The role of sodium channel protein for the involvement of cytological features of dissociated neurons

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Summary

The present study was undertaken to investigate the role of sodium channel protein for the maintenance of cytological features of dissociated neurons. Application of antisense oligonucleotides for cytoskeletal proteins, such as microtubules-associated protein (MAPs) and tau into the culture medium induced significant process retraction of neurons, while these neurons still expressed neuropeptide phenotypes, vasopressin or oxytocin. On the contrary, an addition of antisense oligonucleotide for α subunit of sodium channel protein into the culture medium did not cause any morphological changes of dissociated neurons.

These findings suggested that neuronal shape is determined mainly by cytoskeletal proteins and at least in part sodium channel is not necessary for the maintenance of cytological features in vitro environment.