

Study of ciliary reversal mechanism in *Paramecium*

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SUMMARY

Paramecium show backward swimming, the so-called avoidance reaction, when the cells come in contact with an object such as a predator or stone. Ciliary reversal results from an increase in intraciliary Ca^{2+} concentration that is induced by membrane depolarization. However, the molecular mechanisms of ciliary reversal are not well understood. In *Paramecium*, we found by RNAi silencing method that inner dynein arm-f (IDA-f) is necessary for ciliary reversal. Moreover, found that the light chain 1 of outer dynein arm (ODA LC1) is a suppressor of ciliary reversal in response to spontaneous Ca^{2+} oscillation. Therefore, we speculate ODA LC1 antagonize the ciliary reversal caused by IDA-f at low Ca^{2+} level, but IDA-f cause ciliary reversal because of inactivation of ODA LC1 at high Ca^{2+} levels.