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**Alterations in transcription factor e2f1 dna binding associated with alcohol exposure.**

Fetal Alcohol Spectrum Disorders (FASD) are a set of developmental disorders that come to those born from mothers who drink alcohol during gestation. Phenotypes are associated with alterations in proliferation, differentiation, migration and apoptosis of neural crest stem cells. Microarray data suggest that changes in several proteins associated with cell cycle regulation may contribute to alterations in growth and apoptosis. These proteins, including; retinoblastoma protein (pRB), E2F1 transcription factor, and E2F1's dimerization partner protein (DP1) are responsible for the regulation of gene products that assist in G1/S phase transition and the transcription of genes necessary for proper DNA synthesis. Under normal cell growth the binding of pRB to E2F1/DP1 dimer inhibits transcriptional activation. During the induction of S phase, pRB is phosphorylated and releases the transcription factor dimer for activation. We suggest that alcohol alters this mechanism by changing the binding pattern of these three proteins. To examine the effects of ethanol on the relationship between DNA, E2F1, DP1 and pRB, an set of electromobility shift assays (EMSA) were performed.