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(54) Title: METHOD OF PRODUCING MEANS FOR TREATING THE HUMAN BODY

(57) Abstract

Gaseous elements are used to enrich the components of drugs, in order to enhance their potency. Oxygen is the preferred gaseous element. The use of drugs of enhanced potency as oral, parenteral, rectal, intravenous, intraarterial, intracavity, such as intracardial, intrapericardial, intrapleural, intrabronchial, intraperitoneal, and intravesical prescription has potentially positive wide–ranging preventive therapeutic, rehabilitative and regulatory effects. Similar potency–enhancing and therapeutic measures apply to nutrients and cosmetics.

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METHOD OF PRODUCING MEANS FOR TREATING THE HUMAN BODY

The invention relates to a method of generating prophylactic means for treating the human body and mind, for example drugs, but also nutrients and cosmetics, which have an improved quality.

It is known (DE-A-39 40 389), to enrich physiologically body-tolerant fluids such as water with gaseous elements such as oxygen in a concentration above the natural gas saturation level, in order to supply to the human body immuno-stimulating gases in a simple and effective manner in sufficient quantities.

Amongst the gaseous elements which can be used are hydrogen, oxygen, nitrogen, fluorine, chlorine and the noble gases helium, neon, argon, krypton, xenon and radon.

Gases can be dissolved in various liquids. For this physical process the Bunsen absorption coefficient (α) is decisive. This is different for different solvents.

Thus the Bunsen absorption coefficient α of dissolved carbon dioxide (CO_2) per ml of solvent at a temperature of 37°C and an air pressure of 760mm Hg is 0,51 ml. For oxygen (O_2) in the same situation the absorption coefficient α is 0.024 ml. The CO_2 solubility in plasma is thus about twenty times higher than the O_2 solubility. The solubility of atmospheric nitrogen in water at 20°C and 1 bar amounts to 23.54 ml/l and of nitrogen 18.6 ml/l.

It has been found that gases present in atmospheric air have a particular biological and environmentally significant character with a potency-enhancing effect.

Accordingly such gaseous elements, that is, gases obtained from atmospheric air but also manufactured gases, have an important nourishing and health-giving significance as well as biological and technological significance. For example argon, the noble gas present in atmospheric air in a volume percentage of 0.93, has an anti-proliferative action which is of particular significance in the prevention and treatment of neoplasms.

Carbon dioxide (CO_2) as an end product of the substrate breakdown takes part in the build-up and breakdown reactions of the human body and is of great significance for the human organism and our environment. Without carbon dioxide the formation of energy-rich nutrients by photosynthesis in plants is impossible.

Positive therapeutic effects and biological significance have been observed for gases such as argon (Ar), oxygen (O_2), ozone (O_3), nitrogen (N_2) and carbon dioxide (CO_2). The therapeutic effect can be reinforced in particular in medicine as monotherapy or in combination with other therapeutic methods such as hyperthermy and/or ionising, photonising measures as well as combinations of minerals and trace elements, vitamins, chemo- and radio-therapy introduced into the medical treatment.

In cancer therapy the cancer cells can also be sensitised before chemo- and radio-therapy by some gases such as oxygen and ozone and thereby can be better attacked and countered.

Own experiences, that were made during the treatment of patients after a cancer therapy confirm this process

The invention is based on solving the problem of producing suitable means for the treatment of the human body, such as drugs, but also nutrients and cosmetics, in physiological and body-friendly form in a biological better

quality. Thereby in particular new and effective healing means can be developed in the medical field.

According to the present invention, I provide a process for producing enhanced means for treating the human body, for example drugs, nutrients and cosmetics, the means comprising components, and the process comprising enriching at least one of the components by the use of one or more physiological and harmless gaseous elements, either present in the atmosphere or manufactured, to enhance the potency of the means for treating the human body.

The means for treatment of the body are increased in potency and effectiveness in that they contain one or more harmless gas with a concentration above the natural gas saturation level.

