Patents EP09827010A

Mammalian colostrum derived nanopeptides for broadspectrum viral and recurrent infections with a method of isolation thereof

Abstract

The present invention relates to nanopeptides isolated from mammalian colostrum with vaccine like antiviral and immunodulator activity via building body's own immune system and attachment inhibition on the cell surface receptors.

Classifications

C07K7/08 Linear peptides containing only normal peptide links having 12 to 20 amino acids

View 31 more classifications

Landscapes

Health & Medical Sciences

Life Sciences & Earth Sciences

Show more

EP2370088A2

European Patent Office

Find Prior Art Similar

Other languages: German, French

Inventor: Pawan Saharan

Current Assignee : Individual

Worldwide applications

2009 *SG* DK CA US EP ES WO 2011 *ZA* 2013 US

Application EP09827010A events

2009-12-29	Application filed by Individual
2011-10-05	Publication of EP2370088A2
2016-08-24	Application granted
2016-08-24	Publication of EP2370088B1
Status	Active
2029-12-29	Anticipated expiration

Info: Patent citations (9), Non-patent citations (3) , Cited by (3), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, EPO GPI, EP Register, Global Dossier, Discuss

Claims

Hide Dependent

1. A formulation comprising peptides isolated from mammalian colostrum having sequences as recited in SEQ ID 1-8 wherein the peptides function to modulate cell immunity and provide attachment inhibition for foreign antigen / viruses on cell surface receptors.

2. The formulation as claimed in claim 1 wherein SEQ ID 1 represents a peptide sequence having a sequence as ELVPGVPRGTQL.

3. The formulation as claimed in claim 1 wherein SEQ ID 2 represents a peptide sequence having a sequence as VAIIQHMIKKLR.

4. The formulation as claimed in claim 1 wherein SEQ ID 3 represents a peptide sequence having a sequence as LPQEVLNENLLRF.

5. The formulation as claimed in claim 1 wherein SEQ ID 4 represents a peptide sequence having a sequence as RLNARMAELR.

6. The formulation as claimed in claim 1 wherein SEQ ID 5 represents a peptide sequence having a sequence as SSLQ VLNMSHN.

7. The formulation as claimed in claim 1 wherein SEQ ID 6 represents a peptide sequence having a sequence as EYQELMNVK.

8. The formulation as claimed in claim 1 wherein SEQ ID 7 represents a peptide sequence having a sequence as VDTLNDEINFLR.

9. The formulation as claimed in claim 1 wherein SEQ ID 8 represents a peptide sequence having a sequence as DGIVNENLAER.

10. The formulation as claimed in claim 1 wherein the formulation comprises between 0.1% to 1% by volume of the peptide sequences recited in SED ID 1-8.

11. The formulation as claimed in claim 1 wherein the wherein the mammalian colostrum is bovine colostrum.

12. The formulation as claimed in claim 1 wherein it helps in increasing the level of CD4 cells for use in treatment of immune related disease.

13. The formulation as claimed in claim 1 wherein it helps in weight gain of the patient.

14. The formulation as claimed in claim 1 wherein it helps in reducing clinical symptoms of diarrhea, nausea, vomiting, cough and skin rashes.

15. The formulation as claimed in claim 1 wherein it helps in reduction of viral load in the body.

16. The formulation as claimed in claim 1 further comprising peptides isolated from mammalian colostrum and having a molecular weight less than 1000OkDa.

17. The formulation as claimed in claim 1 further comprising pharmaceutically acceptable carriers.

18. The formulation as claimed in claim 1 wherein it is applied topically, as a skin dermal patch, as a skin spray or as a nasal or intravenous solution.

19. The formulation as claimed in claim 1 wherein it helps in curing 108 diseases including allergies, alzhemers, Benign Prostatic Hyperplasia, Cancer, Hypertension, Lupus, Thrush, Autism, Perthes disease, Prementural syndrome and Endometriosis, Prion disease, Psoriasis, Sjogren's Syndrome, Spinal Muscular Atrophy, Thrombocytopenia, burns, infection insect bites, diaper rash, herpetic lesions, perther disease, Pharangitis, Porphyria, Raynaud's phenomenon, Sarcoidosis, Celiac disease, Chronic Pancytopenia, Crohn's disease, Diabetes type II, Fibromyalgia Rheumatica, Mononucleosis, Multiple Sclerosis, Reuhmatoid Arthritis, Osteo Arthritis, Spinal Muscular Atrophy, Brown Recluse Spider Bite, Corneal Regeneration, diarrhea, Guillain Barre Syndrome, Hemolytic Anemia,

Idiopathic Thrombocytopenia purpura, Myasthenia Gravis, lupus, tuberculosis, HIV, Hepatitis A&C, Rebies in Dogs, Acute Viral Infections, Dengue fever, Human Papiloma Virus, Parvo, Pharangitis, Rabies, SARS, Shingles, Viral Respiratory Infection, Plantar Warts, Colds and Flues, Lymphoma and Herpes Simplex I & II. wound healing, bone density building and skin elasticity,insulin like growth factors,Anti aging etc.

20. The formulation as claimed in claim 1 wherein additional health benefits include Anabolic, Anti Aging, Anti fungal, Anti-inflamatory, Anti-microbial, Assimilation,Atheletic performance, body building, bone density, cytokine enhancement, digestion, epithelial growth factors, friendly flora enhancement, insulin like growth factors, immunity booster, immunoglobulin, interferon,interleukins,intestinal permeability,lactoferrin,MSM, Muscle tonning, skin elasticity, stamina, transforming growth factors, wound healing and weight loss for obese.

21. A method for treatment of immune related disorders including autoimmune disorders the method comprising of administering a patient suffering from such disorders a therapeutically effective amount of formulation comprising peptides of SEQ ID 1-8.

22. The method as claimed in claim 12 wherein the peptides are synthetic peptides.

23. The method as claimed in claim 12 wherein the formulation comprises 0.3% of protein.

24. The method as claimed in claimed in 12 wherein the formulation is administered in an amount of 2ml to 5ml four times a day.

25. A method for treatment of Acquired Immune Deficiency Syndrome or AIDS the method comprising administering a patient suffering from AIDS a therapeutically effective amount of formulation comprising the peptides of SED ID 1-8.

