Medication against hiv/aids transmission through sexual contact

Abstract

FIELD: medication.
SUBSTANCE: invention relates to medication against HIV/AIDS transmission through sexual contact and to method of HIV-infection prevention by introduction of said medication. Medication is made in form of suppository, which includes active substance and pharmacologically acceptable base. As active substance used is fraction of humic acids, extracted from oxidised brown coal, which possesses anti-HIV activity. As base used is cocoa butter or hard confectionery fat and emulsifier. Medication is introduced intravaginally 30 minutes before sexual intercourse.
EFFECT: invention is aimed at creation of safe microbicide with anti-HIV activity based on substances, extracted from natural sources.
2 cl, 6 tbl, 7 ex

RU2531945C2
Russia

Download PDF Find Prior Art Similar

Other languages: Russian

Inventor: Рахим Мусаевич Хаитов, Игорь Георгиевич Сидорович, Ирина Александровна Николаева, Галина Алексеевна Игнатьева, Светлана Вячеславовна Коробова, Георгий Олегович Гудима, Эдуард Владимирович Карамов, Галина Владимировна Корнилаева, Татьяна Владимировна Павлова, Ирина Васильевна Перминова

Worldwide applications

2013 RU

Application RU2013103411/15A events

2013-01-25	Application filed by Федеральное государственное бюджетное учреждение "Государственный научный центр "Институт иммунологии" Федерального медико-биологического агентства
2013-01-25	Priority to RU2013103411/15A
2014-07-27	Publication of RU2013103411A
2014-10-27	Application granted
2014-10-27	Publication of RU2531945C2

Info: Patent citations (2), Non-patent citations (2), Cited by (2), Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Claims (2)

Hide Dependent
translated from Russian

1. An agent against sexual transmission of HIV / AIDS, made in the form of a suppository containing a pharmacologically acceptable base and an active substance, characterized in that a fraction of humic acids isolated from oxidized brown coal is used as an active substance with anti-HIV activity. cocoa butter or solid confectionery fat and an emulsifier are used as a base. 2. A method of preventing HIV infection by introducing at least one suppository, characterized in that the agent according to claim 1, made in the form of a suppository, is administered intravaginally 30 minutes before sexual contact.

Description

translated from Russian

The invention relates to medicine, namely to virology, immunology, gynecology, pharmacology and biotechnology, and can be used to create vaginal and rectal microbicides - topical preparations that prevent the transmission of the AIDS pathogen (human immunodeficiency virus, HIV) through sexual contact.

AIDS is a disease with a 100% mortality rate, the existing therapy does not remove the virus from the body and cure, and therefore requires lifelong use, toxic, leads to the selection of treatment-resistant forms of the virus. A characteristic feature of HIV / AIDS, which is important for social, economic and demographic consequences, is that, unlike cancer and cardiovascular diseases, HIV infection affects mainly young, able-bodied sexually active people.

The sexual route is the main route of HIV transmission [UNAIDS Report, 2010. UNAIDS Report on the Global AIDS Epidemic, 2010, UNAIDS Report on the global AIDS epidemic-2010, www / unaids.org / en]. More than 80% of new HIV infections account for worldwide sex [UNAIDS Report on the global AIDS epidemic, 2010, UNAIDS Report on the global AIDS epidemic-2010, www / unaids.org / ru]. In this regard, among the complex of measures to counteract the HIV / AIDS epidemic, the most important are preventive measures aimed at suppressing the sexual transmission. These measures include the development and use of microbicides, topical agents to prevent sexual transmission of HIV.

Non-specific microbicides are known including substances acting as spermicides or surface disinfectants such as Nonoxynol-9 (N-9), octoxynol-9, benzalkonium chloride, menfegol [WHO / CONRAD Technical Consultation on Nonoxynol-9, WHO, Geneva, 9 -10 - October 2001, Summary Report.WHO / CONRAD, 2001]. However, clinical trials of nonoxynol have shown that it is not able to inhibit HIV transmission, since nonoxynol causes physical damage to the vaginal epithelium [Phillips D.M., et al, 2000 Phillips D.M., Taylor C.L., Zacharopoulos V.R., Maguire R.A. Nonoxinol-9 causes rapid exfoliation of sheets of rectal epithelium. Contraception, 2000 Sep; 62 (3): 149-54]. This led to a more frequent HIV infection in the group of women using N-9 compared to the control group [WHO / CONRAD 2001, Summary Report WHO / CONRAD Technical Consultation on Nonoxynol-9, WHO, Geneva, 9-10 - October 2001, Summary Report. WHO / CONRAD, 2001].

