

SPACE LIFE SCIENCES SYMPOSIUM (A1)
Poster Session (P)

Author: Mr. Kanyan Xu
China, xukanyan@cast.cn

THE EFFECT OF SPACEFLIGHT ON DROSOPHILA ENERGY METABOLISM AND GENE
EXPRESSION.

Abstract

The earth's gravitational force is important for various physiological functions including metabolism. It is reported that space travellers usually experience a loss in weight and body mass, and such change is likely caused by a negative energy balance. However, Whether and how gravitational force affect animal metabolism is still widely unknown. Here, we plan to address these issues using *Drosophila melanogaster* as a research model. We used China's Shenzhou-9 spaceship to carry male Canton-S fruit flies. After 13-day space travel, most flies were killed by frozen in Dry ice and kept for metabolic and microarray analysis. A small portion of flies were kept in locomotor tubes to measure their activity, sleep behavior, and life span. We found the space-flown flies have similar body weight, locomotor activity, and sleep pattern compared to the ground control after return to the earth. However, their Triglyceride (TAG) level was significantly lower, which means their lipid metabolic status has been changed by spaceflight process. They also have a relatively longer life span. In order to find the mechanism underneath the TAG change, next we will study our microarray result and hopefully can get important metabolic genes with significant expression level change after spaceflight. We wish we could find genes which can help us explain the lipid metabolism changes and provide a hypothesis on how microgravity affect *Drosophila* energy metabolism.