26. The process for processing mammalian colostrum to isolate small amino acids sequences the process comprising the steps of a. separating fat, Cheese and colostrum whey; b. passing the whey through a series of filter to remove suspended solids and reduce the microbial load; c. passing the whey obtained from step (b) through ultrfiltration to obtain amino acid sequences having molecular weight of less than 10000 kDa; wherein ultrafiltration is done at low pressure and temperature to preserve the amino acid sequences.

27. The process as claimed in claim 17 wherein the ultrafiltration is carried out at a pressure less than 5 kg/cmsq.

28. The process as claimed in claim 17 wherein the ultrafiltration is carried out at a pressures in the range of 0.5 kg/cmsq to 4 kg/cmsq.

29. The process as claimed in claim 17 wherein the ultrafitration is carried out at a pressure of 2.0 kg/cmsq.

Description

TITLE OF THE INVENTION

MAMMALIAN COLOSTRUM DERIVED NANOPEPTIDES FOR BROADSPECTRUM VIRAL AND RECURRENT INFECTIONS WITH A METHOD OF ISOLATION THEREOF

FIELD OF THE INVENTION

The present invention relates to nanopeptides isolated from mammalian colostrum with vaccine like antiviral and immunodulator activity via building body's own immune system and attachment inhibition on the cell surface receptors.

BACKGROUND OF THE INVENTION

Colostrum is the pre-milk substance produced from the mother's breasts of all mammals during the first 24 hrs of lactation typically first 3 milks. Colostrum has been known as an immune booster since time immemorial. Colostrum triggers at least 50 processes in the newborn, including transferring all immune factors and the entire memory from mother's own immune system. Bovine colostrum is upto 40 times higher than human colostrums in immune factors including nanoinformational peptides, Proline Rich Polypeptides, immunoglobulins, cytokines, interferon, lactoferrin and transfer factor. They are produced by T-lymphocytes and can transfer the ability to recognize a pathogen to naive cells. However, no one till date has been able to isolate active ingradients especially nano informational low molecular weight nanopeptides and formulate a product that has the same effect that mother's first 3 milk, after the birth of child.

"Colostrum stimulates the lymphoid tissue providing benefits in aged or immuno- deficient people"....Drs. Bocci, Bremen, Corradeschi, Luzzi and Paulesu; Journal Biology. "Researchers reported that colostrum stimulates maturation of B Lymphocytes (type of white blood cell) and primes them for production of antibodies, enhances growth and differentiation of white blood cells. Similar activity in cow and human colostrum can also activate Macrophages" ...Dr. M. Julius, McGill University, Montreal: Science News.

"Bovine colostrum contains high levels of growth factors that promote normal cell growth and DNA synthesis" ...Drs. Oda, Shinnichi, et. al.;

Comparative Biochemical Physiology. "Drs. suggest that an important role for growth factors is in promoting wound healing. Accelerated healing is possible for treatment with trauma and surgical wounds" ...Drs. Bhora, et. al.; Journal. Surg. Res.

US 20070212367 - This patent application discloses an immunologically active PRP isolated from mammalian colostral fluids for treatment of viral and non-viral diseases, a method and a system for processing mammalian colostral fluids and a pharmaceutical formulation.

Colostrum as such contains hundreds of small peptides which serve numerous purposes. Their segregation and isolation will facilitate gathering of further information with regard to their individual function and help formulate specific and targeted therapies for numerous diseases that are cured by colostrum. Studies have documented the presence of number of bioactive peptides but no mention has been made of the use of these peptides fragments, their specific sequence or information regarding their isolation. The peptides are extremely sensitive to temperature, pH, stress and shear factors which posse several difficulties in their isolation and preserving their biological activity, and method of collection of colostrum so as to deliver it to the required patient by maintaining its full biological activity. The present invention addresses these shortcomings by providing isolated nano- peptides from colostrum, their method of isolation and therapeutic uses of the isolated nano-peptide fragments.

Summary of the Invention

One embodiment of the present invention provides for a formulation comprising peptides isolated from mammalian colostrum having sequences as recited in SEQ ID 1-8 hereinafter referred to as peptides of Radha 108 series , wherein the peptides function to modulate cell immunity and provide attachment inhibition for foreign antigen / viruses on cell surface receptors along with crossing BBB (blood brain barrier) and treating host of diseases in the brain

Colostrum is the pre-milk substance produced from the mother's breasts of all mammals during the first 24 hrs of lactation typically first 3 milks. In one embodiment, colostrum used in the present invention is of bovine origin. Bovine colostrum has 40 times higher immune factors than human colostrum and has the ability to cure a number of viral,immune and auto-immune disorders.

In another embodiment, there is provided a method of treatment of immune related disorders including autoimmune disorders the method comprising of adiministering a patient suffering from such disorders a therapeutically effective amount of formulation comprising the peptides of SEQ ID 108.

In yet another embodiment, there is provided a method of treatment of Acquired Immune Deficiency Syndrome or AIDS the method comprising administering a patient suffering from AIDS, a therapeutically effective amount of formulation comprising the peptides of SEQ ID 1-8. The formulation can be provided in a liquid, powder gel and any other pharmaceutical delivery forms. It can be administered orally, intravaneously or by means of dermal patch for adsorption through skin.

The present invention is illustrated with the help of acompnaying drawings and detailed description and examples given below. The drawings and example are for explanation and clarity purpose and do not in any way limit the scope of the invention being defined by the appended claims and equivalents thereof. The foregoing aspects and advantages of the present invention will become more clear and appreciated by the detailed description and examples.

Brief Description of Figures

Fig 1: Resolution of bovine colostrum sample used in the present invention through MS Spectra to give various protein fragments of different molecular weights.

A BRIEF DESCRIPTION OF THE INVENTION

The present invention relates to peptides isolated from colostrum, their innovative methods of collection, transport,storage, isolation and therapeutic uses of the same.

One embodiment of the present invention relates to peptides isolated from mammalian colostrum. The mammal can be bovine for example cow, goat, buffalo or any other suitable mammal. In one preferred embodiment of the present invention, the isolated peptides are obtained from lactating cows and bufallos in particular. The peptides are short chain amino acid sequences which are fragile sensitive to temperature, pH and shear stress and difficult to isolate. These peptides are in a segregated form. They are not binded by any other molecule. The isolated peptides comprise of the group of SEQ ID (1-8) and will be hereinafter referred to as Radha 108. Peptides of Radha 108 and do not coagulate being low in molecular weight. They are isolated from fat free whey obtained from the colostrum. The peptides of Radha 108 have a molecular weight in the range of 826 to 2990 kDa.

