Collection of Temperature-Sensitive Paralytic Mutants of Drosophila

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Technology description

Drosophilacommonly are used as model organisms. As many as 70 percent of human disease genes have homologues inDrosophila, making these organisms useful for identifying particular disease genes as well as subsequent assays for drug development. UW-Madison researchers have compiled several temperature-sensitive paralytic mutants of Drosophila. The collection consists of more than 100 different neurological mutants that are behaviorally normal at 25 degrees C, but display severe locomotor defects, including uncoordinated movement, ataxia, seizures or complete paralysis, within five minutes of exposure to 38 degrees C. The phenotypes are reversible upon return to 25 degrees. Kinetics of paralysis and recovery vary from strain to strain, but are characteristic to any particular mutant.

Genes affected by these mutations include those encoding ion channel subunits, ion channel regulators, components of the synaptic release machinery and other proteins required for proper neuronal signaling, viability and development. Most of the mutations were induced by ethylmethane sulfonate, a chemical mutagen; others were generated by transposable-element mutagenesis.
The Wisconsin Alumni Research Foundation is seeking commercial partners interested in a collection of more than 100 temperature-sensitive paralytic mutants of Drosophila .

Application area

Screening programs aimed at identifying novel pharmaceutical agents and drug targets in an in vivo biological system
Functional genomic studies to identify novel genes involved in neural function and disease

Advantages

Mutants provide a useful experimental model for human neuromuscular disorders, including epilepsies, muscular dystrophies, periodic paralyses, myotonias, dystonias and others.

Institution

Wisconsin Alumni Research Foundation

Inventors

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