Jalonen, TO, Sarkanen, J-R, Linne, M-L, Pakkanen, K, Roiha, T, Silvennoinen, R, "Effects of cholesterol on cellular trafficking," Tampere University Medical Faculty; Tampere Technical University; Department of Biochemistry and Chemical Biology, University of Jyväskylä, Finland

Abstract:

Cholesterol is known to be essential for brain development and synaptogenesis. Apart from supporting normal brain cell functions, cholesterol may be a key player in many neurodegenerative disorders. In this study the SH-SY5Y human neuroblastoma and the U373-MG astrocytoma cell lines are used as models to analyze cholesterol localization in neuronal and glial tumour cells. The cells are induced to differentiate with retinoic acid (RA), after which the cellular distribution of free cholesterol is visualized with sterol-binding fluorescent dye filipin and confocal microscopy. To disrupt the intracellular cholesterol homeostasis, cells are also grown in the presence of exogenous cholesterol, or cholesterol is depleted using methyl-β-cyclodextrin (MBCD) and cholesterol synthesis inhibitor lovastatin.