The role of Nuclear Factor I A Gene in Craniofacial Development

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Objective:

Objectives: The NFIA gene has been shown through multiple studies to be a transcription factor that has developmental effects in formation of the corpus callosum, urinary tract defects and cognitive development. However, this isn't a lot known about the effects of NFIA gene and its relationship to craniofacial development, so therefore this study was conducted with the goal of finding out whether there was a relationship.

Experimental Methods: This study utilized mice that had different genes particularly particularly, sox9, runX2, and col2 gene knocked out or as wildtypes. X-rays of the condyle of several different mice were taken to find any phenotype differences and using histological slides with HME staining and immunological staining to check the morphology of the condyles and better understand the relationship between this gene and craniofacial development.

Results:

The results of this study show that there is a relationship between the NFIA gene and craniofacial development in the phenotype of the condyles, as the less NFIA gene was expressed, the more craniofacial deformities appeared in the condyle of the mice.

Conclusion:

Future steps for this research are to continue evaluating the histology of the samples using safranin o staining to better evaluate the morphology of the condyle and checking the location of NFIA gene to better the relationship between this gene and craniofacial development. This could be promising for clinical applications in dealing with patients that might have delayed craniofacial development and its effect on their oral health.

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