The enriching may be performed at, above or below atmospheric pressure. It may be performed at above or below room temperature, but preferably not less than 0°C.

The gaseous elements may be supplied in chemically pure form, or in conjunction with other chemical elements. Oxygen may be supplied by carbon dioxide or hydrogen peroxide.

It is established scientifically that certain gases such as argon (Ar), ozone (O_3), nitrogen (N_2), oxygen (O_2) and carbon dioxide (CO_2) can release and assist biological and/or bio-energetic energies in the human body.

The potency-enhancing action proposed according to the invention for drugs, but also nutrients as well as cosmetics, using gases has the aim of delivering the biologically and bio-energetically effective forces of the gases employed in the feeding and healing process of the body as well as in the field of cosmetics and thereby of achieving positive biological effects in this field.

The potency-enhancing and function-raising of drugs, especially sera, blood and substances being similar to blood with gases or with other elements and/or substances in combination is herein further described.

The potency-enhancing and function-raising of drugs, nutrients and cosmetics by gases in a high-molecular, ionised or atomic form takes place amongst other things by mixing, addition, enrichment or in a liposome form.

The ratio of the gas concentration is different with different drugs, nutrients or cosmetics. The gas concentration increases to increase the potency-enhancement or enrichment with gases. For example Haemaccel (a blood substitute) has an O_2 concentration of 8 mg/l before enrichment with oxygen at 18°C and 760 mm Hg air pressure. After the enrichment or potency-enhancement according to the invention the O_2 concentration under the otherwise identical conditions is increased to at least 42 mg/l.

The process according to the present invention further provides a method for the potency-enhancing and function-raising of drugs, especially sera, blood and substances being similar to blood with gases as a mono-therapy or a combination therapy with other elements and/or substances in combination for infusion, transfusion and for usage as special nutrients.

The process and the substances according to the present invention also apply to infusions into the blood track and the lymph track.

An example is given with Haemaccel 35.

Haemaccel 35 has the following composition, in that 1000 ml of Haemaccel contains:

Polypeptide cross-linked with urea links 35g (corresponding to 6.3g•N)

Electrolyte content in mmol/l:

Na^+145, K^+ 5/1, Ca^{++} 6.25, Cl^- 145.

Further components:

Traces of phosphate ions, sulphate ions, anionic polypeptides up to isotony, water for injection purposes.

Use:

Volume deficiency shock, blood and plasma loss, filling of heart-lung machines, carrier solution for various medicaments.

After the enrichment of Haemaccel with oxygen at 18°C and 1 bar pressure one obtains after potency-increasing with O_2 an increase in the oxygen saturation (oxygen concentration) from initially 8 mg/l to 42 mg/l. This concentration can be altered as desired and increased or reduced.

The new medicament produced after potency-enhancement with oxygen acts amongst other things significantly more effectively and rapidly in the treatment of shock and for volume substitution. Amongst further indication fields are, amongst things, heart ailments, micro-circulation failures as well as failures in the field of CNS and finally cancers.

Another example in this connection is natural blood.

According to the invention blood, like many medicaments and healing materials, is enhanced in potency with gases, amongst them oxygen, ozone and the like, and introduced in therapy with a high degree of effectiveness. As the most important body fluid blood provides the transport of oxygen and nutrients to tissues and the removal of material-exchange breakdown products and carbon dioxide.

Blood is made up chiefly of water, fat, carbohydrates, protein, oxygen, carbonic acids, phosphoric acids, sulphuric acids, blood plasma, blood platelets, minerals, amino acids, hormones, enzymes, etc.

Blood which has had its potency enhanced in accordance with the invention has a special status in clinical-scientific medicine and a broad spectrum in prophylaxis, therapy and immuno-stimulation.