Experimental microbicides based on specific antiretroviral drugs, for example, an analog of adenosine monophosphate, Tenofovir, are known. Typically, such drugs are administered orally during specific highly active antiretroviral therapy (HAART). Clinical studies of Tenofovir (CAPRISA-004, phase IIb) showed that a vaginal microbicide in the form of 1% Tenofovir (TDF) was able to reduce the number of infections in a group of 889 women from South Africa at high risk of infection by 39% [Abdool Karim

Q. et al., 2010 Abdool Karim Q, Abdool Karim SS, Frohlich JA, Grobler AC, Baxter C, Mansoor LE, Kharsany AB, Sibeko S, Mlisana KP, Omar Z, Gengiah TN, Maarschalk S, Arulappan N, Mlotshwa M, Morris L, Taylor D; CAPRISA 004 Trial Group. Effectiveness and Safety of Tenofovir Gel, an Antiretroviral Microbicide, for the Prevention of HIV Infection in Women // Science. 2010; 329 (5996): 1168-1174. doi: 10.1126 / science.1193748]. However, in the course of other clinical trials of such a drug - VOICE - part of the studies that tested the Tenofovir 1% gel - was terminated early because there was no difference in the number of new infections compared with the placebo group [http: // data.avac.org/TrialDetailReport.aspx?TrialID=141]. The potential danger of using microbicides based on specific antiretroviral drugs is the possibility of drug-resistant forms of the virus.

US 2004/0137085 A1 [US Patent, IPC A61K 35/78, U.S. Cl. 424/725, publ. July 15, 2004] proposed the use of natural commercially available humic acid preparations isolated from the soil for the treatment of HIV infection due to the in vitro anti-HIV action shown by the author, the action against the formation of syncytia and / or the immunostimulating effect of the drug. In the latter case, an increase in the synthesis of interleukin-2 (IL-2) by human peripheral blood lymphocytes stimulated in vitro by plant lectins (phytohemagglutinin or concanavalin A) was shown to be enhanced. A method for suppressing HIV infection by contacting an HIV-infected person's white blood cells with a humic acid preparation is discussed, an IL-2 immunostimulation method, a method of enhancing the immune response to vaccination using humic acid as an adjuvant when vaccinating a patient with HIV infection or AIDS or a patient with reduced function of the immune system. As a preferred route of administration, intravenous administration of the drug is discussed, although other methods, such as oral, vaginal and rectal and intramuscular, are not excluded. However, the use of humic acid preparations as the active substance of a microbicide in the form of a suppository is not considered.

Closest to the present invention is document EA 11298 of 02.27.2009, which discloses a microbicidal drug against HIV transmission or infection that occurs through sexual intercourse during intimate contact of partners, which can be made in the form of a suppository, and contains a pharmacologically active substance (4 - [[4 - [(2,4,6-trimethylphenyl) amino] -2-pyrimidinyl] amino] benzonitrile) and a pharmaceutically acceptable carrier. A method for the prevention of HIV infection is the introduction of the indicated agent intravaginally 15-20 minutes before sexual contact. However, the agent used in this patent includes a synthetic pharmacologically active substance, which, along with a microbicidal action, can cause undesirable side effects. The active substance is a non-nucleoside reverse transcriptase inhibitor, it is a drug for specific antiretroviral therapy, when using such a drug for prevention (as for therapy), there is a significant risk of the formation of drug-resistant forms of the virus, and the emergence of resistance is an unavoidable consequence of monotherapy.

Thus, the technical result obtained by the implementation of the present invention is to create a safe microbicide with anti-HIV activity - a means against sexual transmission of HIV / AIDS based on substances isolated from natural sources.

To solve the task of creating an anti-HIV microbicide, suppositories are used, the active substance of which is an agent with anti-HIV activity - a fraction of humic acids isolated from oxidized brown coal.

The specified technical result is achieved in that the microbicide contains, as an active substance with anti-HIV activity, a fraction of humic acids isolated from oxidized brown coal and a pharmacologically acceptable base, and contains cocoa butter or confectionery fat and an emulsifier as the base. Another aspect of the invention is a method for preventing HIV infection by administering a suppository, characterized in that the suppository containing a humic substance with anti-HIV activity is administered intravaginally 30 minutes before sexual contact. The invention is illustrated by the following example.

