



第 348 回 つくば分子生命科学セミナー

TSUKUBA MOLECULAR LIFE SCIENCE SEMINAR

演題 : Overexpression of ubiquitin carboxyl terminal hydrolase impairs multiple pathways during eye development in *Drosophila melanogaster*

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日時 : 2012 年 3 月 26 日 (月) 17:00-18:30

会場 : 健康医科学イノベーション棟 301 会議室

要旨 :

UCH-L1 (Ubiquitin carboxyl terminal hydrolase L1) is well known as an enzyme which hydrolyzes polyubiquitin at its C-terminal to release ubiquitin monomers. Although overexpression of UCH-L1 inhibits proteasome activity in cultured cells, its biological significance in living organisms has not been clarified in detail. Here we utilized *Drosophila* as a model system to examine effects of overexpression of dUCH, a *Drosophila* homologue of UCH-L1, on development. Overexpression in the eye imaginal discs induced a rough eye phenotype in the adult, at least partly resulting from induction of caspase-dependent apoptosis followed by compensatory proliferation. Genetic crosses with enhancer trap lines marking photoreceptor cells also revealed overexpression of dUCH to specifically impair R7 photoreceptor cell differentiation with reduction in activated ERK signals. Furthermore, the dUCH-induced rough eye phenotype was rescued by co-expression of the *sevenless* gene or the *Draf* gene, a downstream component of the MAPK cascade. These results indicate that overexpression of dUCH impairs R7 photoreceptor cell differentiation by down-regulating the MAPK pathway. Interestingly, this process appears to be independent of its proapoptotic function.

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