Abstract **1164**, Date **1:00 pm, Sunday, February 11, 2007 (24 hours)**
Session **D1: Poster**

Preliminary Characterization of Anti-WDR1 Antibody in the Avian Inner Ear

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Studies on hearing loss and recovery in birds and mammals are now identifying, within the ear, protein changes that lead to functional disability. One of the proteins, WD repeat-1 protein (WDR1), contains 11 putative WD40 motifs involved in protein-protein interactions, and demonstrates significant homology to actin-interacting protein-1 (AIP-1) in several species including slime molds. AIP-1 binds cofilin/actin depolymerization factor, suggesting a role of WDR1 in actin dynamics.

The gene encoding WDR1 was upregulated in the acoustically damaged chicken basilar papilla. The shift of WDR1 localization from hair cells in the normal inner ear to both surviving hair cells and supporting cells in a sound-damaged ear suggests a role in inner ear response to acoustic trauma.

Here, we study WDR1 presence in the basilar papillae of chicken and Belgian Waterslager (BWS) canary, the latter of which exhibits high frequency hearing loss. Previous studies reported strong WDR1 identity between chicken and BWS canary. Immunocytochemistry with anti-WDR1 antibody showed staining among the cell bodies of hair cells at least at the luminal surface. However, the antibody may have lost its efficiency over time and distance, and new antibodies were raised against two peptides, which are identical to different WDR1 regions. Western blotting analysis on chicken basilar papilla with affinity purified antibodies yielded a band of roughly 70 kiloDaltons, nearly identical to the molecular weight of WDR1. Immunostaining with the new antibodies, followed by confocal examinations, revealed similar WDR1 distribution among hair cells in the ears of birds with normal (chicken) and abnormal (BWS) hearing. This suggests that WDR1 may not be a significant factor in BWS hearing loss; however, it may be more significant between 7 and 30 days post hatch which corresponds to the time where the BWS canary starts to lose its hearing.

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