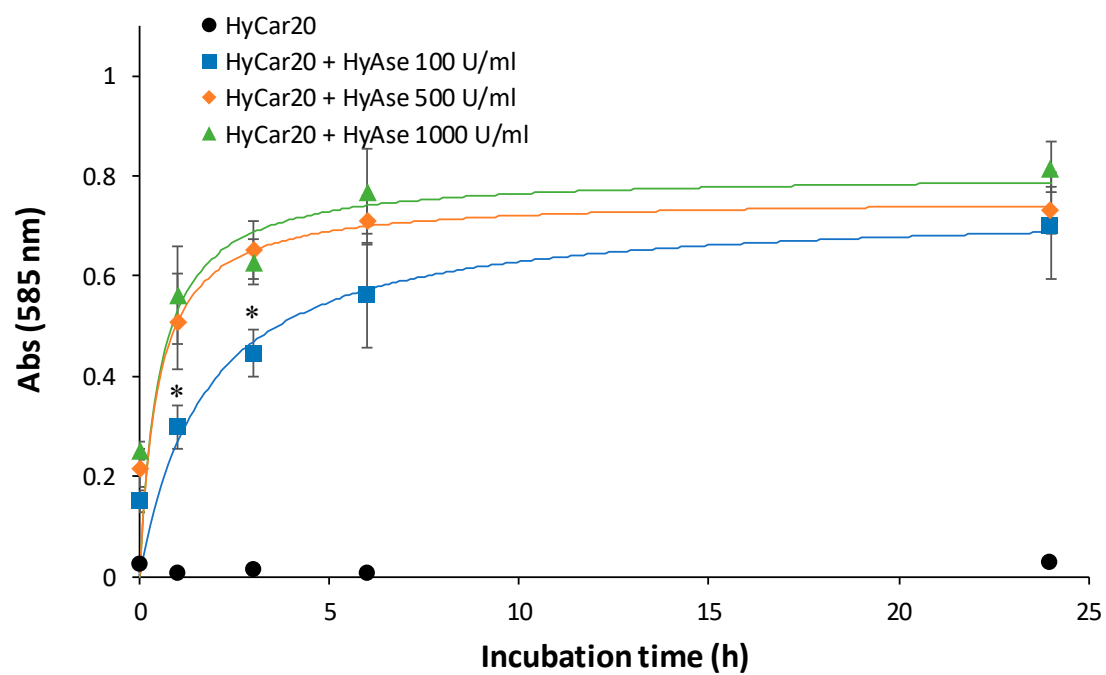


Figure S1. Enzymatic hydrolysis of HyCar20 (10 μ M) catalyzed by HyAse (100-1000 U/ml). HyCar20 sample refers to the incubation of HyCar20 alone. (* $p < 0.005$ vs other samples at the same incubation time).

