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# CLAIMS

1. Use of a composition ~~A pharmaceutical composition~~ for treating withdrawal symptoms~~, side effects or both~~ and pain associated with the withdrawal of ~~following treatment with~~ anti-depressants, selective serotonin inhibitors (SSRI), or other neurological agents in a subject comprising:

N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat withdrawal symptoms~~, side effects or both~~ and pain associated with the withdrawal of following treatment with one or more anti-depressants, one or more selective serotonin inhibitors (SSRI), or other neurological agents; and

one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.

2. The ~~composition~~ use of claim 1, wherein the HEPES is dissolved in sterile water for injection for oral, subcutaneous, parenteral, intravenous, peritoneal, or intramuscular administration.

3. The ~~composition~~ use of claim 1, wherein the composition is administered once daily on a body weight basis at 10-100 mg/kg.

4. The ~~composition~~ use of claim 1, wherein the anti-depressants are selected from the group consisting of benzodiazepines, SSRIs, Serotonin-norepinephrine reuptake inhibitors (SNRIs), Noradrenergic and specific serotonergic antidepressants (NaSSAs), Norepinephrine (noradrenaline) reuptake inhibitors (NRIs), Norepinephrine-dopamine reuptake inhibitors (NDRIs), Selective serotonin reuptake enhancers (SSREs), Melatonergic agonists, Tricyclic antidepressants (TCAs), and Monoamine oxidase inhibitor (MAOIs).

5. The ~~composition~~ use of claim 1, wherein the SSRIs comprise citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine, sertraline, zimelidine or any combinations thereof.

~~6. A method of treating withdrawal symptoms, side effects or both following treatment with anti-depressants, selective serotonin inhibitors (SSRI), or other neurological agents in a subject in a human subject comprising the steps of:~~

identifying a subject in need for treatment against the withdrawal symptoms, side-effects or both following treatment with anti-depressants, selective serotonin inhibitors (SSRI), or other neurological agents; and

administering a pharmaceutical composition comprising N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers once daily at a dosage of 10-100 mg/kg of body weight, wherein the pharmaceutical composition is administered orally, subcutaneously, parenterally, intravenously, peritoneally, or intramuscularly.

7. The method of claim 6, wherein the anti-depressant comprises benzodiazepines or derivatives thereof.

8. A pharmaceutical composition for treating one or more neurodegenerative diseases, treating one or more demyelination diseases or both in a subject comprising:

N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat the one or more neurodegenerative diseases, the one or more demyelination diseases or both; and

one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.

9. The composition of claim 8, wherein the one or more demyelination diseases comprise multiple sclerosis, transverse myelitis, Devic's disease, progressive multifocal leukoencephalopathy, optic neuritis, Leukodystrophies, Guillain-Barré syndrome, Charcot-Marie-Tooth Disease or any combinations thereof.

10. The composition of claim 8, wherein the one or more neurodegenerative diseases comprise Parkinson's disease, Alper's disease, Alzheimer's disease, Lou Gehrig's Disease Corticobasal degeneration, Creutzfeldt-Jakob disease, Frontotemporal lobar degeneration Huntington's disease, Krabbe's disease, Multiple System Atrophy, Multiple sclerosis, Pick's disease, Primary lateral sclerosis, Progressive Supranuclear Palsy, Refsum's disease, Sandhoff disease, Schilder's disease, Spinal muscular atrophy, Steele-Richardson-Olszewski disease or any combinations thereof.

11. The composition of claim 8, wherein the demyelinating disease is Multiple Sclerosis.

12. The composition of claim 8, wherein the neurodegenerative disease is Parkinson's disease.

13. The composition of claim 8, wherein the HEPES is dissolved in sterile water for injection for oral, subcutaneous, parenteral, intravenous, peritoneal, or intramuscular administration.

14. The composition of claim 8, wherein the composition is administered once daily on a body weight basis at 10-100 mg/kg.

15. The composition of claim 8, wherein the composition treats the one or more demyelination diseases by restoring, repairing, and/or regenerating a myelin sheath.

16. A method of treating one or more neurodegenerative diseases, treating one or more demyelination diseases or both in a human subject comprising the steps of:

identifying a subject in need for treatment against the one or more neurodegenerative diseases, treating one or more demyelination diseases or both; and

administering a pharmaceutical composition comprising N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers once daily at a dosage of 10-100 mg/kg of body weight, wherein the pharmaceutical composition is administered orally, subcutaneously, parenterally, intravenously, peritoneally, or intramuscularly.

17. The method of claim 16, wherein the demyelinating disease is Multiple Sclerosis.

18. The method of claim 16, wherein the neurodegenerative disease is Parkinson's disease.

19. The method of claim 16, wherein the composition treats the one or more demyelination diseases by restoring, repairing, and/or regenerating a myelin sheath.

