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AN

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DN

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TI

A common hormone-sensitive lipase i6 gene polymorphism is associated with decreased human adipocyte lipolytic function.

AU

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SO

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DT

Article

LA

English

ED

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AB

Hereditary factors may be involved in the pathogenesis of type 2 diabetes. A polymorphism in the hormone-sensitive lipase (HSL) gene (HSLi6) is associated with obesity and diabetes, although it is unknown whether the polymorphism is functional and thereby influences lipolysis. We genotyped 355 apparently healthy non-obese male and female subjects for the HSLi6 polymorphism. Allele 5 was found to be the most common allele (allele frequency 0.57). In 117 of the subjects, we measured abdominal subcutaneous fat cell lipolysis induced by drugs acting at various steps in the lipolytic cascade. The lipolysis rate induced by norepinephrine isoprenaline (acting on beta-adrenoceptors), forskolin (acting on adenyl cyclase), and dibutyryl cyclic AMP (acting on HSL) were all decreased by approx50% in allele 5 homozygotes, as compared with noncarriers. Heterozygotes showed an intermediate lipolytic rate. The difference in lipolysis rate between genotypes was more pronounced in men than in women. We conclude that allele 5 of the HSLi6 polymorphism is associated with a marked decrease in the lipolytic rate of abdominal fat cells. This may in turn contribute to the development of obesity.

CC

Genetics - Human 03508  
Metabolism - General metabolism and metabolic pathways 13002  
Metabolism - Metabolic disorders 13020  
Endocrine - General 17002

IT

Major Concepts  
Clinical Endocrinology (Human Medicine, Medical Sciences); Medical Genetics (Allied Medical Sciences); Metabolism

IT

Diseases  
obesity: nutritional disease  
Obesity (MeSH)

IT

Diseases  
type II diabetes: metabolic disease  
Diabetes Mellitus, Non-Insulin-Dependent (MeSH)

IT

Miscellaneous Descriptors  
lipolysis

ORGN

Classifier  
Hominidae 86215

Super Taxa  
 Primates; Mammalia; Vertebrata; Chordata; Animalia  
Organism Name  
 human: female, male, patient  
Taxa Notes  
 Animals, Chordates, Humans, Mammals, Primates, Vertebrates

GEN

human HSL gene [human hormone-sensitive lipase gene] (Hominidae)