According to one embodiment of the present invention there is provided a method for collection and processing colostrum and isolating small amino acid sequences comprising of SEQ ID (1-8) the method comprising the steps of, separating fat, cheese and colostrum whey, passing the whey through a series of filters to remove suspended solids and reduce microbial load followed by ultra and nano filters to obtain a protein fraction having a molecular weight of less than 1000OkDa, specifically below 350OkDa wherein the filtration is done at a low pressure, minimal shear and temperature to preserve the Radha 108 nano peptides. Even the pumping means used to pump the liquid through the system consist of pumps with low rpm. In one embodiment, the nano and ultra filters are designed to operate at a low shear and pressure of less than 5 Kg/cmsq. In another preferred embodiment, the filters are designed to operate in the range of 0.5kg/cmsq to 4kg/cmsq. In yet another preferred embodiment, the filters are designed to operate at a pressure range between 0.5kg/cmsq and 2.0 kg/cmsq. Nano and ultra filtration of proteins at such low pressures is virtually unheard off due to practical difficulties in obtaining effective amounts of protein within acceptable time limits. The present invention thus overcomes the problem of prior art with regard to isolation and separation of small peptide molecules.

Colostrum is collected after delivery from mammal, and cooled to a temperature in the range of -20 deg C within 3hours to preserve the biological activity of Radha 108 series nano peptides. Care is taken to preserve these sensitive peptides right from the collection stage by provisions of special custom made non reactive plastic bags which help in the non reactive aseptic collection of milk from the calf. The handlers and collector of the milk are to be provided special instruction for the collection in order to avoid drastic changed to the sensitive peptides so that they don't loose their activity. The colostrum is then gradually thawed at room temperature over night to bring the temperature to 4 to 5 deg C, and pumped to a cream separator for removal of fats at 4000 RPM at 45 deg C. It is then pasteurized by increasing the temperature to 72 deg C for 15 sec followed by cooling to 48 deg C. The colostrum is then received into cheese vat and treated with enzyme Rennet for 45-60 min to form curd and whey. The whey is cooled and passed through a series of filters upto molecular exclusion nano and ultrafiltration at low pressure and temperature for separation to peptides having a molecular weight of less than 1000OkDa. After the process care is taken to adjust the pH and keep it constant in the range of pH 4 to pH 6 in order to avoid degradation and loss of biological activity of the peptides of Radha 108. The protein fraction containing peptides less than 10000 kDa

In another embodiment of the present invention there is provided a method of treating Acquired Immune Deficiency Syndrome or AIDS, the method comprising administering a patient suffering from AIDS, a therapeutically effective amount of a formulation comprising peptides of SEQ ID 1-8.

The peptides of the present invention block receptors GP120, 160, 180, 41 and other cell receptor sites through which foreign antigen/virus enters the immune and other cell types. Topographically, these peptides are similar to virus size and when they dock on these receptor sites mimicking the virus / antigen, thereby limiting the entry of foreign infectious agents though competitive attachment inhibition. The product also has a vaccine like effect via providing memory to B Cells at stem cell level and preventing future outbreak of the disease.

In another embodiment of the present invention there is provided a method of treating swine flu in mammals, the method comprising administering a patient suffering from swine flu, a therapeutically effective amount of a formulation comprising peptides of Radha 108. In another embodiment of the present invention there is provided a method of treating immune disorders including autoimmune disorders comprising administering a patient suffering from such disorders a pharmaceutically effective dosage / amount of formulation comprising peptides of Radha 108.

The immuno-modulatory action of peptides of Radha 108 takes place by stimulating the maturation of immature thymocytes into either helper or suppressor T cells, depending on the need of the body. Helper T cells present antigens (such as viral protein) to B lymphocytes, which produce antibodies to that antigen. Helper T cells also help produce memory T cells, which retain the memory of an antigen in order to expedite the production of antibodies in the event the antigen is re-encountered in the future creating vaccine like memory for the first time in history of use of colostrum. Suppressor T cells, on the other hand, deactivate other lymphocytes after an infection has been cleared to avoid damage to healthy tissues. Peptides of the present invention also promote the growth and differentiation of B cells in the response to an infection and the differentiation and maturation of macrophages and monocytes" The activity of Natural Killer cells from Thymus gland via Radha 108 series of peptide that crosses BBB(Blood Brain Barrier), cytotoxic cells of the innate immune system, was increased up to 5 times by the peptides (Radha 108) of the present invention.

The peptides of the present invention are also known to modulate the cytokine system as well. It stimulates the production of a wide range of cytokines, including the proinflammatory cytokines tumor necrosis factor - alpha (TNF- alfa and gamma (INF - -inflammatory cytokines interleukin (ILl, IL2, IL6, ILIO, ILll, IL12) immuno-modulators.

The peptides of the present invention are small nanopeptides ranging between 800 to 3200 daltons and hence they are able to cross the blood brain barrier, and treat viral infections and neural disorders in brain via signaling Pituitary gland located in the brain . It also acts on the signaling pathways through Pituitary gland that sends signals to thymus in throat and stem cells in bone marrow, building body's own immune system naturally without the help of any other external medications..

According to another embodiment of the present invention there is provided a pharmaceutical formulation comprising the peptides of the present invention as an active pharmaceutical ingredient (API) and pharmaceutically acceptable carriers. Optionally, the formulation further comprises Proline Rich Polypeptides or PRP's commonly found in colostrum as additional active ingredient. The formulation is used for the treatment of wide range of diseases such as viral, bacterial, mycobacterium, fungal, parasitic, immune disorders including autoimmune disorders etc.

According to another embodiment of the present invention there is provided a method for treating a person suffering from immune related disorders the method comprising administering a the dose of formulation comprising of peptides of the present invention in the range of 2ml to 5ml in a spray form inside the mouth on buccal mucosa or on the any other surface of body-skin or nasal cavity(4 times a day).

According to another embodiment of the present invention the formulation can be applied topically or as a skin/ trans-dermal patch or through the nasal or intravenous route.