The humic acid fraction is isolated from highly oxidized brown coal by adding sodium hydroxide solution and then heating in a boiling water bath. After cooling, the contents are centrifuged, the solution is decanted, the insoluble residue is washed with sodium hydroxide solution and centrifuged again, collecting the main extract and washings in one receiver. To the resulting solution was added a solution of concentrated hydrochloric acid to pH 2 to precipitate humic acids. The resulting precipitate of humic acids is separated by centrifugation and desalted using dialysis. The resulting preparation of humic acids is dried at 80 ° C in an oven.

A solution of the dry preparation in water with a concentration of 10 mg / ml is prepared, sterilized by filtration through a 0.25 mμ filter, dilutions are prepared and used to determine cytotoxicity and anti-HIV activity.

Assessment of cytotoxicity and anti-HIV activity is carried out in an in vitro culture. The cytotoxic properties of the preparations are determined by the MTT colorimetric method according to Mossman and by the results of trypan blue staining.

Anti-HIV activity of the drug is determined by inhibiting the development of infection in cells infected with HIV. HIV-sensitive human cells are incubated in vitro with various drug concentrations (humic acid fractions) and then infected with the virus. The level of infection inhibition in experimental samples in relation to infection control (without drug) is determined using p24 ELISA (enzyme-linked immunosorbent assay to determine the content of the main protein of the virion HIV1 - a marker of HIV infection of the capsid protein p24).

The following are examples of the implementation of the described invention, where Example 1 shows a method for producing a fraction of humic acids, Examples 2-6 show the results of determining cytotoxic properties and anti-HIV activity, and Example 7 describes the preparation of suppositories containing a preparation of a fraction of humic acids.

Hereinafter, the drug is designated as HAC-1 (from humic acid coal).

Examples of specific embodiments of the invention

Example 1. The selection of the fraction of humic acids (NAS-1) from highly oxidized brown coal

A portion of coal (2-5 g) is placed in a conical flask with a capacity of 250 ml, 100 ml of a 1% sodium hydroxide solution are poured and heated for 2 hours in a boiling water bath (at a temperature of 80 ° C). After cooling, the contents of the flask are centrifuged, the solution is decanted, the insoluble residue is washed once or twice with 100 ml of 1% sodium hydroxide solution and centrifuged again, collecting the main extract and washing water in one receiver. To the resulting solution was added a solution of concentrated hydrochloric acid to pH 2 to precipitate humic acids. The resulting precipitate of humic acids is separated by centrifugation and desalted using dialysis. The resulting preparation of humic acids is dried at 80 ° C in an oven.

Example 2. Determination of cytotoxicity of the drug NAS-1

The cytotoxic effect of the drug is evaluated by comparing cell viability in the presence of various doses of the drug with cell viability without the drug. Cells are introduced into a sterile 96-well plate at a concentration of 450×10^3 and cultured in the presence of various doses of the compounds for 3-4 days. Three parallel determinations (3 wells) are performed for each concentration. At the end of these periods, cell viability is determined by the MTT colorimetric method according to T. Mossmann [Mosmann, T. Rapid colorimetric assay for cellular growth and survival: application to proliferation and cytotoxicity assays // J. Immunol. Methods - 1983. - 65: 55-63] and according to the results of staining with trypan blue.

Determination of cytotoxic properties of drugs by MTT colorimetric method

The essence of the MTT method is the ability of living cells to convert the readily soluble yellow 3- (4,5-dimethylthiazol-2-yl) -2,5-diphenyltetrazolium bromide (MTT) into insoluble intracellular MTT-formazan crystals. The effectiveness of this transformation reflects the general level of dehydrogenase activity of the studied cells and, within certain limits, is proportional to the concentration of living (but not dead) cells.

20 μl of MTT solution (with a concentration of 11 mg / ml in PBS) was added to the wells of a 96-well plate with the test material and placed for 3 hours in a thermostat at 37 ° C, 5% CO_2 . 175 μl of the supernatant were taken from the wells, 175 μl of DMSO were added (to dissolve the crystals of MTT-formazan) and placed for 20-30

minutes in a thermostat at 37 ° C, 5% CO_2 . After the crystals are dissolved, the absorbance is measured at 630 nm (OD_{630} , OD_{630}) with an ImmunoChem-2100 Microplate Reader spectrophotometer reader (USA).