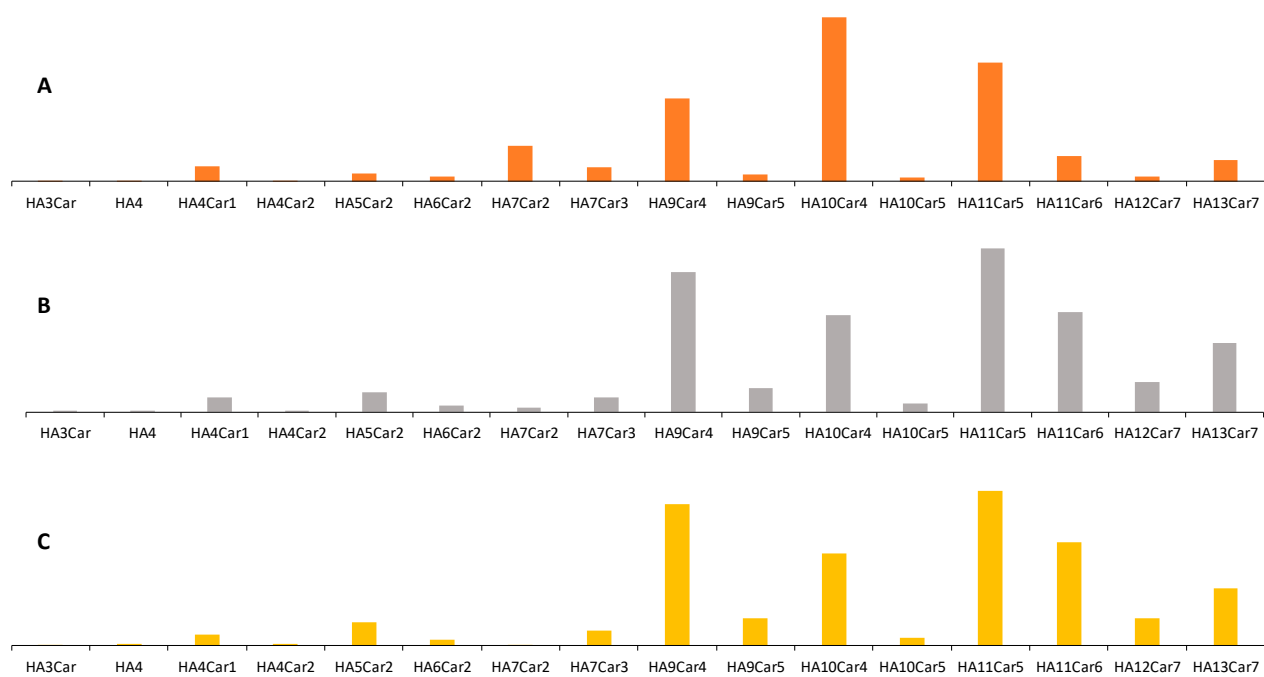


Figure S2. Relative intensities of the detected fragments formed by hydrolysis of HyCar20 catalyzed by HyAse 100 (A), 500 (B) or 1000 (B) U/ml). The species report the number of the Hy repetitive units (HA) and that of carnosine (Car).

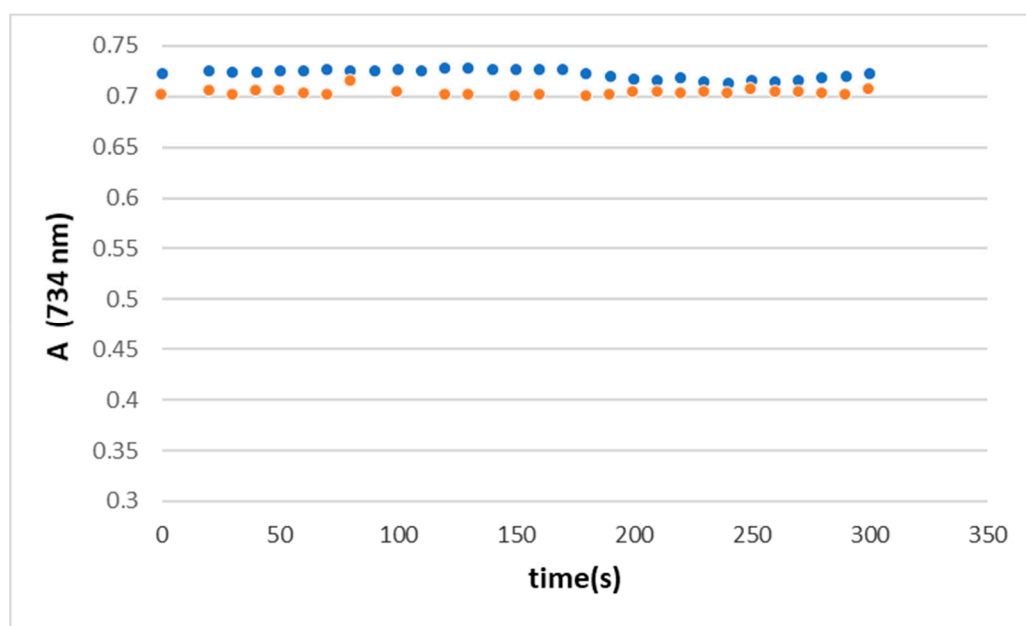


Figure S3. Effect of HyAse on the ABTS absorbance. The absorbance values at 734 nm of solutions containing ABTS alone (blue circle) or co-incubated with HyAse (200 U/ml, orange circle), monitored at room temperature until 300 s.