The formulation of the present invention is known to cure around 108 disease which include AIDS, allergies, Alzheimer, Benign Prostatic Hyperplasia, Cancer, Hypertension, Lupus, Thrush, Autism, Perth's disease, Premenstrual syndrome and Endometriosis, Prion disease, Psoriasis, Sjogren's Syndrome, Spinal Muscular Atrophy, Thrombocytopenia, burns, infection insect bites, diaper rash, herpetic lesions, perther disease, Pharangitis, Porphyria, Raynaud's phenomenon, Sarcoidosis, Celiac disease, Chronic Pancytopenia, Crohn's disease, Diabetes type II, Fibromyalgia Rheumatic, Mononucleosis, Multiple Sclerosis, Reuhmatoid Arthritis, Osteo Arthritis, Spinal Muscular Atrophy, Brown Recluse Spider Bite, Corneal Regeneration, diarrhea, Guillain Barre Syndrome, Hemolytic Anemia, Idiopathic Thrombocytopenia purpura, Myasthenia Gravis, lupus, tuberculosis, HIV, Hepatitis A&C, Rebies in Dogs, Acute Viral Infections, Dengue fever, Human Papiloma Virus, Parvo, Pharangitis, Rabies, SARS, Shingles, Viral Respiratory Infection, Plantar Warts, Colds and Flu, Lymphoma and Herpes Simplex I & II, wound healing, bone density building and skin elasticity,insulin like growth factors,Anti aging etc.

Additional health benefits from Radha 108 series include Anabolic,Anti Aging, Anti fungal, Anti-inflamatory, Anti-microbial, Assimilation,Atheletic performance, body building, bone density, cytokine enhancement, digestion, epithelial growth factors, friendly flora enhancement, insulin like growth factors, immunity booster, immunoglobulin, interferon,interleukins,intestinal permeability,lactoferrin,MSM, Muscle tonning, skin elasticity, stamina, transforming growth factors, wound healing and weight loss for obese.

The invention will now be described with the help of example provided herein which is meant only for the purpose of illustration and understanding and does not in any way limit the scope of the present invention.

Example

Pregnant cattle were identified from various heard through the Amul's Kheda district of Anand in Gujarat India through computerized record keeping systems of Amul Dairy. Colostrum obtained from the cattle soon after delivery was collected and stored in aseptic temperature controlled collection vessels at a temperature of 4 deg C to preserve the biological activity of the peptides. It was further freezed to -20 deg C till future processing. For separation of peptides of the present invention, colustrum was gradually thawed at room temperature over night to bring the temperature to 4 to 5 deg C. It was then pumped to the cream separator for removal of fats at 4000 RPM at 45 deg C. This was followed by pasteurization at a temperature of 72 deg C for 15 sec followed by cooling at 48 deg C and receiving the pasteurized colostrum into cheese vat. Enzyme Rennet was added to the cheese vat and allowed to react for 60 min after which the curd formed was separated from colostrum whey. The whey was cooled to 4 to 10 deg C. It was then passed through a series of filters to remove suspended solids and microbial load all the way upto molecular exclusion nano ultra-filtration for separation to peptides having molecular weight less than 10 kDa to obtain peptides of the present invention in a mixture along with Radha 108 series and PRP's present in the colostrum. During process Difiltration is carried out by adding 10% purified water of total batch size. Presence of the peptides of SEQ ID 1-8 was verified using HPLC techniques.

Preservatives are added to tT-he fraction obtained after ultra-filtration and pH is adjusted between 4 to 6. The formulation was provided in a spray form in order to test its efficacy in human trial.

The patients who were administered formulation comprising peptides of the present invention were neither exposed before nor were on any other drugs especially, anti-retroviral and antibiotics therapies at the time of administration of the drug. Thus, the formulation of the present invention can be effectively used as a standalone therapy.

WHO approved end points for assessing the therapeutic usage of formulation of the present invention were scientifically analyzed through the Indian Government sponsored and monitored study on 2 sets of patients at LTMMC and LTMG municipal tertiary care hospital in Sion, Mumbai with end point analysis for weight gain and clinical symptoms carried out the Sion Hospital and viralogical (viral load) and immunological (absolute CD4 count analysis) being done at two separate internationally recognized center (Institute of Immunoheamatology, Indian Council of Medical Research Institute in Mumbai and Metropolis Central Laboratory in Mumbai India having approval from USA pathological association and accreditation from NABL, Department of Science and Technology Government of India.

The statistical analysis of both these sets of studies were undertaken at the premier medical research institute in India; All India Institute of Medical Sciences New Delhi.

A. Initially, 50 participants were evaluated in the clinic once a week through the first 4 weeks of therapy, and then every 2 weeks for the remaining 8 weeks of the study. They were evaluated about clinical and physical symptoms via symptom assessment form, physical examination, side effect of treatment and compliance to the drug on follow up visits. Blood tests to measure CD4 cell count, HIV viral load, heamoglobin, white blood cell count, liver function test and renal function test were done at baseline and at end of 12 weeks study.

CD4 and CD8 cell count were analyzed via Flow Cytometry and Viral Load via Polymerase Chain Reaction at the beginning and at the end of 12 weeks.

Primary efficacy end points of study was the effect of this therapy on the markers of HIV disease including clinical symptoms and physical findings, weight gain/ loss along with the general well being of the patients and HIV viral load and CD4 cell count, which showed consistently positive results in both the trials conducted since 2005 Onwards.

Weight Gain: Consistent weight gain was observed in all patients on follow-up visits, which was one of the primary end point (Table 1). The average weight gain after 12 weeks of treatment was 4.73 kg per patient, which is statistically highly significant ($p<0.001$).

Table 1: changes in mean weight after treatment

Clinical parameters: All the clinical symptoms disappeared during the 12 weeks of treatment. These reductions are statistically significant ($p<0.05$).

Fatigue / malaise: 88 % of the total study cases had symptoms of fatigue at basal. After treatment at the end of 2^{nd} week proportion of symptoms of fatigue had a significant fall from basal. After 6^{th} week onwards only one or two patients had fatigue (Figure 1).

Figure 1: percentage of cases with fatigue / malaise after the treatment

Diarrhoea: 18 % of the total study cases had diarrhea at basal and after treatment from 5^{th} week onwards all the patients had relief from diarrhea (Figure 2). Figure 2 : Percentage of cases with diarrhea after the treatment visits

Fever: Fever was reported by 24 % of total study cases at basal and from 7^{th} week onwards not a single patient had fever with significant fall started 4^{th} week onwards. Cough : 28 % of the total study cases had a symptom of cough at basal which had significant fall from 3^{rd} week onwards and all improved 10^{th} week onward (Figure 3).