The optical density in the MTT test established for control cells (without the drug) is taken as 100%, and the viability of the cells cultured in the presence of various doses of the preparations is determined by the formula 1:

Formula 1

$$\frac{ОП_{630}\ образец}{ОП_{630}\ контроль} \times 100\%$$

,

$$\frac{ОП_{630}\ образец}{ОП_{630}\ контроль} \times 100\%$$

,

where OD_{630} sample is the average value for three parallel determinations (wells) with a given concentration of the analyzed drug, and

OP_{630} control - the average value for parallel determinations (wells) without the analyzed drug (at least three parallel determinations).

Calculate a 50% toxic dose of the drug. A 50% cytotoxic dose (TD_{50}) is the dose at which 50% of the test cells remain viable.

Determination of cell viability by trypan blue staining

Test solutions of potential active substances of microbicides can be stained. This coloration may distort the results of the MTT colorimetric test. In this regard, cell viability at the highest (1000 μg / ml) concentration of substances is additionally determined by counting living and dead cells in the Goryaev chamber after staining with 0.2% trypan blue solution. A solution of trypan blue 0.4% is mixed in a well of a 96-well plate with an equal volume of cell suspension, and 10 μl of the mixture are introduced into the Goryaev chamber using a micropipette. Trypan blue penetrates dead cells, staining them in blue. The ratio of living and dead cells when counting 100 units determines the cell viability in percent.

Example 3. Determination of the cytotoxicity of the drug NAS-1 for cells CEM SS

CEM SS cells are a transplantable suspension T-lymphoblastoid human cell line. Cells are introduced into a sterile 96-well plate at a concentration of 300-500 thousand and cultured in the presence of various doses of the drug for 3 days. After this period, determine the viability of the cells by MTT, as described in example 2. The results are shown in tables 1 and 2.

Table 1 The cytotoxicity of NAS-1 for CEM SS cells was determined in the MTT assay. The table shows the optical density at 630 nm The concentration of NAS-1, μg / ml one hundred 10 one 0.1 0 (cell control, no drug) OP_{630} 1,099 1.105 1,093 1,095 1,109

table 2 Cell viability of CEM SS in the presence of various concentrations of NAS-1, determined in the MTT test (% of control of cells without the drug) The concentration of NAS-1, μg / ml TD_{50} , mcg / ml one hundred 10 one 0.1 0 * > 100 % of control cells without drug 99.1 99.6 98.6 98.7 100.0 * * For 100% accepted control cells without the drug

Thus, the preparation of the NASA-1 humic acid fraction, which is the subject of this invention, is characterized by low cytotoxicity: the viability of cultured CEM SS cells decreases by less than 5%.

Example 4. Determination of cytotoxicity of the drug NAS-1 for mononuclear cells of human peripheral blood (IPC)

Mononuclear cells are isolated from human venous blood by centrifugation in a single-stage density gradient ficoll d = 1.077 according to the usual method [Boyum A. Separation of leucocytes from blood and bone marrow. // Scand. J. Clin, and Lab. Invest. - 1968. - Vol. 21, Suppl. 97 - P.77-821]. Anticoagulant vaktuiner (EDTA) containing 10 ml of donated blood, centrifuged at 1000 rpm for 5 minutes After plasma separation, the cells are sterilely collected in 50 ml centrifuge tubes and diluted 1: 1 with phosphate-buffered saline without Mg^{2+} and Ca^{2+} (PBS). Cells are layered on ficoll and centrifuged at 2000 rpm for 30 min at room temperature. After centrifugation, a ring of lymphocytes is observed at the phase boundary. The collected MICs are placed in a sterile tube, diluted with PBS, suspended and centrifuged at 1000 rpm at 4 ° C for 10 minutes. The cell pellet was collected and the washing was repeated again. The cell pellet is suspended in a growth medium (complete culture medium containing RPMI medium supplemented with 10% fetal calf serum, 2 mM L-glutamine, 20 mM HEPES buffer pH 7.4 and 10 μg / ml gentamicin). The isolated lymphocytes in a complete nutrient medium are placed in 25 ml culture bottles at a rate of 1-2 × 10^6 cells / ml, a mitogenic stimulator phytohemagglutinin (PHA) is added at a rate of 5 μg / ml and incubated for 72 hours at 37 ° C and 5% CO_2 . Then the lymphocytes are transferred to a growth medium containing 200 units / ml of interleukin-2 (IL-2). Replace the medium every 3-4 days.

