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Poster Sessions

Sir2B regulates cell-cell adhesion

Hideo Taniura, Shuhei Soeda, Aya Igeta, Rio Kawamoto, Futa Shimizu, Yoshiaki Nakagawara, Daisuke Fukuoka, Shusei Tojo, Yuka Tokumura, Ai Fujii, Yui Sano, Minori Nakamura

Lab. Neurochem., Dept. Pharmacy, Ritsumeikan Univ.

Sirtuin interacts with many regulatory proteins involved in energy homeostasis. There are 5 Sirtuins, Sir2A to Sir2E, in the Dictyostelium database. We have previously reported that Sir2D regulates adenylate cyclase (*aca*) expression through the interaction with a transcription factor MybB. The developmental impairment of RNAi-mediated Sir2D knockdown cells was similar to that of the cells treated with nicotinamide, a Sirtuin inhibitor, except of the impairment of aggregate formation at 24 h, suggesting that another Sirtuins may be involved in early Dictyostelium development. When cells were pre-cultured at high density a day before development, development upon starvation was accelerated with an increased expression of *aca*. Because Sir2D and Sir2B expressions among 5 Sirtuins were also increased at 4 h after starvation, we focused to study Sir2B function. When Sir2B was expressed as GFP fusion, GFP-Sir2B showed a punctate expression near cell surface. The timing of streaming formation of GFP-Sir2B expressed cells was the same as that of control cells, but enhanced cell-cell adhesion without swirling was observed during development. TgrB1 expression among adhesion molecules was increased at 6 and 8 h after starvation. RNAi-mediated Sir2B knockdown cells was generated and found that condensed aggregate formation was delayed. When Sir2B knockdown cells were developed on agar, arrested loose aggregates after 24 h were observed. The result suggests that Sir2B regulates cell-cell adhesion during aggregates formation.