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Title: Controlling obesity by targeting adipose tissue cell populations

Zhanguo Gao, PhD; Alexes C. Daquinag, PhD; and Mikhail G. Kolonin, PhD

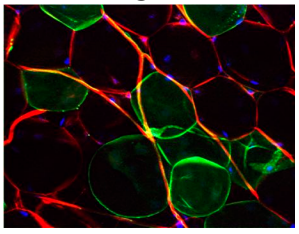
Institute of Molecular Medicine, University of Texas Health Science Center, Houston, TX

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Abstract Body

Changes in the relative abundance of thermogenic beige adipocytes and lipid-storing white adipocytes in adipose tissue underlie the progression of obesity and metabolic disease. We have discovered that mouse and human adipose tissue contains distinct beige and white adipocyte progenitor populations marked by PDGFRα or PDGFRβ expression, respectively. Our recent report [1] suggests that adipocyte lineage specification and metabolism can be modulated through PDGFR signaling. We have also developed 'hunter-killer' peptides, composed of a cell surface receptor-binding domain and a pro-apoptotic domain, for targeted ablation of cells in adipose tissue. A hunter-killer peptide D-WAT, targeting PDGFRβ+ white adipocyte progenitors, suppresses high fat diet-induced obesity development and enabled maintenance of active metabolism [2-5]. Another compound, Adipotide, targeting endothelial cells and adipocytes in white fat, reverses obesity in several animal models [6] and has shown promise in a clinical trial. In unpublished studies, we have developed a hunter-killer compound D-BAT, based on a peptide that targets brown fat tissue [7], which may relieve hypermetabolic conditions. New experimental approaches to fat tissue composition and function control will be discussed.

I. Image:



Reference:

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Biography:

Dr. Kolonin is an Associate Professor and Director of the Center for Metabolic and Degenerative Diseases at the University of Texas in Houston. As a PhD from Wayne State University, he pioneered the concept of expressing peptides disrupting protein interactions in animals. As a post-doctoral fellow at M.D. Anderson Cancer Center, he screened combinatorial libraries to identify druggable cell surface markers. Based on this approach, Dr. Kolonin has invented experimental therapeutics for obesity and cancer. Dr. Kolonin is an author of over 60 publications, and has editorial positions with Molecular Carcinogenesis and Cancer Research. Dr. Kolonin is endowed with a Distinguished University Chair in Metabolic Disease Research.

I. Presenting author details

Full Name: Mikhail Kolonin
Contact number: 713-500-3146
Session name/ number:
Category: (Oral presentation)
Passport Number:



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