The results of determining the cytotoxicity of the drug NAS-1 for human IPC are shown in tables 3 and 4.

Table 3 The cytotoxicity of the NAS-1 preparation for human peripheral blood mononuclear cells (MPC), as determined in the MTT test. The table shows the optical density at 630 nm The concentration of NAS-1, μg / ml one hundred 10 one 0.1 0 (cell control, no drug) OP_{630} 1,101 1,173 1,127 1,100 1,159

Table 4 The viability of MICs cultured in the presence of various concentrations of NAS-1, as determined in the MTT test (% of control cells without the drug) The concentration of NAS-1, μg / ml TD_{50} μg / ml one hundred 10 one 0.1 0 * % of control cells without drug 94.9 101,2 97.2 95.9 100.0 * > 1000 * For 100% accepted control cells without the drug

Thus, the preparation of the NASA-1 humic acid fraction, which is the subject of this invention, is characterized by low cytotoxicity: the viability of BMD, even at the highest concentration of the drug, decreases by about 5%.

In the IPC culture, a 50% cytotoxic dose of NAS-1 was not achieved. The drug is nontoxic for MPC even at concentrations of 1000 μg / ml.

Example 5. Anti-HIV activity of the drug NAS-1 on the model of HIV-1_{BRU} / CEM SS

The model is a T-lymphoblastoid CD4 + line of CEM SS cells in which the HIV-1_{BRU} reference strain of HIV is actively replicated.

CEM SS cells were incubated for 2 hours at 37 ° C with various concentrations of HAC-1, and then infected with HTV-1_{BRU} virus with a multiplicity of infection of 100 $TCID_{50}$. After 24 hours, the plates are centrifuged to remove unbound virus at 1200 rpm for 10 minutes, and fresh growth medium with the appropriate concentrations of HAC-1 is added to the cells. A similar procedure is carried out on the second and third days. The development of infection is observed visually, evaluating the cytopathic effect.

On the 6-7th day, samples of the supernatant are taken and the level of inhibition of infection in the test samples is determined relative to the infection control (without the drug) based on the data of p24 ELISA according to formula 2.

Formula 2

$$\frac{(ОП_{450}опыт - ОП_{450}контроль\ клеток)}{(ОП_{450}\ контроль\ инфекции - ОП_{450}контроль\ клеток)} \times 100\ \%$$

, где

$$\frac{(ОП_{450}опыт - ОП_{450}контроль\ клеток)}{(ОП_{450}\ контроль\ инфекции - ОП_{450}контроль\ клеток)} \times 100\ \%$$

where

OP $_{450}$ experience - optical density in ELISA in the well with the drug,

OD $_{450}$ infection control - optical density in ELISA in the well without the addition of the drug

OD $_{450}$ cell control — optical density in ELISA in a well without virus addition.

The analysis of p24 ELISA is performed in accordance with the manufacturer's instructions for diagnostic kits. Each setting includes a positive control (K +) from the set and two parallels of the negative control (K-) from the set.

The results of determining the anti-HIV activity of NAS-1 on the HIV-1 $_{BRU}$ / CEM SS model are shown in Table 5.

Table 5 Anti-HIV activity of NAS-1 on the HIV-1 $_{BRU}$ / CEM SS model (as determined by p24 ELISA) Conc. NAS-1, μg / ml 10 one 0.1 0 (without drug) ED $_{50}$ μg IS (TD $_{50}$ / ED $_{50}$) OP $_{450}$ 0.128 0.160 2,582 2,936 0.29 2000-4000 % of infection control 3,1 4.1 87.8 Inhibition of infection,% 96.9 95.9 12,2

As can be seen from table 5, the drug NAS-1 at a concentration of 10 μg / ml suppresses HIV infection in culture in vitro by 96.9% and at a concentration of 1 μg / ml - by 95.6. In a CEM SS culture, a 50% cytotoxic dose of NAS-1 was not achieved. It is characterized by low cytotoxicity. The drug is nontoxic for CEM SS cells at a concentration of 1000 μg / ml. The IS value is between 2000 and 4000.

Thus, the preparation of the fraction of humic acids HAC-1, which is the subject of this invention, exhibits strong anti-HIV activity with low cytotoxicity.

