**Description**

**A COMPOSITION COMPRISING TRICYCLOPENTAONE DERIVATIVES THAT SUPPORT THE INCREASE OF THE MUSCLE STRENGTH BY MEANS OF AN INCREASE IN THE SENSITIVITY OF MUSCLE-SPECIFIC KINASE RECEPTOR**

**Technical Field**

The invention relates to a composition comprising tricyclopentaone derivatives that support the increase of the muscular strength formed for increasing the sensitivity of the muscle-specific kinase receptor.

**State of the Art**

In chemistry and biochemistry, kinase is an enzyme type that transfers the phosphate groups from the donor molecules with high energy, such as ATP, to specific substrates by way of phosphorylation. Kinases are a part of a larger family called the phosphotransferases. Kinases should not be confused with phosphorylases that carry out the phosphorolysis, which is the breakdown of a bond using an inorganic phosphate group, or with phosphatases that remove the phosphate groups.

The invention no. EP2042504B1 entitled "Fused azole-pyrimidine derivatives" relates to novel fused azolepyrimidine derivatives, processes for preparing them and pharmaceutical preparations containing them. The fused azolepyrimidine derivatives of the present invention exhibit enhanced potency for phosphotidylinositol-3-kinase (PI3K) inhibition, especially for PI3K-γ inhibition and can be used for the prophylaxis and treatment of diseases associated with PI3K and particularly with PI3K-γ activity. More specifically, the fused azolepyrimidine derivatives of the present invention are useful for treatment and prophylaxis of diseases as follows: inflammatory and immunoregulatory disorders, such as asthma, atopic dermatitis, rhinitis, allergic diseases, chronic obstructive pulmonary disease (COPD), septic shock, joint diseases, autoimmune pathologies such as rheumatoid arthritis, and Graves' disease, cancer, myocardial contractility disorders, heart failure, thromboembolism, ischemia, and atherosclerosis. The compounds of the present invention are also useful for pulmonary hypertension, renal failure, cardiac hypertrophy, as well as neurodegenerative disorders such as Parkinson's disease, Alzheimer's disease, diabetes and focal ischemia, since the diseases also relate to PI3K activity in a human or animal subject.

The invention no. TR2011/08485 with classification "A61K 31/00" entitled "Tribulus terrestris, avena sativa and panax ginseng extract combination" relates to a herbal pharmaceutical product, obtained from the defined parts of the tribulus terrestris, avena sativa and panax ginseng plants, in order to be used as a supplement and support to increase muscle strength, body stamina and physical performance and in order to treat cardiovascular diseases and the present invention also relates to the formulation of said product.

As a result, the presence of the need for a composition for increasing the sensitivity of the muscle-specific kinase receptor and the inadequacy of the existing solutions have made it necessary to perform an improvement in the relevant art.

**Object of the Invention**

In order to eliminate the disadvantages of the state of the art, an object of the invention is to enable an increase in the sensitivity of the muscle-specific kinase (MuSK) receptor.

Another object of the invention is to enable an increase in the dok-7 expression.

In order to achieve the aforesaid advantages, the invention is a composition for increasing the sensitivity of the muscle-specific kinase receptor, said composition being obtained by the components selected from the group comprising 4-​[[(6R,​7R)-​7-​[[(2Z)-​(2-​amino-​4-​thiazolyl)[(1-​carboxy-​2-​dimethylethoxy)fluoro]acetyl]amino]-​2-​carboxy-​8-​oxo-​5-​thia-​1-tricyclopentaone, 4-​[[(4R,​6R)-​6-​[[(4Z)-​(2-​amino-​4-​thiazolyl)[(2-​dicarboxy-​1-​methylethoxy)imino]acetyl]amino]-​2-carboxy-​8-​oxo-​6-​thia-​4-tricyclopentaone that are used individually or in combinations.

The structural and characteristic features and all the advantages of the invention will become more clearly understood from the detailed description provided below and therefore, the evaluation must be made taking this detailed description into consideration.

**Detailed Description of the Invention**

The invention is a composition comprising tricyclopentaone derivatives that support the increase of the muscular strength formed for increasing the sensitivity of the muscle-specific kinase receptor. Said composition enables an increase in the sensitivity of the muscle-specific kinase (MuSK) receptor and enables an increase in the dok-7 expression.

