グローバル COE 特別セミナー

生物科学専攻動物科学大講座

（平成 21 年度）

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演題: Wtip regulates the formation of multiple ciliated cells in the zebrafish pronephros

日時: 平成 21 年 7 月 29 日（水）14:00-15:30

場所: 東京大学理学部 2 号館 2 階 201 号室

要旨:

The kidney is an important organ to maintain waste-free and osmotically balanced blood in the circulation system. To accomplish these functions, different cell types in the specific locations have to be specified during development. In the zebrafish pronephros, two cell types, the multiple ciliated cells (MCCs) and single cilia transporting cells (SCCs) are distributed in a ‘salt-and pepper’ fashion in the early distal nephron and the number of MCCs is regulated by Jagged2-Notch signaling.

Wtip contains three LIM domains and a PDZ binding domain at the C-terminus. Human *WTIP* maps to human chromosome 19, a region with genes linked to a familial focal segmental glomerulosclerosis (FSGS). However, the precise *in vivo* function of the *wtip* is still unknown. Here, we identified zebrafish *wtip* and showed that similar to a FSGS, *wtip* morphants have defects in the glomerular assembly. Interestingly, Wtip turned out to be a regulator of the MCCs cell fate during early embryogenesis. *wtip* morphants formed extra MCCs not only in the early distal but also in the proximal region of the pronephros. In addition, *wtip* mRNA injections reduced the number of MCCs. Moreover, Wtip was downstream of Notch signaling, since its expression was down-regulated in *jagged2* morphants. Taken together, these data suggest that Wtip is an important regulator in ciliary cell fate and the progression of glomerulus development.

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