

Fly Experiment to Fly on Shuttle

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Fruit flies from UC Davis will join the crew of the space shuttle Discovery on its next mission, set to launch July 1. The flies are part of an experiment on the immune system being conducted by Deborah Kimbrell, associate research geneticist in the Section of Molecular and Cellular Biology.

Kimbrell studies genes that control immune responses, and how they are influenced by gravity. Although flies have a much simpler immune system than humans, the genetic switches involved are very similar, she said. The insects can even develop blood cell tumors comparable to leukemia. The spaceflight experiment is an extension of the ground-based research done by Kimbrell's laboratory on the effects of increased gravity.

"This is a great opportunity to learn about spaceflight and the immune response," Kimbrell said.

When the shuttle blasts off, it will carry 10 small containers of *Drosophila* fruit flies. The crew will feed the flies once during the 12-day mission. The flies take about 10 days to develop into adults, so by the time the shuttle lands they will have raised at least one more generation in space.

Kimbrell and her collaborators at NASA Ames Research Center, the University of Central Florida, UC Davis' Chronic Acceleration Research Unit, Rice University and the University of Nevada-Las Vegas will study how the space-raised flies respond to infection with a fungus, bacteria

and other aspects of their immune system.

The shuttle also will carry a small amount of the fungus into orbit, to see if it becomes more harmful to *Drosophila* as a result of spaceflight. The fungus, which is approved as an organic pesticide, is not harmful to humans.

Source: UC Davis

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