“The role of neural tube closure in zebrafish pineal complex development”

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The vertebrate central nervous system develops from a flat neuroepithelium that folds into a closed neural tube, the anterior portion of which becomes the brain. In zebrafish embryos with open anterior neural tubes, the left and right sides of the pineal complex in the brain are widely spaced. Despite their displaced location, pineal complex neurons differentiate and initiate normal rhythmic function. However, left-right asymmetry in the pineal complex is lost; both sides exhibit left-sided characteristics.