Example 6. Anti-HIV activity of the drug NAS-1 in the model of primary isolate HIV1 / IPC

MICs are prepared and stimulated as described in Example 4. MICs obtained from three healthy uninfected HIV donors are mixed immediately before infection, incubated with various drug concentrations and infected with a clinical isolate with a multiplicity of infection of 100 TCID $_{50}$. The cultivation and determination of the inhibition of infection is performed as described in example 5. The results of determining the anti-HIV activity of NAS-1 in the primary HIV1 / MPC isolate model are shown in Table 6.

Table 6 Anti-HIV activity of NAS-1 on the model of primary HIV1 / MPC isolate (as determined by p24 ELISA) Conc. NAS-1, μg / ml 10 one 0.1 0 (without drug) ED $_{50}$ μg IS (TD $_{50}$ / ED $_{50}$) OP $_{450}$ 0,076 0.144 2,658 2,850 0.29 > 3448 % of infection control 2.0 4.4 93.2 Inhibition of infection,% 98 95.6 6.8

As can be seen from table 6, the drug NAS-1 in the model of primary HIV1 / MPC isolate inhibits HIV infection in vitro at a concentration of 10 μg / ml by 98% and at a concentration of 1 μg / ml by 95.6%. The value of the selectivity index (IS), which is the ratio of a 50 percent toxic dose to a 50 percent effective dose (TD $_{50}$ / ED $_{50}$) and reflects the therapeutic value of the drug, exceeds 3000.

Thus, the preparation of the fraction of humic acids NAS-1, which is the subject of this invention, is low toxic and has a high inhibitory effect on HIV infection.

Example 7. Preparation of suppositories containing the drug NAS-1

Suppositories weighing 1.3 g are prepared on the basis of cocoa butter or solid confectionery fat with an emulsifier, which easily release the active substance at human body temperature. Given that a dose of the active substance (NAS-1 preparation) of 100 μg / ml is non-toxic and effective in vitro, this dose can be recommended for use in suppositories.

The previous descriptions and examples are given by way of illustration and do not exhaust the scope of this invention.

Patent Citations (2)

Publication number	Priority date	Publication date	Assignee	Title
US6630179B1 *	1998-09-23	2003-10-07	Enerkom (Proprietary) Limited	Oxihumic acid and its use in the treatment of various conditions
RU2241471C1 *	2004-02-03	2004-12-10	Аввакумова Надежда Петровна	Suppository for treatment of chronic prostatitis
Family To Family Citations				

* Cited by examiner, † Cited by third party

Non-Patent Citations (2)

Title
Гумивит" Рег. уд. МЗ РФ N001636.Р.643.06.2000. ТУ 9197-011-46184368-99 [онлайн]. *
ЧУЕШОВ В.И. "Промышленная технология лекарств", том 2, Харьков, 2002 *

* Cited by examiner, † Cited by third party

Cited By (2)

Publication number	Priority date	Publication date	Assignee	Title
RU2678986C1 *	2018-03-23	2019-02-05	Федеральное бюджетное учреждение науки "Государственный научный центр вирусологии и биотехнологии "Вектор" Федеральной службы по надзору в сфере защиты прав потребителей и благополучия человека (ФБУН ГНЦ ВБ "Вектор" Роспотребнадзора)	Antiviral agent based on humic acids
RU2752872C1 *	2020-11-03	2021-08-11	Федеральное бюджетное учреждение науки "Государственный научный центр вирусологии и биотехнологии "Вектор" Федеральной службы по надзору в сфере защиты прав потребителей и благополучия человека (ФБУН ГНЦ ВБ "Вектор" Роспотребнадзора)	SARS-CoV-2 CORONAVIRUS REPLICATION INHIBITOR BASED ON HUMIC SUBSTANCES
Family To Family Citations				