Figure 3 : percentage of cases with fever / cough after therapy.

visits

■ fever ■ cough

Skin rash and Herpes Zoster: 14 % and 12 % of total study cases had skin rash and herpes zoster at basal respectively and from 4th week onwards not a single patient had suffered from skin rash.

Similarly, nausea, vomiting and disturbed sleep were improved significantly during therapy with formulation of the present invention. Absolute CD4 cell count and HIV viral load: CD4 cell count was available for 48 patients with pre and post treatment values. There was increase in CD4 count on the average by 51 (median CD4 cell counts from 312 to 363). This is of borderline statistical significance (p = 0.06). 30 out of 48 (62.5 %) patients showed rise in CD4 count and 18 patients (37.5 %) showed decrease in CD4 cell count. CD4 cell count range with number of patients at baseline and at the end of study is shown in figure 4.

Figure 4 : No. of patients at baseline and at end of treatment with CD4 cell count range.

The mean HIV log viral load has statistically significantly dropped from 4.63 to 4.18 after 12 weeks of treatment (p = 0.03). Similar trend is also seen in the pre treatment and post treatment median viral loads (from 92458 us. 25332, p<0.001).

B. Another study was carried out with 51 HIV positive patients by the administration of the formulation comprising peptides of the present invention for twelve weeks. The results obtained are as follows: Weight gain: Weight monitored on every visit showed significant gain in all 51 HIV patients with mean weight gain of 4.68 ±1.9 kg after 12 weeks (Figure 5)

Figure 5: mean weight in kg during therapy

visit 1 visit 2 visit 3 visit 4 visit 5 visit 6 visit 7 visit 8

- mean weight (kg)

Clinical parameters: All the clinical symptoms had disappeared during the 12 weeks of treatment (most of them had disappeared within 3 weeks). These reductions are statistically significant (p < 0.05).

Fatigue / malaise: 100 % of the total study cases had symptoms of fatigue at basal. After treatment at the end of 2nd week proportion of symptoms of fatigue had a significant fall from basal. After 6 -th week onwards all patients had relief from fatigue (Figure 6).

Figure 6 : No. of patients with fatigue / malaise after therapy

Fever and diarrhea: 100 % of the total study cases had fever and diarrhea at basal and after treatment from 3rd week onwards. All the patients had relief from diarrhea and fever (Figure 7).

N_{fitt} oo $_{p}a_{e}n_{s}$.

Figure 7 : No. of patients with fever / diarrhea with therapy.

I 3 4 5 6 7 8 visits

■ diarrhea 9 fever

Skin rash and Herpes Zoster : All the patients had HIV associated skin rash and herpes zoster at basal and became asymptomatic after 3rd week onwards with treatment. (Figure 8)

Figure 8 : No. of patients having HIV associated skin rash and herpes zoster after therapy

Similar improvement seen in nausea, vomiting, cough and disturbed sleep and all patients became asymptomatic from 3rd week onwards. Absolute CD4 cell count: CD4 cell count was available for all 51 patients with pre and post treatment values. There was increase in CD4 count on the average by 27 (median CD4 cell counts from 276 to 305). This value is statistically significant (p = 0.042). CD4 cell count range with number of patients at baseline and at the end of study is shown in figure ΘFigure 9 : No. of patients and CD4 cell count range

HIV viral load: After RADHA108 series 12-week treatment, at the end of study mean viral load showed a significant fall (p < 0.001) from the baseline.

Side effects: All patients tolerated the formulation of present invention well with no side effects.

C. The output of the statistical analyses of the study carried out on 50 HIV positive patients is as follows:

Sr. No. Parameter Before After 12 Weeks P- value

I. Physical (N=50)

1. Weight 50.48 (10.97) 55.21 (9 .42) <0.001

II. Clinical Symptoms (N=50)

These results show that formulation containing nano-peptide of the present invention are effective and safe drug in increasing weight and general well being of patients, with decrease in viral load and increase in CD4 cell count. Thus, peptides of the present invention as active pharmaceutical ingredients hold good promise for the treatment of HiV patients across all age groups. The Radha 108 series peptides of the present invention are active in the treatment of various diseases and conditions as explicated above.

Patent Citations (9)

Publication number	Priority date	Publication date	Assignee	Title
WO2001055199A1 *	2000-01-26	2001-08-02	Regen Therapeutics Plc	Peptide fragments of colostrinin and their use
KR20020024902A *	2000-09-27	2002-04-03	장동한	Agent of immunological enhancement comprising colostral fractions as active ingredient, method of the preparation for the same and its use
US20020127279A1 *	2001-03-12	2002-09-12	Matthews James S.	Peptide-isolation process and product made thereby
US20050175597A1 *	2002-03-21	2005-08-11	Rawlin Grant T.	Compositions containing labile bioactive materials and mammalian colostrum, methods of preparation and treatment

US20070212367A1 *	2006-03-13	2007-09-13	Keech Andrew M	Novel immunologically active peptide fragments of a proline-rich polypeptide isolated from colostral mammalian fluids for treatment of viral and non-viral diseases or diseased conditions
Family To Family Citations				
ATE159292T1 *	1991-12-23	1997-11-15	Boehringer Ingelheim Int	NEUROBLASTOMA-ASSOCIATED REGULATOR GENE
AU2001237543A1 *	2000-02-24	2001-09-03	Oxford Glycosciences (Uk) Ltd.	Proteins, genes and their use for diagnosis and treatment of schizophrenia
PE20021080A1 *	2001-04-12	2003-02-12	Boehringer Ingelheim Int	A SPECIFIC ANTIBODY FAPO BIBH1 IN THE TREATMENT OF CANCER
AU2005215943A1 *	2004-03-01	2005-09-09	Peptera Pharmaceutical Ltd.	Casein derived peptides and therapeutic uses thereof

* Cited by examiner, † Cited by third party

Non-Patent Citations (3)

Title
Nord J; Ma P; Dijohn D; Tzipori S; Tacket C O: "Treatment with bovine hyperimmune colostrum of cryptosporidial diarrhea in AIDS patients.", AIDS, vol. 4, no. 6, 1 June 1990 (1990-06-01), pages 581-584, XP055114700, GB ISSN: 0269-9370 *
See also references of WO2010079511A2 *
STRUFF W G ET AL: "Bovine colostrum as a biologic in clinical medicine: a review--Part II: clinical studies", INTERNATIONAL JOURNAL OF CLINICAL PHARMACOLOGY AND THERAPEUTICS, DUSTRI-VERLAG, DEISENHOFEN-MUENCHEN, DE, vol. 46, no. 5, 1 May 2008 (2008-05-01), pages 211-225, XP009150270, ISSN: 0946-1965 *

