第1回 Genes to Cells Seminar

HIROSHIMA UNIVERSITY

A putative RNA binding protein regulates axon regeneration and integrity

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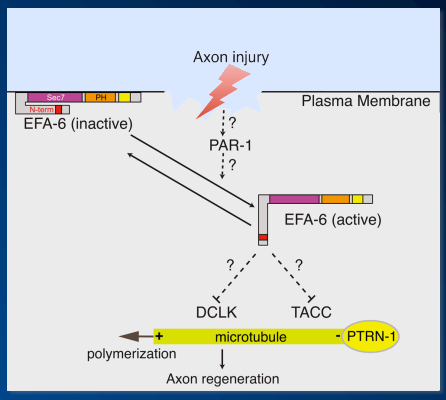
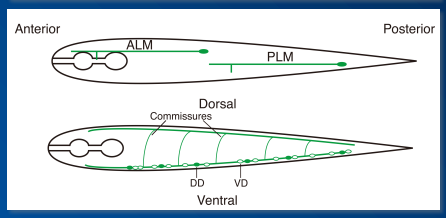
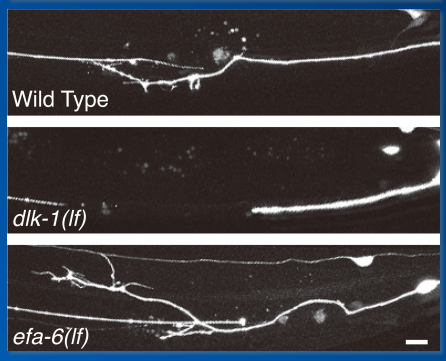
Axonal regeneration after injury involves a suite of signaling pathways and cytoskeletal regulators. In large scale screens for *C. elegans* axon regeneration factors、 EFA-6 was previously identified as a cell-intrinsic inhibitor of axon regeneration, through modulation of microtubule dynamics (Chen et al. 2011, Neuron; Chen et al. 2015, eLife). The N-terminus of EFA-6 promotes microtubule instability, in part via negative regulation of the binding partners ZYG-8/DCLK and TAC-1/TACC. Notably, this N-termial region is predicted to be intrinsically disordered, suggesting it may interact with multiple partners. We sought additional EFA-6 interactors using immunoprecipitation of pan-neuronal expressed EFA-6 followed by mass spectrometry analysis (IP/MS). In this way we identified several novel factors, including a conserved RNA binding protein. We assayed axon regeneration in loss-of-function (lf) mutants for these candidates. Loss of function in the putative RNA binding protein results in increased regeneration, as in *efa-6(lf)*. Intriguingly, we also observe adult-onset, progressive axonal breakage in this mutant, a phenotype that is strongly enhanced in an *efa-6* mutant background. Our results suggest this putative RNA binding protein plays previously unexpected roles in axon regeneration and maintenance of axonal integrity.







開催日時：平成 28 年 7月 4日(月) 14:00-15:00

会場：広島大学先端科学総合研究棟 3F 302S会議室

協賛：基盤研究(A) 微小管構築に必須な進化上保存された新規経路の空間・時間的制御機構

世話人/お問い合わせ先

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