

POSTER PRESENTATION

Open Access

The GMAP210 homologue SQL 1 modulates intraflagellar transport in *C. elegans*

S Rademakers^{1*}, J Broekhuis¹, M Dekkers², J Burghoorn¹, G Jansen¹

From First International Cilia in Development and Disease Scientific Conference (2012)
London, UK. 16-18 May 2012

The development and function of cilia require a specialised transport process, called Intraflagellar Transport (IFT). In amphid cilia of *C. elegans* this process uses two kinesins, kinesin II and OSM-3, which are loaded with complex A and B particle proteins and cargo molecules. We have previously shown that expression of a dominant active G-protein (GPA-3QL) in amphid channel neurons affects the coordination of OSM-3 and kinesin-II and results in shorter cilia. We performed a genetic screen to identify mutants that suppress the *gpa-3QL* cilia length defect and identified *sql-1* (suppressor of *gpa-3QL*), which encodes the homologue of the mammalian Golgi protein GMAP210. GMAP210 has been shown to play a role in vesicular transport from the Golgi apparatus to the cilium. SQL-1 is ubiquitously expressed in *C. elegans* and localizes to the Golgi. *sql-1 loss of function (lf)* mutants show wild-type length cilia, while animals overexpressing SQL-1 have longer cilia. Speed measurements in *sql-1(lf)* animals showed that OSM-3 moves faster and kinesin II moves slower, suggesting that the two kinesins are partially uncoupled. Complex A and B proteins move at the same speed as OSM-3, suggesting that IFT is predominantly mediated by OSM-3 kinesin. Interestingly, in the *gpa-3QL; sql-1(lf)* double mutants the speed of OSM-3 is decreased. We hypothesize that SQL-1 plays a role in routing or post translational modifications of proteins that are required in the cilium for proper IFT.

Author details

¹Erasmus Medical Center Rotterdam, the Netherlands. ²Biozentrum, University Basel, Switzerland.

Published: 16 November 2012

* Correspondence: j.rademakers@erasmusmc.nl

¹Erasmus Medical Center Rotterdam, the Netherlands

Full list of author information is available at the end of the article

doi:10.1186/2046-2530-1-S1-P40

Cite this article as: Rademakers et al.: The GMAP210 homologue SQL 1 modulates intraflagellar transport in *C. elegans*. *Cilia* 2012 **1**(Suppl 1):P40.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit

