

Obesity genes revealed

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A study of 228 women has revealed genetic variants responsible for body shape. Based on work in the fruit fly *Drosophila melanogaster*, research published today in the open access journal *BMC Genetics* identifies natural variation in the human LAMA5 gene as a key determinant of weight.

As the prevalence of obesity and related health problems continues to increase worldwide, there is considerable effort being devoted to identify genetic mechanisms that control fat storage. Maria De Luca led a team from the University of Alabama at Birmingham, USA, who identified candidate genes using different strains of *Drosophila*.

On the basis of the results of these fly experiments, the research team then tested three common variations in the human LAMA5 gene and discovered two gene variants that were associated with body shape, one in women of European American descent and the other affecting women of American African descent.

As De Luca reports, "We found one variant to be associated with weight and lean mass in both ethnic groups. This variant was also associated with height, total fat mass and HDL-cholesterol, but only in European American women. A different variant was associated with triglyceride levels and HDL-cholesterol in African American women."

The use of flies in a study of human obesity may seem strange, but according to De Luca "Insects store fat like mammals do, as lipid droplets accumulated in the fat body, the functional equivalent of both

mammalian liver and white adipose tissue". She adds that, "Drosophila share many components of fat biosynthesis, degradation and regulation with humans, including many of those implicated in diabetes and obesity".

Citation: Genetic variation in a member of the laminin gene family affects variation in body composition in Drosophila and humans. Maria De Luca, Michelle Moses Chambers, Krista Casazza, Kerry H Lok, Gary R Hunter, Barbara A Gower and Jose R Fernandez *BMC Genetics* (in press)

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