Claims

1. An injectable pharmaceutical or veterinary formulation comprising:

(a) a biologically-active agent in admixture with a pharmaceutically- or veterinarily-acceptable extended-release component;

(b) an antiinflammatory agent; and

(c) a pharmaceutically- or veterinarily-acceptable injectable carrier.

2. A formulation as claimed in Claim 1, wherein:

(a) the formulation is suitable for subcutaneous or intramuscular injection to form a depot; and/or

(b) an extended-release component is also applied to the antiinflammatory agent within the formulation, optionally

wherein the extended-release components provide for an extended release of said biologically-active agent and said antiinflammatory agent at essentially the same rate, and/or over essentially the same period of time.

3. A formulation as claimed in Claims 1 or 2, which comprises:

(a) a plurality of particles having a weight-, number-, or volume-based mean diameter that is between about 10 nm and about 700 μm, which particles comprise solid cores comprising the biologically-active agent coated with a coating comprising at least one coating material applied by way of a gas phase deposition technique;

(b) which particles are suspended in a carrier system comprising a pharmaceutically-acceptable or veterinarily-acceptable vehicle; and

(c) which formulation further includes the antiinflammatory agent.

4. A formulation as claimed in Claim 3, wherein:

(a) the coating material comprises one or more metal oxide, or wherein the coating material comprises zinc oxide;

(b) the coating material comprises at least one separate mixture of zinc oxide and one or more other metal and/or metalloid oxides in an atomic ratio of between about 1:10 (e.g. about 1:6 or about 1:1) up to and including about 10:1 (e.g. about 6:1), optionally wherein the one or more other metal and/or metalloid oxides are selected from aluminium oxide and/or silicon dioxide;

(c) the cores are coated with one or more discrete layers surrounding said cores, optionally wherein more than one discrete layers of coating materials are applied to the core sequentially, optionally wherein between 2 and 10 discrete layers of the

coating materials are applied;(d) the weight-, number-, or volume-based mean diameter of the particles is between about 1 μm and about 50 μm;

(e) the total thickness of the coating is between about 0.5 nm and about 2 μm;

(f) the gas phase deposition technique is atomic layer deposition; and/or

(g) the antiinflammatory agent is formulated along with the biologically-active agent within the solid cores that form part of the formulation.

5. A formulation as claimed in any one of the preceding claims in the form of a sterile injectable and/or infusible dosage form, optionally which dosage form is in a form that is administrable *via* a surgical administration apparatus that forms a depot formulation.

6. A formulation as claimed in any one of the preceding claims, wherein the biologically-active agent produces an inflammatory response when administered to a patient, or may be expected to produce such a response, optionally wherein the biologically-active agent is selected from the group: antineoplastic agents, topoisomerase inhibitors, immunomodulators, immunostimulants, immunosuppressants, chemotherapeutics, growth factors, vasodilators, radiopharmaceuticals and combinations thereof.

7. A formulation as claimed in Claim 6, wherein:

(a) the biologically-active agent is a cytokine, a protein, a vaccine or a peptide; and/or

(b) the biologically-active agent is selected from the group: daratumumab, isatuximab, actinomycin, azacitidine, azathioprine, bendamustine, bexaroten, bleomycin, bortezomib, bosutinib, busulfan, cabazitaxel, capecitabine, carboplatin, chlorambucil, cladribine, clofarabine, cytarabine, dabrafenib, dacarbazine, dactinomycin, daunorubicin, decitabine, docetaxel, doxifluridine, doxorubicin, epirubicin, epothilone, estramustin, etoposide, everolimus, fludarabine, fluorouracil, guadecitabine, gemcitabine, hydroxyurea, idarubicin, ifosfamide, irinotecan, ixazomib, karfilzomib, lomustin, mechlorethamine, melphalan, mercaptopurine, mesna, methotrexate, mitotan, mitoxantrone, nelarabin, oxaliplatin, paclitaxel, panobinostat, pemetrexed, pixantron, procarbazine, tegafur, temozolomide, teniposide, tioguanine, tiotepa, topotecan, trabektedin, valrubicin, venetoclax, vinblastine, vincristine, vindesine, vinflunine, vinorelbine, bendamustine, bleomycin, carboplatin, chlorambucil, cisplatin, cyclophosphamide, cyclosporin, cytarabine, dacarbazine, dactinomycin, daunorubicin,

docetaxel, doxorubicin, epirubicin, etoposide, everolimus, fluorouracil, gemcitabine, ifosfamide, irinotecan, mercaptopurine, mesna, methotrexate, midazolam, mitomycin, oxaliplatin, paclitaxel, procarbazine, temsirolimus, thioguanine, vinblastine, vincristine, vinorelbine, as thalidomide, pomalidomide, lenalidomide, apremilast, pharmaceutically acceptable salts of any of these active ingredients, and combinations thereof; or

(c) the biologically-active agent is selected from the group azacitidine and lenalidomide, or pharmaceutically acceptable salts thereof.

