

Neural differentiation by sound and ultra sound in cultured human neuronal cells

박정극*, 김희진¹, 서영권

동국대학교; ¹동국대학교 생명과학연구원

(jkpark@dongguk.edu*)

Retinoic acid (RA), an active metabolite of vitamin A, is a natural morphogen involved in development and differentiation of the nervous system. The human SH-SY5Y cell line is an established model for RA-induced neural differentiation. In the present study, we applied sound and ultra sound to the neurons and analyzed the morphology of newly formed neuronal processes. The establishment of this process was followed by the mRNA and protein levels of neuron-specific markers, including MAP2, NeuroD1, NF-L, and Tau. Also, their constituent proteins were characterized by immunohistological staining using NF-L and Tau antibodies. Our results suggest that the application of sound and ultra sound can be used to modulate the neurite formation in cultured human neuronal cells.