

## At least 8 genes tied to obesity, all in brain

Dec. 16, 2008

Courtesy Nature and World Science staff

At least eight genes are implicated in susceptibility to obesity, and all of them appear to work in the brain, scientists have found.

The findings are published this week in the research journal *Nature Genetics*.

In the past, variation in only two genes had been consistently implicated in susceptibility to common forms of obesity, according to Joel Hirschhorn of the Broad Institute of Harvard University and the Massachusetts Institute of Technology and colleagues.

Hirschhorn and colleagues analyzed a range of previous studies as a whole comprising more than 30,000 participants to look for additional gene variations associated with body weight.

They identified six new locations in the genome where they said gene variation is associated with body weight.

All these genes are found to be activate in the brain and in particular the hypothalamus, they added. The hypothalamus is an almond-sized structure deep within the brain known to regulate body temperature, blood pressure, heartbeat, metabolism of fats and carbohydrates, and blood sugar levels.

The finding highlight the role of brain cells in controlling of food intake, Hirschhorn and colleagues argued.

In a separate study also published in the journal, Gudmar Thorleifsson of Decode Genetics in Reykjavik, Iceland and colleagues carried out a similarly-sized study and identified seven genomic locations associated with measures of obesity, most of which were also found in the Hirschhorn study.

Although common gene variants in these places each contribute only a small amount to variation in body weight, the researchers said, it may be that rare variants at the same locations will have greater effects on weight in some people.

*Image: A diagram of the brain including the hypothalamus. At least eight genes are implicated in susceptibility to obesity, and all of them appear to work in the brain, scientists have found. (Image courtesy Nat'l Cancer Inst.)*

