

Jalonen, TO, Sarkanen, J-R, Linne M-L, "Maturation of SH-SY5Y neuroblastoma cells; synaptic plasticity and neuronal networks" Tampere University Medical Faculty, Tampere Technical University, Finland

Abstract

We have previously shown that human SH-SY5Y neuroblastoma cells differentiate into a mature neuronal phenotype when treated with a combination of retinoic acid (RA) and cholesterol (CHOL) (Sarkanen et al. 2007). In further studies we will study the effects of new combinations of retinoic acid, cholesterol, estradiol (E₂) and brain derived neurotrophic factor (BDNF) for inducing neuronal properties in SH-SY5Y cells. The level of neuronal differentiation and possible presence of non-neuronal cell types will be tested by immunocytochemistry with anti-GFAP, anti-MAP2, anti-NeuN and anti-NF-68 antibodies. Microelectrode array electrophysiology will be used to characterize the network activity of these cells. The cultured human SH-SY5Y cells may be used as a human neuronal cell model for studies on basic cellular function in a variety of neurological and neurodegenerative diseases.