* Cited by examiner, † Cited by third party

Cited By (3)

Publication number	Priority date	Publication date	Assignee	Title
Family To Family Citations				
JP5925391B2 *	2013-10-16	2016-05-25	日本水産株式会社	Peptide or acid addition salt thereof, food and drink, and composition for diabetes prevention, etc.
US10842819B2 *	2014-01-09	2020-11-24	Cmi Research Management, Llc	Compositions and methods for treating itching, gingivostomatitis, and demodectic mange
WO2017192360A1 *	2016-05-02	2017-11-09	Cmi Research Management, Llc	Compositions and methods for treating itching caused by allergy

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

Similar Documents

Publication	Publication Date	Title
US6852700B1	2005-02-08	Colostrinin, and uses thereof
CN112020367B	2021-06-01	Antiviral immunomodulator for treating acute respiratory infectious diseases
JP6121597B1	2017-04-26	Immune response activated cytokine production promoter and Th17 cell differentiation promoter
Cai et al.	2020	Immunomodulatory significance of natural peptides in mammalians: Promising agents for medical application
RU2619862C1	2017-05-18	Method of treatment of subclinical mastitis in lactating cows
US6447808B2	2002-09-10	Growth-promoting agent
CN106075436B	2020-01-03	An oral preparation containing no antibiotic for resisting helicobacter pylori
US9249188B2	2016-02-02	Mammalian colostrum derived nanopeptides for broadspectrum viral and recurrent infections with a method of isolation thereof
JPH09502706A	1997-03-18	Bile-derived immunomodulatory composition
US20070212367A1	2007-09-13	Novel immunologically active peptide fragments of a proline-rich polypeptide isolated from colostral mammalian fluids for treatment of viral and non-viral diseases or diseased conditions
CN103690935B	2015-04-08	Freeze-drying medicine composition containing thymalfasin
WO2003055518A1	2003-07-10	Method for curing immunopathosis and medicinal agent for carrying out said method
WO2010044095A2	2010-04-22	Novel immunologically active peptide fragments of a proline- rich polypeptide isolated from mammalian colostrums for treatment of viral and non-viral diseases or diseased conditions

WO2015105905A1	2015-07-16	Treating gingivostomatitis and demodectic mange
CN112823808B	2024-04-02	Pharmaceutical composition for preparing medicine for treating epithelial cell cancer and application thereof
RU2755638C2	2021-09-17	Method for increasing antitumour resistance, antioxidant and immunostimulating effects on the body
KR20090115860A	2009-11-09	Immunomodulators
WO2007079052A2	2007-07-12	Novel immunologically active peptide fragments of a proline-rich polypeptide isolated from colostral mammalian fluids for treatment of viral and non-viral diseases or diseased conditions
US10842819B2	2020-11-24	Compositions and methods for treating itching, gingivostomatitis, and demodectic mange
CN1310674C	2007-04-18	Medicinal composition for treating serious acute respiratory syndrome
AU761148B2	2003-05-29	Colostrinin, and uses thereof
Noviatri et al.	2020	WATER-SOLUBLE EXTRACT OF GOAT MILK YOGURT MODULATE EXPRESSION OF INTERLEUKIN-10 AND INTERLEUKIN-17 IN THE THYROID OF AUTOIMMUNE THYROIDITIS RATS.
Ohya et al.	2003	Protective Effect of Orally Administered Human Interferon (HuIFN)-α against Systemic Listeria monocytogenes Infection and a Practical Advantage of HuIFN-α Derived from Transgenic Potato Plant
CN1897973A	2007-01-17	Propagation agent and propagation method for natural killer cell
RU7872U1	1998-10-16	PREPARATION "BETALEYKIN"

Priority And Related Applications

Applications Claiming Priority (2)

Application	Filing date	Title
IN1353MU2008	2008-12-27	
PCT/IN2009/000749	2009-12-29	Mammalian colostrum derived nanopeptides for broadspectrum viral and recurrent infections with a method of isolation thereof

Legal Events

Date	Code	Title	Description
2011-09-02	PUAI	Public reference made under article 153(3) epc to a published international application that has entered the european phase	**Free format text**: ORIGINAL CODE: 0009012
2011-10-05	17P	Request for examination filed	**Effective date**: 20110630
2011-10-05	AK	Designated contracting states	**Kind code of ref document**: A2 **Designated state(s)**: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
2012-04-04	DAX	Request for extension of the european patent (deleted)	
2013-04-17	17Q	First examination report despatched	**Effective date**: 20130320
2016-03-01	GRAP	Despatch of communication of intention to grant a patent	**Free format text**: ORIGINAL CODE: EPIDOSNIGR1
2016-03-30	INTG	Intention to grant announced	**Effective date**: 20160302
2016-07-15	GRAS	Grant fee paid	**Free format text**: ORIGINAL CODE: EPIDOSNIGR3
2016-07-22	GRAA	(expected) grant	**Free format text**: ORIGINAL CODE: 0009210
2016-08-24	AK	Designated contracting states	**Kind code of ref document**: B1

			Designated state(s): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
2016-08-24	REG	Reference to a national code	**Ref country code**: GB **Ref legal event code**: FG4D
2016-08-31	REG	Reference to a national code	**Ref country code**: CH **Ref legal event code**: EP
2016-09-15	REG	Reference to a national code	**Ref country code**: AT **Ref legal event code**: REF **Ref document number**: 822454 **Country of ref document**: AT **Kind code of ref document**: T **Effective date**: 20160915
2016-09-21	REG	Reference to a national code	**Ref country code**: IE **Ref legal event code**: FG4D
2016-10-06	REG	Reference to a national code	**Ref country code**: DE **Ref legal event code**: R096 **Ref document number**: 602009040667 **Country of ref document**: DE
2016-11-23	REG	Reference to a national code	**Ref country code**: RO **Ref legal event code**: EPE
2016-11-30	REG	Reference to a national code	**Ref country code**: NL **Ref legal event code**: FP
2016-12-13	REG	Reference to a national code	**Ref country code**: SE **Ref legal event code**: TRGR
2016-12-27	REG	Reference to a national code	**Ref country code**: LT **Ref legal event code**: MG4D
2017-01-31	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: FI **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824 **Ref country code**: NO **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT

