

A diagram illustrating the gradient of Wnt signaling along the neural plate. The neural plate is shown as a horizontal bar with 'A' (Anterior) on the left and 'P' (Posterior) on the right. Below the neural plate, a red bar represents Wnt inhibitors, which are highest in the Forebrain and Midbrain regions. A blue bar represents Wnt signals, which are highest in the Hindbrain and Spinal cord regions. The transition from inhibitors to signals occurs at the boundary between the Midbrain and Hindbrain.

The diagram illustrates the expression of Otx2 and Gbx2 genes in the developing brain and the expression of Engrailed in the isthmus. The top part shows a horizontal bar representing the brain, divided into four regions: Forebrain, Midbrain, MHB (Midbrain-Hindbrain boundary), and Hindbrain. The Otx2 gene is expressed in the Forebrain and Midbrain regions, while the Gbx2 gene is expressed in the Hindbrain region. The Engrailed gene is expressed in the MHB region. The bottom part shows a sagittal section of the developing brain, with the Isthmic organizer (MHB) region highlighted in purple. The Notochord and Prechordal plate are also shown.

The diagram illustrates the expression of *Gbx2* and *Otx2* in the developing brain. The *Gbx2* expression domain (yellow) is located in the midbrain and hindbrain, while the *Otx2* expression domain (yellow) is located in the forebrain. The FGF signals from the isthmic organizer (purple) are shown as a source of signaling molecules that influence the development of dopaminergic neurons (purple dots) and serotonergic neurons (blue dots). The Notochord (blue) is also shown, and the Shh (blue) expression domain is indicated in the ventral midbrain/hindbrain region.