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AN

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TI

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

AU

Hoffstedt, Johan [Reprint author]; Arner, Peter; Schalling, Martin; Pedersen, Nancy L.; Sengul, Selim; Ahlberg, Susanne; Iliadou, Anastasia; Lavebratt, Catharina

CS

Karolinska Institutet, Huddinge University Hospital, CME, M61, 141 86, Stockholm, Sweden
johan.hoffstedt@medhs.ki.se

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 adenylyl cyclase), and dibutyryl cyclic AMP (acting on HSL) were all decreased by apprx50% 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)