Role of MicroRNAs in Metabolic Syndrome

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Abstract

Metabolic syndrome (MetS), a cluster of multiple risk factors for atherosclerosis such as obesity, elevated blood pressure (BP), elevated glucose, and atherogenic dyslipidemia, increase the risk of all-cause mortality and cardiovascular (CV) morbidity and mortality.

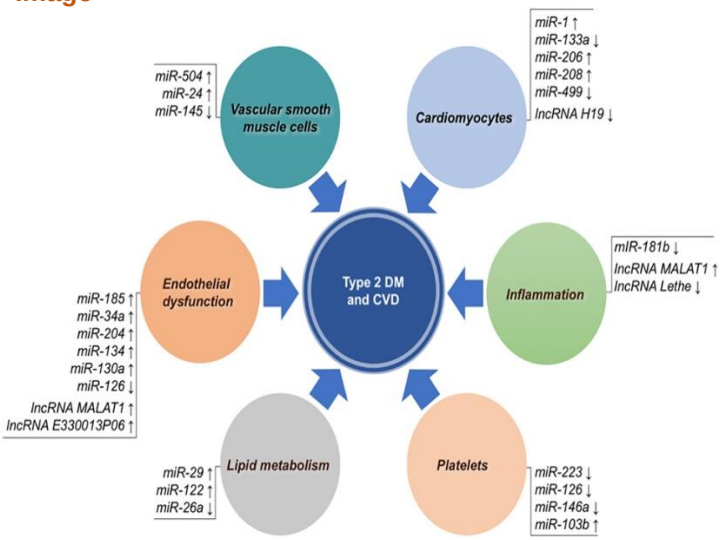
The most accepted clinical definition, established by the National Cholesterol Education Program's Adult Treatment Panel III (NCEP-ATP III) in 2001, recognizes multiple components of the syndrome related to atherosclerotic CV disease risk: abdominal obesity, atherogenic dyslipidemia, BP, and insulin resistance (IR) with or without glucose intolerance. However, these criteria do not fully encompass the pathophysiological complexity of the syndrome, recognize predisposition to different types of end-organ damage, or account for health disparities according to race, sex, or socioeconomic status, in screening for or treating the syndrome.

Due to previous reasons, there is a need to develop new, sensitive and minimally invasive diagnostic approaches to improve diagnosis and trace the prognosis of Mets.

Micro ribonucleic acids (microRNAs) are short single-stranded noncoding ribonucleic acids (ncRNAs), ranging in length from 18–25 nucleotides (nts), that are found in eukaryotic cells. They are created from hairpin-like precursors that base pair to their corresponding target messenger ribonucleic acids (mRNAs) in the RNA-induced silencing complex (RISC). As a result of base pairing with complete or incomplete complementarity to their target, microRNAs (miRNAs) then degrade or block translation of the mRNAs

MicroRNAs regulate multiple pathways including insulin signaling, immune mediated inflammation, adipokine expression, adipogenesis, lipid metabolism, and food intake regulation. Thus, miRNA-based therapeutics represent an innovative and attractive treatment modality, with non-human primate studies showing great promise. In addition, miRNAs measurement in plasma or bodily fluids may be used as disease biomarkers and predictors of metabolic disease

Image



Recent Publications:

Potential role of circulating microRNAs (486-5p, 497, 509-5p and 605) in metabolic syndrome Egyptian male patients

Biography

Assistant lecturer of Biochemistry who interested in molecular biology and metabolism

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Notes/Comments: