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Poster Sessions

The survival promoting effect of collagen peptides on differentiation of primary cultured cerebellar granule cells

Satomi Kogure¹, Hidetomo Kikuchi¹, Hiroshi Mano¹, Yosihumi Kimira¹, Naoki Inoue², Aya Matsushita², Yasuhide Hibino¹, Katsuyoshi Sunaga¹

¹Fac.Pharm.Pharmaceu.Sci.,Josai Univ., ²Nitta Gelatin Inc.

Gelatin can be enzymatically hydrolyzed to yield collagen hydrolysates potentially applicable in the food industry. When collagen hydrolysates are ingested, several di- and tri-peptides (collagen peptide, CP) with various physiological activities are detected in human blood. We investigated whether CPs exert trophic effects on the differentiation of primary cultured cerebellar granule cells (CGC), using the MTT assay. Addition of specific tripeptides (TP-X) contained in the collagen hydrolysate in differentiating CGC cultures prevented extensive neuronal degeneration, which was observed in growth media containing low potassium (15 mM, K15). When CGC was cultured in K15, the cell viability was 64.4% relative to high potassium (25 mM) at 7 days *in vitro*. Under this condition, TP-X (10 μ M) increased cell survival up to 76.6%. The effect was similar to the neuroprotective effect resulting from supplementation with 100 ng/mL brain-derived neurotrophic factor (76.5%) or 100 μ M N-methyl-D-aspartate (97.2%). Currently, the mechanism underlying TP-X-mediated neuronal survival is unclear. Various functions of CP in skin, cartilage, and bone have been reported previously, and the present study further suggests a new possibility of improvement of cranial nerve function upon treatment with CP.