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Immunocytochemical Analysis of Neuronal Phenotype in Long Term Differentiation of Rodent E14 Neuronal Stem Cells.

Neuronal stem cell models are used to examine alterations in differentiation from various environmental insults. Our interest was to establish a long term analysis of neuronal cell types and the extent of full differentiation of neurons. We examined cellular differentiation profiles, neurotransmitter packaging and neuronal cell types and distribution from 30 day cultures of E14 rat neuronal stem cells. Cells were maintained in a DMEM-F12 basal media supplemented with N21 Max, and 10ug/ml EGF. Cells were induced to differentiate using 10% FBS on days 2 and 7. Cells were feed with new media every 4 days. We determine a distinct profile of differentiation for neurons, astrocytes and oligodendrocytes. In addition, we see a distinctive pattern of neurotransmitter packaging. Our analysis has allowed us to compare normal differentiation profiles with changes induced from different drugs of abuse and suggest an interpretation for Fetal Alcohol Spectrum Disorders and Fetal Drug Exposure Disorders. Research sponsored by WV-INBRE grant **P20GM103434**.