The composition according to the invention contains 4-​[[(6R,​7R)-​7-​[[(2Z)-​(2-​amino-​4-​thiazolyl)[(1-​carboxy-​2-​dimethylethoxy)fluoro]acetyl]amino]-​2-​carboxy-​8-​oxo-​5-​thia-​1-tricyclopentaone, 4-​[[(4R,​6R)-​6-​[[(4Z)-​(2-​amino-​4-​thiazolyl)[(2-​dicarboxy-​1-​methylethoxy)imino]acetyl]amino]-​2-carboxy-​8-​oxo-​6-​thia-​4-tricyclopentaone.

Said composition is obtained by a mixture of the aforesaid components according to the following ratios by weight:

1-99% 4-​[[(6R,​7R)-​7-​[[(2Z)-​(2-​amino-​4-​thiazolyl)[(1-carboxy-​2-​dimethylethoxy)fluoro]acetyl]amino]-​2-carboxy-​8-​oxo-​5-​thia-​1-tricyclopentaone,

99-1% 4-​[[(4R,​6R)-​6-​[[(4Z)-​(2-​amino-​4-​thiazolyl)[(2-​dicarboxy-​1-​methylethoxy)imino]acetyl]amino]-​2-​carboxy-​8-​oxo-​6-​thia-​4-tricyclopentaone.

The composition is obtained from the aforesaid components selected from the aforesaid group and used according to the mentioned weight ratio ranges individually or in combinations.

Said invention also encompasses the use of said composition for increasing the sensitivity of the muscle-specific kinase receptor and the manufacture thereof for this purpose.

**CLAIMS**

1. A composition for increasing the sensitivity of the muscle-specific kinase receptor, said composition being obtained by the components selected from the group comprising 4-​[[(6R,​7R)-​7-​[[(2Z)-​(2-​amino-​4-​thiazolyl)[(1-​carboxy-​2-​dimethylethoxy)fluoro]acetyl]amino]-​2-​carboxy-​8-​oxo-​5-​thia-​1-tricyclopentaone, 4-​[[(4R,​6R)-​6-​[[(4Z)-​(2-​amino-​4-​thiazolyl)[(2-​dicarboxy-​1-​methylethoxy)imino]acetyl]amino]-​2-carboxy-​8-​oxo-​6-​thia-​4-tricyclopentaone that are used individually or in combinations.
2. A composition according to Claim 1 characterized in that it comprises 1-99% by weight 4-[[(6R,7R)-7-[[(2Z)-(2-amino-4-thiazolyl)[(1-carboxy-2-dimethylethoxy)fluoro]acetyl]amino]-2-carboxy-8-oxo-5-thia-1-tricyclopentaone.
3. A composition according to Claim 1 characterized in that it comprises 99-1% by weight 4-​[[(4R,​6R)-​6-​[[(4Z)-​(2-​amino-​4-​thiazolyl)[(2-​dicarboxy-​1-​methylethoxy)imino]acetyl]amino]-​2-​carboxy-​8-​oxo-​6-​thia-​4-tricyclopentaone.
4. Use of the components according to any one of Claims 2-3 obtained individually or in combinations selected from the group consisting of 4-​[[(6R,​7R)-​7-​[[(2Z)-​(2-​amino-​4-​thiazolyl)[(1-​carboxy-​2-​dimethylethoxy)fluoro]acetyl]amino]-​2-​carboxy-​8-​oxo-​5-​thia-​1-tricyclopentaone, 4-​[[(4R,​6R)-​6-​[[(4Z)-​(2-​amino-​4-​thiazolyl)[(2-​dicarboxy-​1-​methylethoxy)imino]acetyl]amino]-​2-​carboxy-​8-​oxo-​6-​thia-​4-tricyclopentaone for the manufacture of a composition for increasing the sensitivity of the muscle-specific kinase receptor.

**ABSTRACT**

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The invention relates to a composition comprising tricyclopentaone derivatives that support the increase of the muscular strength formed for increasing the sensitivity of the muscle-specific kinase receptor.

No figure.