**Description**

**A COMPOSITION COMPRISING THE ANTIVIRAL COMPONENTS FOR SUPPRESSING RIBONUCLEOTIDE REDUCTASE**

**Technical Field**

The invention relates to a composition comprising the antiviral components for suppressing the ribonucleotide reductase.

**State of the Art**

Ribonucleotide reductase is an enzyme that catalyzes the reduction of the ribonucleotides and the conversion of the same to the deoxyribonucleotides, which are the basic constituents of DNA, in all the existing organisms. This reaction is also the rate-controlling step in the biosynthesis of DNA. This enzyme, having a quite important function, is comprised by two sub units referred to as R1 and R2. The R2 sub unit reduces and activates the molecular oxygen by means of the binuclear Fe (II) center present in its active center, and in this way, a long-lived tyrosyl radical is formed in the R1 sub unit. This very moment, the journey of the electron begins, which is to continue over 35 Angstrom\* (proton synchronous-proton coupled electron transfer). During this long travel, one tryptophane and three tyrosine amino acids accompany the electron with the intermediate radical products they form. At the last stop, the cysteinyl radical is formed, which is to realize the reduction of ribonucleotide and is located in the R1 sub unit.

According to the state of the art, the invention no. EP2155758B1 entitled “Tetrahydrofuro[3,4-d]dioxolane compounds for use in the treatment of viral infections and cancer” with classification “C07D 519/00” provides compounds of formula 1, as described herein, or pharmaceutically acceptable salts thereof, as well as pharmaceutical compositions comprising the compounds, and synthetic methods and intermediates that are useful for preparing the compounds. The compounds of formula 1 are useful as anti-viral agents and/or as anti-cancer agents.

Further, according to the invention no. EP1441734B1 entitled “Dihydroxypyrimidine carboxamide inhibitors of HIV integrase”, 4,5-Didydroxypyrimidine-6-carboxamides of formula (I) are described as inhibitors of HIV integrase and inhibitors of HIV replication, wherein R1, R2, R3 and R4 are defined herein. These compounds are useful in the prevention and treatment of infection by HIV and in the prevention, delay in the onset, and treatment of AIDS. The compounds are employed against HIV infection and AIDS as compounds per se or in the form of pharmaceutically acceptable salts. The compounds and their salts can be employed as ingredients in pharmaceutical compositions, optionally in combination with other antivirals, immunomodulators, antibiotics or vaccines. Methods of preventing, treating or delaying the onset of AIDS and methods of preventing or treating infection by HIV are also described.

As a result, the presence of the need for a composition comprising the antiviral components for suppressing the ribonucleotide reductase 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 the suppression of the ribonucleotide reductase.

Another object of the invention is to enable the suppression of the reverse transcriptase.

In order to achieve the aforesaid advantages, the invention is a composition for suppressing the ribonucleotide reductase, said composition being obtained by the components selected from the group comprising 2,​3,​9,​10,​11,​12-​hexafluoro-​10R-di​methoxy-​2,​4-​dimethyl-​6-​oxo-​9S,​12R-​epoxy-​2H-​diindol[1,​2,​3-​fg:3’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​4-carboxylic acid methyl ester, 2,​3,​9,​10,​11,​12-​hexahydro-​10R-​methoxy-​3,​3-​trimethyl-​7-​oxo-​9S,​12R-​methoxy-​4H-​tetrafluoro[1,​2,​3-​fg:2’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​8-carboxylic acid phenyl ester 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 the antiviral components for suppressing the ribonucleotide reductase.

The composition according to the invention contains 2,​3,​9,​10,​11,​12-​hexafluoro-​10R-di​methoxy-​2,​4-​dimethyl-​6-​oxo-​9S,​12R-​epoxy-​2H-​diindol[1,​2,​3-​fg:3’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​4-​carboxylic acid methyl ester, 2,​3,​9,​10,​11,​12-​hexahydro-​10R-​methoxy-​3,​3-​trimethyl-​7-​oxo-​9S,​12R-​methoxy-​4H-​tetrafluoro[1,​2,​3-​fg:2’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​8-carboxylic acid phenyl ester.

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

1-99% 2,​3,​9,​10,​11,​12-​hexafluoro-​10R-di​methoxy-​2,​4-​dimethyl-​6-​oxo-​9S,​12R-​epoxy-​2H-​diindol[1,​2,​3-​fg:3’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​4-​carboxylic acid​ methyl ester,

99-1% 2,​3,​9,​10,​11,​12-​hexahydro-​10R-​methoxy-​3,​3-​trimethyl-​7-​oxo-​9S,​12R-​methoxy-​4H-​tetrafluoro[1,​2,​3-​fg:2’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​8-​carboxylic acid phenyl ester.

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 suppressing the ribonucleotide reductase and the manufacture thereof for this purpose.

**CLAIMS**

1. A composition for suppressing the ribonucleotide reductase, said composition being obtained by the components selected from the group comprising 2,​3,​9,​10,​11,​12-​hexafluoro-​10R-di​methoxy-​2,​4-​dimethyl-​6-​oxo-​9S,​12R-​epoxy-​2H-​diindol[1,​2,​3-​fg:3’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​4-carboxylic acid methyl ester, 2,​3,​9,​10,​11,​12-​hexahydro-​10R-​methoxy-​3,​3-​trimethyl-​7-​oxo-​9S,​12R-​methoxy-​4H-​tetrafluoro[1,​2,​3-​fg:2’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​8-carboxylic acid phenyl ester that are used individually or in combinations.
2. A composition according to Claim 1 characterized in that it comprises 1-99% by weight 2,​3,​9,​10,​11,​12-​hexafluoro-​10R-di​methoxy-​2,​4-​dimethyl-​6-​oxo-​9S,​12R-​epoxy-​2H-​diindol[1,​2,​3-​fg:3’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​4-​carboxylic acid​ methyl ester.
3. A composition according to Claim 1 characterized in that it comprises 99-1% by weight 2,​3,​9,​10,​11,​12-​hexahydro-​10R-​methoxy-​3,​3-​trimethyl-​7-​oxo-​9S,​12R-​methoxy-​4H-​tetrafluoro[1,​2,​3-​fg:2’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​8-​carboxylic acid phenyl ester.
4. Use of the components according to Claims 1 to 3 obtained individually or in combinations selected from the group consisting of 2,​3,​9,​10,​11,​12-​hexafluoro-​10R-di​methoxy-​2,​4-​dimethyl-​6-​oxo-​9S,​12R-​epoxy-​2H-​diindol[1,​2,​3-​fg:3’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​4-​carboxylic acid methyl ester, 2,​3,​9,​10,​11,​12-​hexahydro-​10R-​methoxy-​3,​3-​trimethyl-​7-​oxo-​9S,​12R-​methoxy-​4H-​tetrafluoro[1,​2,​3-​fg:2’,​2’,​1’-​kl]pyrrolo[3,​4-​i][1,​6]benzodiazokin-​8-​carboxylic acid phenyl ester for the manufacture of a composition for suppressing the ribonucleotide reductase.

**ABSTRACT**

**A COMPOSITION COMPRISING THE ANTIVIRAL COMPONENTS FOR SUPPRESSING RIBONUCLEOTIDE REDUCTASE**

The invention relates to a composition comprising the antiviral components for suppressing the ribonucleotide reductase.

No figure.