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Antibodies Against Vangl1 and Vangl2 Proteins

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Key Words

Vangl1, Vangl2, Planar Cell Polarity, Neural Tube, Spina Bifida, Antibodies

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Summary

Vangl1 (Van Gogh like 1) and Vangl2 (Van Gogh like 2) are two core proteins mediating establishment of Planar Cell Polarity (PCP), which refers to the polarity of epithelial cells within a plane orthogonal to their apical-basal axis. Disruption of core PCP proteins leads to many developmental defects, including open neural tube, misorientation of sensory hair cells in the inner ear, polycystic kidney disease and skeletal deformations. In humans, mutations in Vangl1 and Vangl2 have been identified in patients with neural tube defects, such as spina bifida, the most common permanently disabling birth defect in the United States. NHGRI researchers have recently generated rabbit polyclonal antibodies against Vangl1 and phosphorylated Vangl2 proteins that are suitable for endogenous Vangl1 and Vangl2 detection.

Potential Commercial Applications

Anti-Vangl1 and Vangl2 antibodies could be used in the development of diagnostic and therapeutic treatments for PCP-related developmental defects, such as open neural tube and spina bifida, polycystic kidney disease, and skeletal abnormalities.

Related Articles

Gao et al., *Wnt Signaling Gradients Establish Planar Cell Polarity by Inducing Vangl2 Phosphorylation Through Ror2*, 20 Developmental Cell 163 (2011).
<http://www.sciencedirect.com/science/article/pii/S1534580711000025>

Song et al., *Planar Cell Polarity Breaks Bilateral Symmetry by Controlling Ciliary Positioning*, 466 Nature 378 (2010).
<http://www.nature.com/nature/journal/v466/n7304/pdf/nature09129.pdf>