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解偶联蛋白与肥胖及2型糖尿病发病的关系 Role of Uncoupling Proteins in the Pathogenesis of Obesity and Type II Diabetes

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摘要　解偶联蛋白（UCPs）是线粒体内膜上的一种转运蛋白，它能够降低线粒体内膜上的质子梯度，使底物氧化和ADP磷酸化解偶联，减少ATP的产生。基于其功能，解偶联蛋白基因被视为肥胖病及2型糖尿病的重要候选基因。UCP同系物过表达的遗传工程小鼠表现出对饮食导致的肥胖具有耐受性，同时UCP2基因3′非翻译区的45bp插入/缺失以及UCP3基因C-55T多态与肥胖表型的相关性等研究结论支持这一假说。本文对UCP基因与多基因控制的肥胖病及2型糖尿病发病的相关研究进行综述和讨论。

Abstract:Uncoupling proteins (UCPs) are mitochondria carrier proteins,which are able to dissipate the proton gradient of the inner mitochondria membrane.The uncoupling procedure reduces the amount of ATP generated through an oxidation of fuels.Therefore,UCPs are suggested as candidate genes for human obesity or type II diabetes mellitus.Experimental evidences,that genetically engineered mice over expressing different UCP homologues were resistant to diet-induced obesity and 45bp insertion polymorphism in the UCP2 3′ untranslated region and C-55T in UCP3 promoter region were associated with obesity related phenotype,supported the hypothesis.The roles of UCP genes in polygenic obesity and type II diabetes are evaluated and discussed in this paper.

关键词　解偶联蛋白　肥胖　2型糖尿病　能量代谢　基因多态 Key words　uncoupling proteins　type II diabetes mellitus　obesity　energy metabolism　gene polymorphism

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Abstract

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