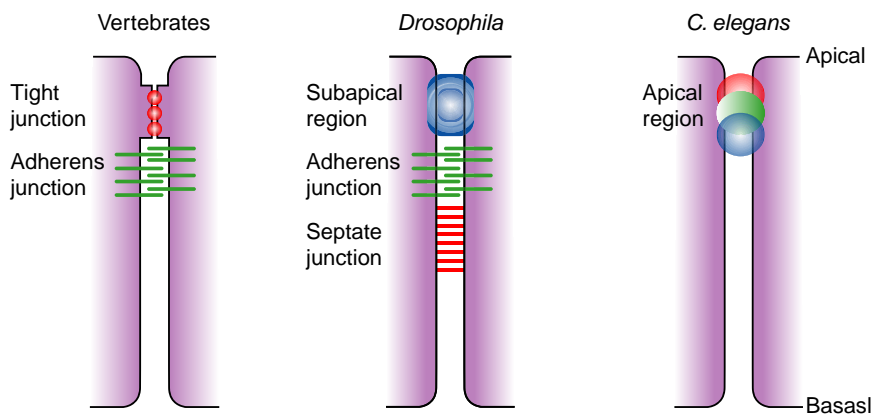


### Box S1. Cellular junctions



Cellular junctions are involved in cell adhesion and signalling, and are important for proper morphogenesis and tissue repair. The major junctional complexes between adjacent epithelial cells found in vertebrates, *Drosophila* and *C. elegans* are shown above. The two major vertebrate junctional complexes implicated in morphogenesis and tissue repair are tight junctions (TJs) and adherens junctions (AJs) (see Tepass et al., 2001; Knust and Bossinger, 2002).

TJs (red circles) form between adjacent cells as a narrow band of closely juxtaposed plasma membrane. They (1) prevent the movement of molecules and ions through the space between cells, and (2) block the movement of integral membrane proteins between the apical and basal surfaces of the cell. The major constituents of TJs are the occludin and claudin family proteins, and Crumbs, all of which are transmembrane proteins that mediate adhesion between opposing cell membranes. Just basal to the TJs are AJs (green bars), which provide strong mechanical attachments between adjacent cells. The major components of AJs are the transmembrane cadherins and the cellular catenin family proteins that link these junctional complexes to the actin cytoskeleton.

Just basal to AJs, *Drosophila* have septate junctions (SJs; red bars) – arrays of septa that span the intermembrane space. The major components of SJs form a tripartite complex containing the PDZ- and leucine-rich repeat-containing protein Scribble (SCRIB), the MAGUK protein Discs large (DLG), and WD repeat-containing protein Lethal giant larvae (LGL).

*Drosophila* also require the assembly of two protein complexes apical to AJs that together form the sub-apical region (SAR; blue), which is important for cell polarity. One SAR complex includes Crumbs (also found in vertebrate TJs), the MAGUK protein Stardust and the PDZ-containing protein Discs Lost. The second complex includes the PDZ-containing proteins Bazooka, PAR6 and the atypical protein kinase aPKC.

Although the different types of junctional complexes are well separated along the apicobasal axis of the cell in vertebrates and *Drosophila*, *C. elegans* have a single junctional complex structure located just below the apical surface of the cell. Although only a few proteins in this complex have been identified to date, their characterization has shown that this AJ structure can be subdivided into three parts that are roughly similar to those in vertebrates and *Drosophila*.

### References

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