

Finding solutions for a modern epidemic

The research project TOBI focuses on the identification of molecules that can be used as targets for new drugs against obesity-related disorders such as diabetes. Seven academic research institutions together with 3 small and medium-size enterprises (SMEs) combine their expertise and efforts for reaching this aim. The project is coordinated by Prof. Thomas Stulnig at the Medical University of Vienna, Austria, and is endowed with EUR 2.98 million of EU funding. Participation of relevant SMEs ensures straightforward exploitation of research results by translation into new treatment strategies.

The number of obese individuals in Europe is increasing dramatically, having reached epidemic proportions over the last decades. Obesity is associated with life-threatening complications such as type 2 diabetes mellitus and cardiovascular disease. The consequences of obesity and obesity-associated disorders are severe and elicit enormous costs to health care systems.

It is now well established that inflammatory processes in fat (adipose) tissue are crucial for the development of obesity-related disorders. Adipose tissue produces specific molecules, so-called adipokines, which mediate inflammatory reactions thereby promoting diabetes and atherosclerosis in obese patients.

Research conducted within TOBI aims at deciphering the molecular mechanisms in adipose tissue during inflammatory events and to identify key molecules of these processes. These will then be used to develop new drugs to prevent or even reverse the devastating consequences of obesity.

Background

Adipokines

Adipokines are soluble messenger molecules, produced by adipocytes (fat cells) and other cells of the adipose tissue, particularly infiltrating inflammatory cells, i.e. macrophages. Adipokines mediate the interaction between adipose tissue and the immune system and the crosstalk of adipose tissue inflammation to other tissues and organs. Adipokines are hence crucial for the development of metabolic disorders.

Most already characterized adipokines are peptides by nature. But adipose tissue secretes also considerable amounts of lipid-derived adipokines (LDA) that have been little studied so far.

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The TOBI-consortium analyses the molecular mechanisms of these LDAs, their regulation of production and their particular function.

TOBI Toolbox

For optimizing their collaboration, the TOBI-partners establish a TOBI Toolbox. This TOBI Toolbox consists of the TOBI Standards and the TOBI Biobank.

TOBI Standards are standard operating procedures (SOPs) – detailed written working instructions - that guarantee uniform operating methods in clinical trials and animal and in vitro experiments of all Consortium partners.

In addition, the TOBI Biobank is a collection of human samples including standardised characterisation of donors that is made available to all TOBI-partners.

TOBI – Targeting OBesity-driven Inflammation

TOBI – Targeting OBesity-driven Inflammation – is a project funded by the 7th framework programme of the European Union with EUR 2.98 million. The project started on January 1st, 2008 and will take 36 months. TOBI is coordinated by the Medical University of Vienna.

TOBI-Consortium

The TOBI-consortium is formed by 10 partners from 5 different countries, including 3 SMEs and 7 universities. This consortium combines scientific and technical expertise of following partners: Medical University of Vienna (AT), biolution GmbH (AT), University of Cologne (DE), University of Ancona (IT), Genfit SA (FR), pharm-analyt GmbH (AT), University of Durham (UK), Institute Pasteur de Lille (FR), University of Edinburgh (UK) and the University of Graz (AT).

FP7

The Seventh Framework Programme for research and technological development (FP7) is the European Union's chief instrument for funding research over the period 2007 to 2013. The Programme has a total budget of over € 50 billion and is designed to respond to Europe's employment needs, competitiveness and quality of life. The objectives of the Framework Programmes are to strengthen the scientific and technological base of European industry and to encourage its international competitiveness, while promoting research that supports EU policies.

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