The indications for blood preparations with enhanced potency in accordance with the invention by gases, in particular oxygen, include the treatment of shock, major surgery, in particular in trauma medicine, transplant surgery, heart and neuro surgery as well as in conservative therapy fields such as anaemia and hypoxy, microcirculation failure, immunostimulation and cancer and Aids.

A further example of potency-enhancement of a drug is sodium selenite-pentahydrate having the chemical formula $Na_2 SeO_3 \bullet 5 H_2O$ which has a positive and broad prophylactic and therapy spectrum.

After the potency-enhancement or enrichment of sodium selenite-pentahydrate with oxygen at 4° C and 0.75 bar pressure an oxygen saturation of 75 mg/l was achieved. In other words after the enrichment or potency-enhancement according to the invention using oxygen the oxygen concentration of 6.2 mg/l increased to 75 mg/l with conditions unchanged.

After the potency-enhancement with oxygen in accordance with the invention the oxygen concentration in sodium selenite-pentahydrate is increased and thereby its positive therapeutic effect as a drug is increased.

The potency-enhanced solution of sodium selenite-pentahydrate in a 0.9% NaCl solution (saline) was successfully prescribed enterally and/or parenterally as an infusion, amongst other things in selenium deficiency, as antioxidant and antitoxic, in complaints of the heart, vascular diseases,

complaints of the lungs, liver, pancreas and eyes as well as in brain tumour patients and as an immunostimulant and anti-carcinogen.

Carbon dioxide (CO_2) is also of particular medical and nutritional significance. Potency-enhancement of water with CO_2 alters the taste of the water. It tastes sourer. Furthermore CO_2 has a hyperemic effect in particular for the cell part of the meninges (pia mater).

According to the invention drugs, nutrients and cosmetics can be enhanced in potency using carbon dioxide. The therapeutic effect of medicinal carbon dioxide (CO_2) is shown by subcutaneous CO_2 injection.

The indications for CO_2 include cervical, shoulder, arm and lumbal syndromes, neck and head pains as well as peripheral arterial circulation complaints. Local CO_2 gas insufflation provides an improved circulation and local hyperemisation.

The enrichment of liquids with argon (atomic number 18 and relative atomic mass 39948) can also be achieved according to this method. Liquids, such as water, enriched with argon have health-giving effects and can be used for the treatment of illnesses such as cancer.

Helium air (a mixture of oxygen and helium gas) can likewise be employed for the purpose of enriching liquids. Furthermore helium gas is used for prophylaxis against bends. Helium air is likewise used in the treatment of bronchial asthma.

The following tables show examples of potency-enhancing, dynamising and enrichment of drugs, nutrients and cosmetics with gases.

Table 1

Saturation values in drugs before and after potency-enhancing with gas

DRUG					
Material Investigated	Gas Used	Temperature °C	Pressure Bar	Saturation Values	
				Before Potency-enhancing mg/l	After Potency-enhancing mg/l
Sodium selenite pentahydrate $Na_2SeO_3 \bullet 5 H_2O$	O_2	4	0.75	6.2	75
Haemaccel	O_2	18	1	8	42
Isotonic NaCl solution	O_2	16	1	8	50
Hypertonic NaCl solution	O_2	20	1	7.8	48

Table 2

Saturation values in nutrients before and after potency-enhancing with gas

NUTRIENT					
Material Investigated	Gas Used (mediu m)	Temperature °C	Pressure Bar	Saturation Values	
				Before Potency-enhancing mg/l	After Potency-enhancing mg/l
Water	argon	1	0.75	0.01	5
Water	H_2O_2	4	0.75	6.2	7.5
Water	O_2	20	1	6.4	80
Water	CO_2	4	0.75	6	3200
Milk	O_2	20	1	1.4	42
Beer	O_2	19	0.75	0.4	34
Cola	O_2	20	0.75	0.6	36

Table 3

Saturation values in cosmetics before and after potency-enhancing with gas

COSMETIC					
Material Investigated	Gas Used	Temperature °C	Pressure Bar	Saturation Values	
				Before Potency-enhancing mg/l	After Potency-enhancing mg/l
Skin lotion and cream	O_2 or O_2 - enriched water	7	1	4	38
Skin Lotion Vm Calendula off.	O_2 or O_2 - enriched water	4	1	5	28

The desired increase in gas concentration with the aim of enhancing the potency of the drug, nutrient or cosmetic can be achieved on the basis of the Henry Dalton Law. Two parameters, namely pressure and temperature, play a decisive part.