			Effective date: 20161124 **Ref country code**: LT **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824 **Ref country code**: HR **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824
2017-02-20	REG	Reference to a national code	**Ref country code**: DK **Ref legal event code**: EGE **Effective date**: 20170213 **Ref country code**: DK **Ref legal event code**: T3 **Effective date**: 20170213
2017-02-28	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: PT **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20161226 **Ref country code**: GR **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20161125 **Ref country code**: LV **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824

2017-03-13	REG	Reference to a national code	**Ref country code**: ES **Ref legal event code**: FG2A **Ref document number**: 2605173 **Country of ref document**: ES **Kind code of ref document**: T3 **Effective date**: 20170313
2017-04-28	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: EE **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824
2017-05-26	REG	Reference to a national code	**Ref country code**: DE **Ref legal event code**: R097 **Ref document number**: 602009040667 **Country of ref document**: DE
2017-05-31	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: SK **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824 **Ref country code**: PL **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824 **Ref country code**: SM **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824 **Ref country code**: BG **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20161124 **Ref country code**: CZ **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A

			TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824
2017-06-28	REG	Reference to a national code	**Ref country code**: FR **Ref legal event code**: PLFP **Year of fee payment**: 8
2017-06-30	PLBE	No opposition filed within time limit	**Free format text**: ORIGINAL CODE: 0009261
2017-06-30	STAA	Information on the status of an ep patent application or granted ep patent	**Free format text**: STATUS: NO OPPOSITION FILED WITHIN TIME LIMIT
2017-08-02	26N	No opposition filed	**Effective date**: 20170526
2017-08-31	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: SI **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824
2017-09-29	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: MC **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824
2017-10-31	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: LU **Free format text**: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES **Effective date**: 20161229
2018-05-31	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: CY **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824 **Ref country code**: HU **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO **Effective date**: 20091229

2018-06-18	REG	Reference to a national code	**Ref country code**: FR **Ref legal event code**: PLFP **Year of fee payment**: 9
2018-06-29	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: IS **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824 **Ref country code**: MK **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824 **Ref country code**: TR **Free format text**: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT **Effective date**: 20160824
2018-09-28	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: MT **Free format text**: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES **Effective date**: 20161229
2019-04-15	REG	Reference to a national code	**Ref country code**: AT **Ref legal event code**: UEP **Ref document number**: 822454 **Country of ref document**: AT **Kind code of ref document**: T **Effective date**: 20160824
2020-02-28	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: FR **Payment date**: 20191016 **Year of fee payment**: 11
2020-03-31	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: CH **Payment date**: 20191023 **Year of fee payment**: 11
2020-07-31	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: DK **Payment date**: 20200630 **Year of fee payment**: 11
2021-07-19	REG	Reference to a national code	**Ref country code**: DK

			Ref legal event code: EBP **Effective date**: 20201231
2021-07-30	REG	Reference to a national code	**Ref country code**: CH **Ref legal event code**: PL
2021-10-29	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: FR **Free format text**: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES **Effective date**: 20201231
2021-11-30	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: CH **Free format text**: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES **Effective date**: 20201231 **Ref country code**: LI **Free format text**: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES **Effective date**: 20201231
2022-01-31	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: DK **Free format text**: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES **Effective date**: 20201231
2022-04-11	REG	Reference to a national code	**Ref country code**: ES **Ref legal event code**: FD2A **Effective date**: 20220411
2022-07-29	PG25	Lapsed in a contracting state [announced via postgrant information from national office to epo]	**Ref country code**: ES **Free format text**: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES **Effective date**: 20201230
2025-01-10	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: DE **Payment date**: 20241222 **Year of fee payment**: 16
2025-01-17	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: GB **Payment date**: 20241215 **Year of fee payment**: 16
2025-01-23	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: AT **Payment date**: 20241223 **Year of fee payment**: 16
2025-01-24	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: IE **Payment date**: 20241219 **Year of fee payment**: 16
2025-01-27	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: RO

			Payment date: 20241217 **Year of fee payment**: 16
2025-01-29	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: SE **Payment date**: 20241219 **Year of fee payment**: 16
2025-02-17	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: NL **Payment date**: 20241223 **Year of fee payment**: 16
2025-04-17	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: ES **Payment date**: 20250102 **Year of fee payment**: 16
2025-04-24	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: BE **Payment date**: 20241220 **Year of fee payment**: 16
2025-04-28	PGFP	Annual fee paid to national office [announced via postgrant information from national office to epo]	**Ref country code**: IT **Payment date**: 20241224 **Year of fee payment**: 16

Concepts

machine-extracted

Download Filter table

Name	Image	Sections	Count	Query match
colostrum		title,claims,abstract,description	43	0.000
colostrum		title,claims,abstract,description	43	0.000
method		title,claims,description	35	0.000
virological effect		title,claims,description	17	0.000
Viral infection		title,claims,description	5	0.000
isolation		title,description	8	0.000
Reinfection		title,description	2	0.000
inhibitory process		claims,abstract,description	5	0.000
Cell Surface Receptors		claims,abstract,description	4	0.000
membrane receptors		claims,abstract,description	4	0.000
processed proteins & peptides		claims,description	67	0.000
processed proteins & peptides		claims,description	56	0.000
mixture		claims,description	46	0.000
formulation		claims,description	45	0.000
diseases, disorders, signs and symptoms		claims,description	19	0.000
cd4 cell		claims,description	15	0.000
symptom		claims,description	13	0.000
Bos taurus		claims,description	12	0.000
disease		claims,description	12	0.000
Diarrhoea		claims,description	11	0.000

