

POSTER PRESENTATION

Open Access

How different cilia beat frequencies impact on Kupffer's vesicle fluid flow

R Rua^{1*}, A Guerrero², SS Lopes¹

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

Motile cilia need to be coordinated and ciliary beat frequency (CBF) is characteristic of different types of cilia depending on their physiological function. In zebrafish, monociliated cells arise in the tailbud at the end of gastrulation in a transient spherical organ called Kupffer's vesicle (KV). Using zebrafish as a model, our group has been studying cilia length regulation and motility in wild-type (wt) and *aei*^{-/-} mutant embryos. These mutants carry a premature stop codon in the deltaD gene. Recently, our group showed that Notch signaling was directly involved in the control of cilia length in the KV cells given that the *aei*^{-/-} mutant present shorter cilia in KV cells. The goal of this project is the characterization of the CBF and beat patterns of *aei*^{-/-} KV cilia vs. wt cilia. We did spectral analysis of individual cilia associated with high-speed digital videomicroscopy. By decomposing and comparing the obtained frequencies with Fourier Transform we have identified significant differences in KV cilia motility pattern between the wt and the *aei*^{-/-} mutants. So far, we show that not only are the cilia shorter in the KV of *aei*^{-/-} mutants but also their motility pattern is different resulting in an overall destructive fluid flow.

<http://www.cedoc.org>

Author details

¹Faculty of Medical Sciences, CEDOC, Portugal. ²Instituto Gulbenkian Ciência, Portugal.

Published: 16 November 2012

doi:10.1186/2046-2530-1-S1-P42

Cite this article as: Rua *et al.*: How different cilia beat frequencies impact on Kupffer's vesicle fluid flow. *Cilia* 2012 **1**(Suppl 1):P42.

* Correspondence: rferreirarita@gmail.com

¹Faculty of Medical Sciences, CEDOC, Portugal

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

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