Considered physically the solubility of gases in liquids is proportional to the partial pressure in the gas phase and the following applies: $c = ap$

c = concentration of the gas in the liquid

p = partial pressure in the gas phase

a = Proportionality factor (shows how many cc of a gas are dissolved in one cc liquid under standard condition i.e. at a partial pressure of 101 Kpa = 760 mmHg and at a temperature of 0°C)

The higher the pressure and the lower the temperature in the process, the greater is the enrichment or potency-enhancing of the drug, nutrient or cosmetic. The process can be controlled and performed as desired.

Potency-enhanced and gas-enriched drugs can be used and prescribed orally or parenterally, namely as rectal, intravenous, intraarterial, intracavity, such as intracardial, intrapericardial, intrapleural, intravesical and intraperitoneal prescription. This use has potentially positive wide-ranging preventive, therapeutic, rehabilitative and regulatory effects.

The invention enables drugs enriched or with their potency enhanced with a gas, and nutrients and/or cosmetics, to be produced. With the aid of these means the human body can be supplied with physiologically enhancing, regenerating, immuno-stimulating, anti-oxidative, anti-toxic, anti-bacterial, anti-proliferative and anti-carcinogenic materials. The molecular structure of the potency-enhanced drugs, but also nutrients and cosmetics, produced in accordance with the invention is of such a form that they act as physiological and harmless media in the human body.

According to the invention drugs, nutrients or cosmetics can have their potency enhanced at any desired concentrations of gases and introduced in prophylaxis and therapy in the treatment of illnesses.

Drugs and/or nutrients and/or cosmetics with their potency enhanced with a gas used in fighting cellular hypoxy, in particular in brain and heart muscle cells, which are extremely sensitive to oxygen deficiency, by oral prescription and/or parenteral prescription with oxygenated sera and/or in combination with other media such as magnesium, selenium, germanium and the like. By the prescription of drugs combined with gas and of enhanced potency according to the invention in combination with oxygenated water and/or sera with other materials and elements such as selenium, the

prophylactic and therapeutic effectiveness are increased, amongst them the anti-tumour effect of these drugs in brain tumour patients.

The enhancement of the potency of the drug, in particular of sera with their broad spectrum of use in clinical-scientific medicine as a mono-therapy or in combination therapy, forms a significant core of the invention. On this basis oxygen fluid infusion therapy (OFIT) or oxygen sera infusion therapy (OSIT) has been developed. It has to be understood that the oxygen (O_2) is applied thereby not as a gas. The oxygen is applied by means of sera to which it is bound, thereby avoiding gas embolism. So the sera serves as carrier for bound oxygen.

The means according to the invention also have a regulatory action on the sympathetic nerve system and para-sympathetic nerve system as well as on the chemo-receptors in the glomus caroticum with a blood-pressure regulating effect.

With the use of drugs of enhanced potency according to the invention by gas fluid infusion therapy (PGFIT) this has a cardinal function in various fields of conservative and acute medical therapy measures. It opens new ways and new therapy measures and possibilities for illnesses such as cell, tissue and organ function complaints, as a constructive, prophylactic and clinically based method of treatment.