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
Enria et al.	1994	Antiviral treatment of Argentine hemorrhagic fever
AU2011264952B2	2014-08-14	Topical antiviral formulations for prevention of transmission of HSV-2
RU2531945C2	2014-10-27	Medication against hiv/aids transmission through sexual contact
KR19990044834A	1999-06-25	Negative Factor Inhibitor
RU2678986C1	2019-02-05	Antiviral agent based on humic acids
EP0739208A1	1996-10-30	Flavin derivatives as anti-viral agents
US20120289487A1	2012-11-15	Pharmaceutical Use of Multicyclic Compounds as Anti-Aids Agents
CA2120001C	2005-02-08	Flavopereirine-based pharmaceutical composition and use thereof for treating hiv
HUT56855A	1991-10-28	Process for producing antiviral pharmaceutical compositions
US9084758B2	2015-07-21	Antiviral compositions comprising ethanol extract of Tetracera scandens and use thereof
EP0183352A2	1986-06-04	Use of suramin for clinical treatment of infection with any of the members of the family of human-t-cell leukemia (htvl) viruses including lymphadenopathy virus (lav)
EP2908821A1	2015-08-26	Treatment of viral and infectious diseases using an inhibitor of cbp/catenin
JP2020121959A	2020-08-13	Pharmaceutical composition and autophagy cell death inducer
RU2182828C1	2002-05-27	Composition showing anti-hiv and anti-herpes activity
KR102405447B1	2022-06-07	5-(2-Aminoethyl)-dibenzo[cd,f]-indol-4(5H)-one derivatives compound, preparation method thereof, and pharmaceutical composition for anti HIV-1 containing the same as an active ingredient
WO2013120414A1	2013-08-22	Hiv microbicide and use thereof
KR102383026B1	2022-04-05	Composition comprising compound from extract of Dryopteris crassirhizoma for preventing or treating coronavirus infection
EP3054941B1	2017-07-19	Pharmaceutical composition comprising diphenyleneiodonium for treating diseases caused by the parasites belonging to the family trypanosomatidae
Pak et al.	2023	Human Immunodeficiency Virus (HIV)
WO2018145364A1	2018-08-16	Use of 3,4,7-trihydroxyisoflavone or 3-methoxy daidzein in preparation of medicaments for inhibiting platelet aggregation and thrombosis
LANGE et al.	1992	Modulation of alpha interferon levels by AZT treatment in HIV-seropositive patients
KR100416912B1	2004-02-05	3-[5-(methoxy-ethyl)-3,6-dioxo-piperazin-2-yl]-propionic acid extracted and purified from the J300 Dong Chung Ha Cho, and pharmaceutical composition having anti-HIV activity, a agent for treating AIDS and supplementary food containing the same
KR100568962B1	2006-04-07	Therapeutic Agent for AIDS Which Comprises Orientia tsutsugamushi
Siddig et al.	2013	Evaluation of over the counter vaginal lubricants Nonoxynol-9 and KY Jelly as potential inducer of proinflammatory cytokines in human immune cells
Liebenberg et al.	2014	A Randomized Study Comparing Softcup and Cervicovaginal Lavage Sampling to Measure Genital Cytokine Concentrations in HIV-infected Women

Priority And Related Applications

Priority Applications (1)

Application	Priority date	Filing date	Title

RU2013103411/15A	2013-01-25	2013-01-25	Medication against hiv/aids transmission through sexual contact

Applications Claiming Priority (1)

Application	Filing date	Title
RU2013103411/15A	2013-01-25	Medication against hiv/aids transmission through sexual contact

Concepts

machine-extracted

Download Filter table

Name	Image	Sections	Count	Query match
sexual		title,claims,abstract,description	9	0.000
drug		title,abstract,description	57	0.000
biological transmission		title,abstract,description	6	0.000
humic acid		claims,abstract,description	24	0.000
anti-hiv		claims,abstract,description	20	0.000
effects		claims,abstract,description	20	0.000
substance		claims,abstract,description	19	0.000
HIV Infections		claims,abstract,description	15	0.000
Simian-Human immunodeficiency virus		claims,abstract,description	14	0.000
human immunodeficiency virus infectious disease		claims,abstract,description	14	0.000
suppository		claims,abstract,description	13	0.000
Acquired immunodeficiency syndrome		claims,abstract,description	12	0.000
lignite		claims,abstract,description	6	0.000
cocoa butter		claims,abstract,description	4	0.000
cocoa butter		claims,abstract,description	4	0.000
confectionery fat		claims,abstract,description	4	0.000
emulsifying agent		claims,abstract,description	4	0.000
chemical substances by application		claims,description	5	0.000
sexual transmission		claims,description	4	0.000
preventing		claims,description	2	0.000
solid		claims,description	2	0.000
microbiacidal		abstract,description	14	0.000
microbicide agent		abstract,description	8	0.000
prevention		abstract,description	4	0.000

Show all concepts from the description section