AIDS	claims,description	10	0.000
Whey	claims,description	10	0.000
Whey Proteins	claims,description	10	0.000
Whey Proteins	claims,description	10	0.000
antigen	claims,description	8	0.000
antigens	claims,description	8	0.000
antigens	claims,description	8	0.000
process	claims,description	8	0.000
Exanthema	claims,description	7	0.000
Herpes zoster	claims,description	7	0.000
Viruses	claims,description	7	0.000
disorder	claims,description	7	0.000
exanthem	claims,description	7	0.000
rash	claims,description	7	0.000
skin rash	claims,description	7	0.000
ultra-filtration	claims,description	7	0.000
weight gain	claims,description	7	0.000
weight gain	claims,description	7	0.000
Cough	claims,description	6	0.000
proteins	claims,description	6	0.000
proteins and genes	claims,description	6	0.000
proteins and genes	claims,description	6	0.000
Autoimmune disease	claims,description	5	0.000
Cytokines	claims,description	5	0.000
Cytokines	claims,description	5	0.000
amino acids	claims,description	5	0.000
cheese	claims,description	5	0.000
wound healing	claims,description	5	0.000
Insulin-Like Growth Factor I	claims,description	4	0.000
Somatomedins	claims,description	4	0.000
anti-aging effect	claims,description	4	0.000
bone density	claims,description	4	0.000
fats	claims,description	4	0.000
growth factor	claims,description	4	0.000
infectious disease	claims,description	4	0.000
lupus erythematosus	claims,description	4	0.000
processing	claims,description	4	0.000
skin elasticity	claims,description	4	0.000
spinal muscular atrophy	claims,description	4	0.000
syndromic disease	claims,description	4	0.000
Immunoglobulin	claims,description	3	0.000
Interferons	claims,description	3	0.000
Interferons	claims,description	3	0.000

Interleukins	claims,description	3	0.000
Interleukins	claims,description	3	0.000
Lactoferrin	claims,description	3	0.000
Lactoferrin	claims,description	3	0.000
Nausea	claims,description	3	0.000
Vomiting	claims,description	3	0.000
dermal patch	claims,description	3	0.000
function	claims,description	3	0.000
immunoglobulin	claims,description	3	0.000
interferon	claims,description	3	0.000
l-phenylalanyl-l-lysyl-l-cysteinyl-l-arginyl-l-arginyl-l-tryptophyl-l-glutaminyl-l-tryptophyl-l-arginyl-l-methionyl-l-lysyl-l-lysyl-l-leucylglycyl-l-alanyl-l-prolyl-l-seryl-l-isoleucyl-l-threonyl-l-cysteinyl-l-valyl-l-arginyl-l-arginyl-l-alanyl-l-phenylal	claims,description	3	0.000
lactoferrin	claims,description	3	0.000
lactoferrin	claims,description	3	0.000
microbial effect	claims,description	3	0.000
nausea	claims,description	3	0.000
reduction	claims,description	3	0.000
solid	claims,description	3	0.000
spray	claims,description	3	0.000
viral infection	claims,description	3	0.000
vomiting	claims,description	3	0.000
weight loss	claims,description	3	0.000
Arthropod bite	claims,description	2	0.000
Autism	claims,description	2	0.000
Autistic disease	claims,description	2	0.000
Benign prostatic hyperplasia	claims,description	2	0.000
Candida infections	claims,description	2	0.000
Canis lupus familiaris	claims,description	2	0.000
Coeliac disease	claims,description	2	0.000
Crohn disease	claims,description	2	0.000
Dengue	claims,description	2	0.000
Dengue fever	claims,description	2	0.000
Dermatitis diaper	claims,description	2	0.000
Diaper Rash	claims,description	2	0.000
Endometriosis	claims,description	2	0.000
Fibromyalgia	claims,description	2	0.000
Guillain-Barré syndrome	claims,description	2	0.000
Herpes Simplex	claims,description	2	0.000
Hypersensitivity	claims,description	2	0.000
Hypertension	claims,description	2	0.000
Insect Bites and Stings	claims,description	2	0.000
Loxosceles reclusa	claims,description	2	0.000
Lymphomas	claims,description	2	0.000

Miller Fisher syndrome	claims,description	2	0.000
Neoplasm	claims,description	2	0.000
Oral Candidiasis	claims,description	2	0.000
Pancytopenia	claims,description	2	0.000
Porphyria	claims,description	2	0.000
Porphyrias	claims,description	2	0.000
Prion disease	claims,description	2	0.000
Prostatic Hyperplasia	claims,description	2	0.000
Psoriasis	claims,description	2	0.000
Rabies	claims,description	2	0.000
Raynaud phenomenon	claims,description	2	0.000
Respiratory tract infection viral	claims,description	2	0.000
Severe Acute Respiratory Syndrome	claims,description	2	0.000
Sjogren Syndrome	claims,description	2	0.000
Spider Bites	claims,description	2	0.000
Transforming Growth Factors	claims,description	2	0.000
Transforming Growth Factors	claims,description	2	0.000
Turdidae	claims,description	2	0.000
acute effect	claims,description	2	0.000
allergy	claims,description	2	0.000
anabolic effect	claims,description	2	0.000
anti-fungal effect	claims,description	2	0.000
anti-inflammatory effect	claims,description	2	0.000
anti-microbial effect	claims,description	2	0.000
antifungal agent	claims,description	2	0.000
antimicrobial	claims,description	2	0.000
arthritis	claims,description	2	0.000
autoimmune thrombocytopenic purpura	claims,description	2	0.000
cancer	claims,description	2	0.000
candidiasis	claims,description	2	0.000
cellular immunity	claims,description	2	0.000
chronic effect	claims,description	2	0.000
dengue disease	claims,description	2	0.000
diabetes mellitus	claims,description	2	0.000
digestion	claims,description	2	0.000
drug carrier	claims,description	2	0.000
epithelial growth	claims,description	2	0.000
health benefit	claims,description	2	0.000
hemolytic anemia	claims,description	2	0.000
hepatitis A	claims,description	2	0.000
immunity	claims,description	2	0.000
immunity booster	claims,description	2	0.000
infectious mononucleosis	claims,description	2	0.000

influenza	claims,description	2	0.000
interleukins	claims,description	2	0.000
intestinal permeability	claims,description	2	0.000
intravenous administration	claims,description	2	0.000
lesion	claims,description	2	0.000
multiple sclerosis	claims,description	2	0.000
muscle	claims,description	2	0.000
myasthenia gravis	claims,description	2	0.000
osteoarthritis	claims,description	2	0.000
regeneration	claims,description	2	0.000
regeneration method	claims,description	2	0.000
sarcoidosis	claims,description	2	0.000
skin papilloma	claims,description	2	0.000
stamina	claims,description	2	0.000
thrombocytopenia	claims,description	2	0.000
tuberculosis	claims,description	2	0.000
Legg-Calve-Perthes disease	claims	1	0.000
effects	abstract,description	10	0.000
immune system	abstract,description	4	0.000
vaccine	abstract,description	4	0.000
anti-viral effect	abstract,description	2	0.000

Show all concepts from the description section

Data provided by IFI CLAIMS Patent Services