Description

Pharmaceutical Composition for Treating a Metabolic Syndrome

The present invention is directed to a pharmaceutical composition containing at least one FGF-21 (fibroblast growth factor 21) compound, at least one GLP-1R (glucagon-like peptide-1 receptor) agonist and optionally at least one anti-diabetic drug and/or at least one DPP-4 (dipeptidyl peptidase-4) inhibitor for the treatment of at least one metabolic syndrome and/or atherosclerosis, in particular diabetes, dyslipidemia, obesity and/or adipositas.

SUMMARY

In a first aspect, there is provided a pharmaceutical composition containing at least one FGF-21 (fibroblast growth factor 21) compound according to SEQ ID NO: 2 and at least one GLP-1R (glucagon-like peptide-1 receptor) agonist.

In a second aspect, there is provided the use of a pharmaceutical composition as defined herein for the preparation of a medicament for treating at least one metabolic syndrome and/or atherosclerosis in a patient.

DETAILED DESCRIPTION

Diabetes mellitus is characterized by its clinical manifestations, namely the non-insulin-dependent or maturity onset form, also known as Type 2 diabetes and the insulin-dependent or juvenile onset form, also known as Type 1 diabetes. The manifestations of clinical symptoms of Type 2 diabetes and the underlying obesity usually appear at an age over 40. In contrast, Type 1 diabetes usually shows a rapid onset of the disease often before 30. The disease is a metabolic disorder in humans with a prevalence of approximately one percent in the general population, with one-fourth of these being Type 1 and three-fourth of these being Type 2 diabetes. Type 2 diabetes is a disease characterized by high-circulating blood glucose, insulin and corticosteroid levels.

Currently, there are various pharmacological approaches for the treatment of Type 2 diabetes, which may be utilized individually or in combination, and which act via different modes of action:

1) sulfonylurea stimulate insulin secretion;

2) biguanides (metformin) act by promoting glucose utilization, reducing hepatic glucose production and diminishing intestinal glucose output;

3) oc-glucosidase inhibitors (acarbose, miglitol) slow down carbohydrate digestion and consequently absorption from the gut and reduce postprandial hyperglycemia;

4) thiazolidinediones (troglitazone) enhance insulin action, thus promoting glucose utilization in peripheral tissues; and

5) insulin stimulates tissue glucose utilization and inhibits hepatic glucose output.

However, most of the drugs have limited efficacy and do not address the most important problems, the declining β-cell function and the associated obesity.

Obesity is a chronic disease that is highly prevalent in modern society and is associated with numerous medical problems including diabetes mellitus, insulin resistance, hypertension, hypercholesterolemia, and coronary heart disease. It is further highly correlated with diabetes and insulin resistance, the latter of which is generally