8. A formulation as claimed in any one of the preceding claims, wherein:

(a) the antiinflammatory agent is selected from the group: a butylpyrazolidine, an acetic acid derivative or a related substance, an oxicam, a propionic acid derivative, a fenamate, a coxib, a non-steroidal antiinflammatory agent, a corticosteroid, a quinoline, a gold preparation, an antihistamine, and combinations thereof;

(b) the antiinflammatory agent is selected from the group: phenylbutazone, mofebutazone, oxyphenbutazone, clofezone, kebuzone, indomethacin, sulindac, tolmetin, zomepirac, diclofenac, alclofenac, bumadizone, etodolac, lonazolac, fentiazac, acemetacin, difenpiramide, oxametacin, proglumetacin, ketorolac, aceclofenac, bufexamac, piroxicam, tenoxicam, droxicam, lornoxicam, meloxicam, ibuprofen, naproxen, ketoprofen, fenoprofen, fenbufen, benoxaprofen, suprofen, pirprofen, flurbiprofen, indoprofen, tiaprofenic acid, oxaprozin, ibuproxam, dexibuprofen, flunoxaprofen, alminoprofen, dexketoprofen, vedaprofen, carprofen, tepoxalin, mefenamic acid, tolfenamic acid, flufenamic acid, meclofenamic acid, flunixin, celecoxib, rofecoxib, valdecoxib, parecoxib, etoricoxib, lumiracoxib, firocoxib, robenacoxib, mavacoxib, cimicoxib, nabumetone, niflumic acid, azapropazone, glucosamine, benzydamine, glucosaminoglycan polysulfate, proquazone, orgotein, nimesulide, feprazone, diacerein, morniflumate, tenidap, oxaceprol, chondroitin sulfate, pentosan polysulfate, aminopropionitrile, 11-dehydrocorticosterone, 11-deoxycorticosterone, 11-deoxycortisol, 11-ketoprogesterone, 11β-hydroxypregnenolone, 11β-hydroxyprogesterone, 11β,17α,21-trihydroxypregnenolone, 17α,21-dihydroxypregnenolone, 17α-hydroxypregnenolone, 17α-hydroxyprogesterone, 18-hydroxy-11-deoxycorticosterone, 18-hydroxycorticosterone, 18-hydroxyprogesterone, 21-deoxycortisol, 21-deoxycortisone, 21-hydroxypregnenolone (prebediolone), aldosterone, corticosterone (17-deoxycortisol), cortisol (hydrocortisone), cortisone, pregnenolone, progesterone, flugestone (flurogestone), fluorometholone, medrysone (hydroxymethylprogesterone), prebediolone acetate (21-acetoxypregnenolone), chloroprednisone, cloprednol, difluprednate, fludrocortisone, fluocinolone, fluperolone, fluprednisolone, loteprednol,

methylprednisolone, prednicarbate, prednisolone, prednisone, tixocortol, triamcinolone, alclometasone, beclometasone, betamethasone, clobetasol, clobetasone, clocortolone, desoximetasone, dexamethasone, diflorasone, difluocortolone, fluclorolone, flumetasone, fluocortin, fluocortolone, fluprednidene, fluticasone, fluticasone furoate, halometasone, meprednisone, mometasone, mometasone furoate, paramethasone, prednylidene, rimexolone, ulobetasol (halobetasol), amcinonide, budesonide, ciclesonide, deflazacort, desonide, formocortal fluclorolone acetonide (flucloronide), fludroxycortide (flurandrenolone, flurandrenolide), flunisolide, fluocinolone acetonide, fluocinonide, halcinonide, triamcinolone acetonide, oxycinchophen, sodium aurothiomalate, sodium aurothiosulfate, auranofin, aurothioglucose, aurotioprol, penicillamine, bucillamine, akrivastin, alimemazin, antazolin, astemizol, azatadin, azelastin, bamipin, bilastin, bromdifenhydramin, bromfeniramin, buklizin, cetirizin, cinnarizine, cyklizin, cyproheptadine, deptropine, desloratadin, dexbromfeniramin, dexklorfeniramin, difenylpyralin, dimenhydrinat, dimetinden, doxylamin, ebastin, epinastin, fenindamin, feniramin, fexofenadin, histapyrrodin, hydroxietylprometazin, isotipendyl, karbinoxamin, ketotifen, kifenadin, klemastin, klorcyklizin, klorfenamin, klorfenoxamin, kloropyramin, levocetirizin, loratadin, mebhydrolin, mekitazin, meklozin, mepyramin, metapyrilen, metdilazin, mizolastin, oxatomide, oxomemazine, pimetixen, prometazin, pyrrobutamin, rupatadin, sekifenadin, talastin, tenalidin, terfenadin, tiazinam, tietylperazin, tonzylamin, trimetobenzamid, tripelennamin, triprolidine, tritokvalin, pharmaceutically acceptable salts of any of these active ingredients, and combinations thereof;

