

Description of Additional Supplementary Files

File Name: **Supplementary Movie 1**

Description: **Cilia in a 24 hpf *Tg(β -actin:Arl13-GFP)* embryo.** Images were acquired at 33 Hz and are played in real time.

File Name: **Supplementary Movie 2**

Description: **Imaging of exogenous beads in the central canal of the spinal cord in a wild type embryo.** Images were acquired at 10 Hz and are played in real time.

File Name: **Supplementary Movie 3**

Description: **Imaging of endogenous particles with FF-OCT in the central canal of the spinal cord in a 26-28 hpf *Tg(β -actin:Arl13-GFP)* embryo.** Images were acquired at 100 Hz and are played in real time.

File Name: **Supplementary Movie 4**

Description: **Calcium imaging of CSF-cNs in a wild type *Tg(pkd2l1:GCaMP5G)* embryo at 24-26 hpf.** Images were acquired at 4 Hz and are sped up 5x in the movie.

File Name: **Supplementary Movie 5**

Description: **Calcium imaging in CSF-cNs in a *cfap298^{m304/tm304}* *Tg(pkd2l1:GCaMP5G)* embryos at 24-26 hpf.** Images were acquired at 4 Hz and are sped up 5x in the movie.

File Name: **Supplementary Movie 6**

Description: **Calcium imaging of CSF-cNs in a *pkd121^{-/-}* *Tg(pkd2l1:GCaMP5G)* embryo at 24-26 hpf.** Images were acquired at 4 Hz and are sped up 5x in the movie.