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We have isolated six independent mutants (jhl to jh6) out of approximately 5,200 ethyl methanesulfonate (EMS) treated haploids. Four of the six mutants demonstrated embryonic lethal phenotypes, while the other two showed embryonic and larval lethal phenotypes. Terminal phenotypes observed in two mutants (jhl and jh2) indicated developmental defects specific to posterior part of embryos which appeared similar to the phenotypes observed in nob (no back end) mutants. Another mutant (jh4) resulted in an interesting phenotype of body-wall muscle degeneration at larval stage. These mutants were mapped by using three-factor crosses and deficiency mutants in this region. We are currently characterizing two mutants, jh2 and jh4, in order to map these genes. Here we report genetic analysis and characterization of these lethal mutants.

F819 Paralytic Behavior of a *Drosophila* Temperature-Sensitive Mutant, *shibire*, was Modified by Memory Mutants

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The temperature-sensitive mutant fly of *Drosophila melanogaster*, shibire (shi^{s1}), behaves normally at room temperature wherase exhibits paralytic behaviors at restrictive temperatures, above 29°C. The memory and learning mutants of Drosophila, dunce (dnc) and rutabaga (rut), show defect in cAMP metabolism. The dnc alleles exhibit an elevated intracellular cAMP level while rut flys show a greatly reduced level. Recent studies have suggested that changes in intracellular cAMP concentrations have been shown to be critical for regulation of growth cone motility, neurite elongation and synaptic plasticity which are implicated in neural development and differentiation of neuronal morphology. In this study, characteristics of temperature-sensitive paralytic behavior were examined in the double mutant flies constructed from two cAMP-defective mutations and a temperature-sensitive mutation. The behavioral repertoires of paralysis in the double mutants were different from those of shifs single mutant flies. Furthermore, dnc gene in the double mutation cause a deteriorating effect in the temperature-sensitivity while rut does compensation in the similar settings. The results suggest that the elevated intracellular cAMP level may activate exocytosis in the double mutant while the subsequent endocytosis is still blocked by shifts mutation.