For example drugs of enhanced potency according to the invention can be prescribed as an infusion or injection isotonic or hypertonic common salt solutions, electrolytes, amino acids, glucose solutions, Haemaccel and the like with oxygen (O_2), nitrogen (N_2), ozone, (O_3), argon (Ar), krypton (Kr), carbon dioxide (CO_2) in different degrees of saturation with positive therapeutic effects. These drugs with potency enhanced with gases can be introduced in the treatment of various illnesses such as heart and lung complaints, cancers, Aids and illnesses of the central nervous system,

intrathoracic and intraabdominal, urological, gynaecological, gastro-intestinal, eye and ENT complaints as well as in transplant surgery, aerospace medicine and for dialysis patients.

Furthermore potency-enhanced combined gas infusion therapy (PCGIT) can be used with a high expectation of effectiveness in the treatment of shock and in trauma medicine, in cellular hypoxy and in all kinds of circulation complaints and micro-circulation defects.

Animal experiments using rabbits have shown positive and significant therapeutic effects in the treatment of shock and in the treatment of heart and circulation complaints after intravenous introduction of potency-enhanced 0.9% NaCl solutions and/or Haemaccel with oxygen. Here also other drugs such as cytostatic agents can have their potency enhanced with gases such as oxygen (O_2), nitrogen (N_2), ozone (O_3), argon (Ar) and the like. After the enhancement of the potency of drugs with corresponding gases the prophylactic action and therapeutic effectiveness of the drug are increased.

A further interesting aspect of the present invention is its use in treating headaches. Patients with headaches, including migraines and stress headaches, exhibited a significant therapeutic benefit after treatment with water of which the potency had been enhanced by oxygen.

Patients with heart rhythm defects reacted positively to treatment with water having its potency enhanced with oxygen in accordance with the invention. This therapeutic effect was confirmed and documented after treatment of a group of patients with heart rhythm defects.

Immuno-stimulation and modulation form important aspects in the use of media produced in accordance with the present invention. By oral and parenteral prescription of drugs and nutrients having their potency enhanced

with gases the immune system in the cellular and humoral field is stimulated and modulated.

Cancer and Aids therapy likewise form important fields of use of drugs with their potency enhanced with gas, the drugs being used by infusion therapy. This therapy is used successfully in the two stated fields, which are chiefly associated with immunity defects. For example, physiological common salt solutions having their potency enhanced with oxygen, used as an infusion in cancer patients, result in the cancer cells being damaged and sensitised and better attacked than with chemo and radiotherapy. Furthermore it has been observed in such cancer patients, that the chemotherapy itself is surprisingly improved when the drugs are dissolved in such physiological common salt solutions.

A further particular aspect of the drugs of enhanced potency produced in accordance with the present invention is the multi-factor prophylactic and therapeutic effect. On this basis these drugs can be used in conservation medicine, for example as a prophylactic measure in cerebral and cardiac hypoxy, in complaints of the lungs, liver, kidneys and pancreas as well as in cases of anaemia and circulation problems. Furthermore the potency-enhanced media can be prescribed in the cleansing of wounds or skin complaints, orally, rectally as well as intraperitoneally, intravesically, intrapleurally and intrabronchially in collapsed lungs and acute lung failure. These media are, as well as other therapeutic measures, pharmaco-therapeutically competent and can be successfully introduced in the acute therapy phase or in the immediate measures in treating shock, assisting circulation as well as on heart failure and in resuscitation.

After the use of a potency-enhanced drug by oral delivery or parenteral infusion the oxygen partial pressure (pO_2) in the human body is increased.

An important further aspect of the enhancement of the potency of drugs, nutrients or cosmetics, is the synergistic effect for the drug, nutrient or

cosmetic and the resulting increase and optimisation of the effectiveness and the improvement in the quality of these products.

Of particular significance are the potency-enhanced drugs, amongst them sera, nutrients and cosmetics in aerospace medicine for astronauts. On this basis an improved functioning of cells and organs can be achieved in the sense of an optimum energy build-up as well as exchange and transmission of information and energy.

