Use of Embryonic Stem Cells as a Diagnostic Model for Fetal Alcohol Syndrome

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Technology description

Technical Summary

Fetal alcohol syndrome is a pattern of mental and physical defects that can develop in a fetus in association with high levels of alcohol consumption during pregnancy. Exposure of human embryonic stem cells to common toxins and drugs has the potential to yield insight into how these drugs affect early development. Current work is focused on the pro-survival role of heparin binding-epidermal growth factor-like growth factor (HB-EGF), but the cells can also be used to examine many aspects of apoptosis that occur in fetal alcohol syndrome. Most tissue culture and animal work use higher doses of ethanol and are not physiologically relevant amounts during testing. Undifferentiated human embryonic stem cells exposed to clinically relevant amounts of ethanol can be used to describe a phenotype and model of fetal alcohol syndrome in very early human development.

Application area

Undifferentiated human embryonic stem cells exposed to ethanol as a diagnostic and research model for fetal alcohol syndrome.

Advantages

Ethanol introduced to human embryonic stem cells may provide information concerning ethanol-mediated apoptosis and its effects on early human development.

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