Investigating a Sleep Inducing Gene Found in Drosophila melanogaster

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The goal of this research was to find sleep-related genes and investigate their relations to humans. Fruit flies were chosen as the subject of this experiment, because they have been used in prior sleep-related experiments. To find a sleep related gene, a certain P-Element (an artificial gene sequence) was used to randomly disrupt genes in fruit flies. These mutated fruit flies were then tested for altered sleep behavior using infrared lasers within screening monitors by movement tracking. Through this method, a certain line of fruit flies with sleep loss was found. This indicated that the gene disrupted by the P-element was a sleep-inducing gene. To find the exact gene disrupted, a method known as Inverse PCR was used. Using the identified sequence and a comparison to gene databases, the gene was identified to be CG10098 in drosophila melanogaster. Some bioinformatics analysis indicated that CG10098 is an evolutionarily conserved gene. Also, it was found that a homolog protein found in mice functioned in the synapse of neurons, indicating that CG10098 might function in a similar area. Additionally, it should be noted that CG10098 has not been thoroughly researched before. With the identification of CG10098's gene sequence, its relation to similar genes in other organisms (most importantly, humans) and its characteristics was investigated. The identification and research of this sleep-inducing gene can be used to deal with many of the sleep-related problems in modern society. Its identification is also a step forward in researching the genetics of drosophila.

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