(c) the antiinflammatory agent is dissolved, and/or suspended, within the carrier system, optionally wherein the antiinflammatory agent is provided in the form of additional particles having a weight-, number-, or volume-based mean diameter that is between about 10 nm and about 700 μm, and comprising cores comprising said antiinflammatory agent, which cores are coated, at least in part, by one or more coating materials, which allows for the release of the antiinflammatory agent over the same, or over a different timescale, to the biologically-active agent, optionally wherein the coating is as defined in Claims 3 or 4.

9. A process for the preparation of a formulation as defined in any one of Claims 3 to 8, wherein the coated particles are made by applying the layer(s) of coating material to the cores, and/or previously-coated cores, by the gas phase deposition technique.

10. A process as claimed in Claim 9, wherein:

(i) solid cores are coated with a first discrete layer of coating material;
(ii) the coated cores from step (i) are then subjected to a deagglomeration process step;
(iii) the deagglomerated coated cores from step (ii) are then coated with a second discrete layer of coating material;
(iv) repeating steps (ii) and (iii) to obtain the required number of discrete layers.

11. A process as claimed in Claim 10, wherein the deagglomeration step that takes place between applications of coatings comprises sieving, optionally wherein the sieving comprises vibrational sieving or sonic sifting, optionally wherein the vibrational sieving comprises controlling a vibration probe coupled to the sieve.

12. A process for the preparation of a formulation as defined in any one of Claims 3 to 8, wherein the coated particles are mixed with the carrier system after coating.

13. An injectable and/or infusible dosage form comprising a formulation as defined in any one of Claims 1 to 8 contained within a reservoir that is connected to, and/or is associated with, an injection or infusion means, optionally which dosage form is a surgical administration apparatus that forms a depot formulation.

14. A dosage form as claimed in Claim 13, wherein coated particles as defined in any one of Claims 1 to 8, and the carrier system, are housed separately, and in which admixing occurs prior to and/or during injection or infusion.

15. The use of a formulation as defined in any one of Claims 1 to 8, or a dosage form as claimed in Claims 13 or 14, for the manufacture of a medicament for treating a disease or a condition of a patient, which use comprises administration of said formulation or said dosage form, wherein the biologically-active agent that is employed in said formulation or said dosage form is suitable for use in said disease or condition.

16. The use of a formulation as defined in any one of Claims 1 to 8, or a dosage form as claimed in Claims 13 or 14, for the manufacture of a medicament for treating a disease or a condition of a patient, which use comprises administration of:

(A) said formulation, or a formulation that is, in all other respects, a formulation as defined in any one of Claims 1 to 8, provided that it does not comprise an antiinflammatory agent, or said dosage form containing any such formulation, and wherein the biologically-active agent that is employed in said formulation or said dosage form is suitable for use in said disease or condition; and

(B) a pharmaceutical formulation comprising an antiinflammatory agent in admixture with one or more a pharmaceutically- or veterinarily-acceptable excipients, such as a carrier system as hereinbefore defined or in accordance with the invention,

in which use, Components (A) and (B) are each provided in a form that is suitable for administration in conjunction with each other, optionally which use comprises bringing Component (A) into association with Component (B), thus rendering the two components suitable for administration in conjunction with each other.

17. The use of a formulation as defined in any one of Claims 1 to 8, or a dosage form as claimed in Claims 13 or 14, for the manufacture of a medicament for treating a disease or a condition of a patient, which use comprises:

(i) administration of Component (A) as defined in Claim 16 to a patient having a relevant disease or condition; and

(ii) if that patient exhibits an inflammatory response after such administration, administering:

a. said formulation,
b. said dosage form, or
c. Component (B) as defined in Claim 16,

to said patient.

18. The use as claimed in any one of Claims 15 to 17, wherein the biologically-active agent that is employed in the formulation is an injectable anticancer drug, and the disease or condition is cancer, optionally wherein the biologically-active agent is azacitidine or lenalidomide.

19. A kit of parts comprising:

(I) one of Components (A) and (B) as defined in Claim 16; together with

(II) instructions to use that component in conjunction with the other of the two components.

20. A kit of parts comprising Components (A) and (B) as defined in Claim 16, packaged and presented together as separate components of a combination pack, for use in conjunction with each other.