

Investigation of a new signalling pathway linking deltaD to ciliogenesis - the role of rabconnectin3

B Tavares^{*}, A Vaz, P Pintado, SS Lopes

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Recently, using the zebrafish mutant for the *deltaD* gene (*after eight* or *aei*^{-/-}), our group has showed that Notch signaling was involved in the control of cilia length in the cells of the fish laterality organ, the Kupffer's Vesicle (KV) (Lopes *et al.* 2010). Further research based on microarray screening allowed the discovery of several genes with differential expression in KV cells from *aei*^{-/-} mutants compared to WT embryos. One of these genes, *rabconnectin3* or *rc3* (*ENSDARG0000091293*) was found to be severely downregulated. Homologs of this gene have recently been associated with Notch signaling in *Drosophila* and mammalian cells (Yan *et al.* 2009; Sethi *et al.* 2010, respectively) through the regulation of the V-ATPase activity. Furthermore, the activity of this pump has also been associated with the ciliogenesis in the KV (Chen *et al.* 2011). Using a Morpholino against *rc3*, we caused a decrease in the cilia length of the KV. We propose that the decrease in the cilia size present in the KV of the *aei*^{-/-} mutants is caused by the deregulation of the transcription of genes such as *rc3* and not necessarily by the disruption of the Notch signaling.

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