Fruit Flies and CHARGE Syndrome

CHARGE syndrome was on the cover of the Journal of Human Molecular Genetics, November 1. The cover photo shows fruit flies that cannot fly because they suffer from the fly equivalent of CHARGE syndrome.

Fly with wings positioned normally.
A fly with CHARGE syndrome has wings positioned at its side.

"In the study of human disease, animal models (called model organisms) often act as surrogates for patients when (as is often the case) experimentation on humans is unfeasible or unethical. One of these model organisms, the fruit fly Drosophila melanogaster, has been a powerhouse in the understanding of human disease. Using this powerful system, my lab inactivated the Drosophila equivalent of the Chd7 gene in the fly (a gene called kismet), and discovered that kismet was required in the muscle cells of the fly for posture and coordinated movement, and in the fly brain for memory. We also found that kismet is required for the maintenance and growth of axons (structures in brain cells that function similarly to telephone wires, bringing information from one part of the brain to another).

By better understanding some of the basic functions of kismet, our hope is that we can shed light on similar functions of CHD7 in humans, and eventually help give all of the researchers working on CHARGE syndrome the information they need to develop a therapeutic intervention for patients with CHARGE."

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