During embryonic development, the cerebellum establishes a gradient of retinoic acid (RA) signalling. RA is diffused from the meninges into the posterior side of the cerebellum during development. Cyp26b1 codes for a cytochrome P450 enzyme that catabolizes retinoic acid into inactive metabolites. Cyp26b1 knock-out mice were found to exhibit severe craniofacial deformities, however, less attention has been placed on the hindbrain and its cell populations. To identify the spatial expression of Cyp26b1 during cerebellar development, transcript of Cyp26b1 is detected in mouse cerebellum of various embryonic time points using in situ hybridization. Cyp26b1 mRNA transcripts were found highly localized in the ventricular zone, rhombic lip, and external granule layer of the cerebellum during embryonic day (E) 14.5. These regions contain progenitors that are undifferentiated and highly proliferative. Since RA has been demonstrated to induce the differentiation of various neurons and glia, this suggests that Cyp26b1 in the cerebellum is maintaining the undifferentiated states of progenitor cells. Immunofluorescence will be utilized to determine the specific cell types expressing Cyp26b1. Finally, slice culture will be used to observe cell differentiation when RA is applied to the ventricular zone, rhombic lip, and external granule layer.

Themes:

Check (highlight) the most applicable theme according to the abstract.

| Innovation and Technology | Health and Wellness | Culture and Society | Sustainability and Conservation |

Comments:

Excellently written! Easy to follow and understand while still using complex language. The second sentence does not need to include “during development”, as that is already stated in the first sentence.