

**Année de publication : 2004**

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Virginie Orgogozo, François Schweisguth, Yohanns Bellaïche (2004 May 19)

**Slit-Robo signalling prevents sensory cells from crossing the midline in *Drosophila*.***Mechanisms of development* : 427-36**Résumé**

Maintenance of bilateral symmetry throughout animal development requires that both left and right halves of the body follow nearly identical patterns of cell proliferation, differentiation, death and migration. During formation of the perfectly bilateral *Drosophila* larval peripheral nervous system (PNS), the sensory precursor cells of the ventral multidendritic neuron vmd1a originating from each hemisegment migrate away from the ventral midline. Our observations indicate that in slit mutant embryos, as well as in robo, robo2 double mutants, sensory precursor cells of the left and right vmd1a neurons aberrantly cluster at the midline and then the pair of vmd1a neurons migrate to their final position on the same side of the embryo. This results in disruption of PNS bilateral symmetry. Expression of slit at the midline rescues the slit mutant vmd1a phenotype, suggesting that midline-secreted Slit activates Robo/Robo2 signalling to control the migration of the vmd1a sensory precursor cells. Our study indicates that midline-secreted Slit prevents vmd1a sensory cells from crossing the midline and thereby maintains PNS bilateral symmetry during development.

Yohanns Bellaïche, Olivia Beaudoin-Massiani, Isabella Stuttem, François Schweisguth (2004 Jan 1)

**The planar cell polarity protein Strabismus promotes Pins anterior localization during asymmetric division of sensory organ precursor cells in *Drosophila*.***Development (Cambridge, England)* : 469-78**Résumé**

Cell fate diversity is generated in part by the unequal segregation of cell-fate determinants during asymmetric cell division. In the *Drosophila* bristle lineage, the sensory organ precursor (pl) cell is polarized along the anteroposterior (AP) axis by Frizzled (Fz) receptor signaling. We show here that Fz localizes at the posterior apical cortex of the pl cell prior to mitosis, whereas Strabismus (Stbm) and Prickle (Pk), which are also required for AP polarization of the pl cell, co-localize at the anterior apical cortex. Thus, asymmetric localization of Fz, Stbm and Pk define two opposite cortical domains prior to mitosis of the pl cell. At mitosis, Stbm forms an anterior crescent that overlaps with the distribution of Partner of Inscuteable (Pins) and Discs-large (Dlg), two components of the anterior Dlg-Pins-Galphai complex that regulates the localization of cell-fate determinants. At prophase, Stbm promotes the anterior localization of Pins. By contrast, Dishevelled (Dsh) acts antagonistically to Stbm by excluding Pins from the posterior cortex. We propose that the Stbm-dependent recruitment of Pins at the anterior cortex of the pl cell is a novel read-out of



planar cell polarity.

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Yohanns Bellaïche, François Schweisguth (2001 Jul 13)

**Lineage diversity in the *Drosophila* nervous system.**

*Current opinion in genetics & development* : 418-23

**Résumé**

The detailed descriptions of cellular lineages in the *Drosophila* nervous system have provided the foundations for an in-depth genetic analysis of the mechanisms that regulate fate decisions at every cell cycle.