A further aspect of the enhancement of the potency of drugs and nutrients is the optimisation of the material interchange and energy generation of the cells with enhancement and stimulation of the biological and bio-energetic bodily processes, which are generally desirable for health and are of particular significance for sportsmen and sports women.

Particularly important aspects of the present invention are the prophylactic and therapeutic possibilities on illnesses of vital organs such as brain, heart and vascular system, lungs, liver, kidneys, pancreas, skin, eyes, ears and the immune system.

For example the circulation to the human brain is set at 55 to 56 ml per minute per 100 g of brain tissue. These values are about twice as high in young children and are significantly lower in older people. The human brain takes about 20% of the oxygen consumption of the human body. An interruption of the flow of blood to the cerebrum for five seconds causes dizziness as a first signal and a few seconds later unconsciousness. On an interruption of the circulation to the brain of a few minutes irreversible brain damage occurs.

Tissue and organ complaints as a consequence of interruptions in the circulation and reductions in the functioning of tissues, in particular brain tissues, by hypoxy, microcirculation failure, Alzheimer's and even brain

tumours can be treated prophylactically and also after occurrence using drugs having enhanced potency through gases in accordance with the invention. On this basis and by immediate intravenous application of the potency-enhanced drug according to the invention, older people in particular can be assisted and a premature damage to the functioning of the brain can be prevented.

A similar principle applies also to all vital organs and functions of the human body.

A particularly important and significant aspect of the present invention lies in fighting effectively against infections originating from anaerobic exciting agents, which are amongst the most frequent infections acquired in hospital.

Anaerobic exciting agents reside chiefly on the skin, in the mouth, digestive tract, in particular in the colon and in the vagina and occur alone or as mixed infections.

The mouth and pharynx regions belong, amongst others, to the most frequently attacked regions for the residence of anaerobic exciting agents, which originate through infections such as tooth or gum abscesses, parodontoses, gingivitis and Ludwig's angina. Likewise on this basis further anaerobic infections arise such as sinusitis, otitis media, otogenic meningitis, brain abscesses, lung abscesses, aspiration pneumonia, pleuraempyema, peritonitis, intra-abdominal and perirectal abscesses as well as wound infections.

The first condition for the growth requirement of anaerobes is an oxygen deficit or a low oxygen pressure. Accordingly the aim is to fight effectively against anaerobic infections by administration of oxygen or pharmaceuticals and nutrients, as well as cosmetics, enriched with oxygen and/or with ozone.

A particularly significant feature of this invention is that infections originating from anaerobic exciting agents are countered by the administration of nutrients and pharmaceuticals, as well as cosmetics, enriched and made more potent with oxygen and/or ozone, by external or internal application.

An important aspect of the invention with particular significance in the health service relates to the use of pharmaceuticals and nutrients, as well as: cosmetics, enriched and made more potent using a gas or gases, as a

monotherapy or in combination with other means in the fight against infections with anaerobic exciting agents.

For example as disinfectants, wound-cleansing agents, compresses and bathing means as well as in intracavital installations and cleansing of the infected body cavities, such as pleuraempyema, peritonitis, adnexitis, cystitis, sinusitis and similar illnesses.

The infections originating from anaerobic exciting agents generate a purulent and unpleasant smell. For example mouth and/or breath odours, which represent a physical and social burden for those affected.

By fighting against this kind of infections, for example in the mouth region, using water enriched with oxygen and/or ozone, persons are psychologically and physically helped and stabilised.

A further field of use for water enriched with oxygen or ozone lies in dental treatment, in particular in the operative and conservation field.

By showering and bathing with water enriched with oxygen or ozone there are furthermore obtained positive effects for the skin, the circulation and the nervous system.

WHAT IS CLAIMED IS:

1. A composition comprising at least one biologically active ingredient and a gaseous element at a concentration of the gaseous element above the natural gas saturation level.

2. The composition according to claim 1, wherein the gaseous element is selected from the group consisting of oxygen, carbon dioxide, argon, nitrogen, and a mixture of helium with air.

3. The composition according to claim 1 or 2, wherein the biologically active ingredient is pharmaceutically active compound.

4. The composition according to claim 1 or 2, wherein the biologically active ingredient is selected from the group consisting of serum, blood and a blood-substituting fluid.

5. A process for the preparation of a composition according to any of the previous claims, by enriching one of the components of the composition with a gaseous element above the natural gas saturation level.

6. The process according to claim 5, whereby the treatment with the gaseous element is performed at a temperature between 0 and 20 °C.

7. Use of a composition according to any of claims 1 to 4, containing a concentration of oxygen above the natural oxygen saturation level for the treatment of infections with anaerobic organisms.

8. Use of a blood-substitute according to any of claims 1 to 4, containing a concentration of oxygen above the natural oxygen saturation level for the treatment of volume deficiency shock and blood loss, for the filling of heart-lung machines and as a carrier solution for injection purposes.

9. Use of blood containing an amount of oxygen above the natural oxygen concentration level for the treatment of shock, aids, cancer, situations of anemia, hypoxia and failure of microcirculation and in major surgery, in particular in trauma medicine, transplant surgery, heart surgery and neurosurgery.

10. Use of a solution of sodium selenite containing a concentration of oxygen above the natural oxygen saturation level for the treatment of selenium deficiency, heart complaints, vascular disease, lung complaints, liver complaints, pancreas complaints, eye complaints, disease caused by an impaired immune system and cancer.

11. Use of any of the compositions according to any of the claims 1 to 4 as a cosmetic composition for the treatment of human beings.

12. The use according to claim 11, whereby the gaseous element is oxygen and the composition is a skin lotion.

13. A composition according to claim 1 comprising a physiologically tolerated solution instead of the at least one biologically active ingredient.

14. The composition according to claim 13, wherein the physiologically tolerated solution is saline.

15. The composition according to claim 13 or 14, wherein the gaseous element is selected from the group consisting of oxygen, carbon dioxide, argon, nitrogen, and a mixture of helium with air.

16. A process for the preparation of a composition according to any of claims 13 to 15, by enriching one of the components of the composition with a gaseous element above the natural gas saturation level.

17. The process according to claim 16, whereby the treatment with the gaseous element is performed at a temperature between 0 and 20 °C.

18. Use of a composition according to any of claims13 to 15, containing a concentration of oxygen above the natural oxygen saturation level for the treatment of infections with anaerobic organisms.

19. Use of a blood-substitute according to any of claims 13 to 15, containing a concentration of oxygen above the natural oxygen saturation level for the treatment of volume deficiency shock and blood loss, for the filling of heart-lung machines and as a carrier solution for injection purposes.

20. A composition according to claim 1 further comprising a physiologically tolerated solution.

INTERNATIONAL SEARCH REPORT

Inter. nal Application No
PCT/EP 99/05981

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K33/00 A61K33/36 A61K35/14 A61K35/16 A61K7/48
A61P1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 39 40 389 A (A.PAKDAMAN) 13 June 1991 (1991-06-13) cited in the application claims 1,2 column 1, line 40-58	1-5,8,9, 13,15,16
X	EP 0 439 643 A (HARRIER) 7 August 1991 (1991-08-07) claim 1	1-3,5, 13-16,20
X	WO 97 38700 A (DANAFARBER CANCER INSTITUTE) 23 October 1997 (1997-10-23) claims 1,2,16,17 page 18, line 9-19 page 24, line 5-9	1-4,9

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
2 February 2000	09/02/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Peeters, J

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INTERNATIONAL SEARCH REPORT

Inter ɔnal Application No
PCT/EP 99/05981

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
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X	US 5 084 011 A (D.J.GRADY) 28 January 1992 (1992-01-28) claim 1 column 9, line 41-47 column 11, line 41-51 -----	1-3,5, 7-9

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INTERNATIONAL SEARCH REPORT

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