20. A pharmaceutical composition for treating symptoms associated with one or more neurological diseases, one or more neuropsychiatric disorders or both in a subject comprising:

N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat the one or more neurodegenerative diseases, the one or more demyelination diseases or both; and

one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.

21. The composition of claim 20, wherein the one or more neurological or neuropsychiatric disorders comprise cerebral palsy, Tourette's syndrome, choreia, athetosis, bipolar disorder, schizophrenia or any combinations thereof.

22. The composition of claim 20, wherein the HEPES is dissolved in sterile water for injection for oral, subcutaneous, parenteral, intravenous, peritoneal, or intramuscular administration.

23. The composition of claim 20, wherein the composition is administered once daily on a body weight basis at 10-100 mg/kg.

24. A method for treating symptoms associated with one or more neurological diseases, one or more neuropsychiatric disorders or both in a human subject comprising the steps of:

identifying a subject in need for treatment against the symptoms associated with the one or more neurological diseases, the one or more neuropsychiatric disorders or both; and

administering a pharmaceutical composition comprising N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers once daily at a dosage of 10-100 mg/kg of body weight, wherein the pharmaceutical composition is administered orally, subcutaneously, parenterally, intravenously, peritoneally, or intramuscularly.

25. The method of claim 24, wherein the neurological disease is cerebral palsy, choreia, or athetosis.

26. The method of claim 24, wherein the neuropsychiatric disorder is Tourette's syndrome.

27. A pharmaceutical composition for treating pain associated with a cancer, side-effects following cancer treatment including post-chemotherapy cognitive impairment or both in a subject comprising:

N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat the pain associated with the cancer, side-effects following the cancer treatment including post-chemotherapy cognitive impairment or both; and

~~one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.~~

~~28. The composition of claim 27, wherein the composition is used to treat pain associated with pancreatic cancer, breast cancer, colorectal cancer, ovarian cancer, lung cancer, cervical cancer, gastric cancer, liver cancer, melanomas, brain tumors, multiple myeloma, prostate cancer, and bladder cancer.~~

~~29. The composition of claim 27, wherein the composition is used to treat post-chemotherapy cognitive impairment following a breast cancer treatment.~~

~~30. The composition of claim 27, wherein the HEPES is dissolved in sterile water for injection for oral, subcutaneous, parenteral, intravenous, peritoneal, or intramuscular administration.~~

~~31. The composition of claim 27, wherein the composition is administered once daily on a body weight basis at 10-100 mg/kg.~~

~~32. A method of treating pain associated with a cancer, side effects following cancer treatment including post-chemotherapy cognitive impairment or both in a human subject comprising the steps of:~~

~~identifying a subject in need for treatment against the pain associated with the cancer, side effects following cancer treatment including post-chemotherapy cognitive impairment or both; and~~

~~administering a pharmaceutical composition comprising N-2-hydroxy-ethyl-piperazine N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers once daily at a dosage of 10-100 mg/kg of body weight, wherein the pharmaceutical composition is administered orally, subcutaneously, parenterally, intravenously, peritoneally, or intramuscularly.~~

~~33. The method of claim 32, wherein the composition is used to pain associated with a pancreatic cancer.~~

~~34. The method of claim 32, wherein the composition is used to treat post-chemotherapy cognitive impairment following a breast cancer treatment.~~

~~35. A pharmaceutical composition for treating pancreatic cancer in a subject comprising:~~

~~N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat the pancreatic cancer; and~~

~~one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.~~

~~36. A method of treating pancreatic cancer in a human subject comprising the steps of:~~

~~identifying a subject in need for treatment against the pancreatic cancer; and~~

~~administering a pharmaceutical composition comprising N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers once daily at a dosage of 10-100 mg/kg of body weight, wherein the pharmaceutical composition is administered orally, subcutaneously, parenterally, intravenously, peritoneally, or intramuscularly.~~

What is claimed is:

1. A pharmaceutical composition for treating withdrawal symptoms, side-effects or both following treatment with anti-depressants, selective serotonin inhibitors (SSRI), or other neurological agents in a subject comprising:

N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat withdrawal symptoms, side-effects or both following treatment with one or more anti-depressants, one or more selective serotonin inhibitors (SSRI), or other neurological agents; and

one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.

2. The composition of claim 1, wherein the HEPES is dissolved in sterile water for injection for oral, subcutaneous, parenteral, intravenous, peritoneal, or intramuscular administration.

3. The composition of claim 1, wherein the composition is administered once daily on a body weight basis at 10-100 mg/kg.

4. The composition of claim 1, wherein the anti-depressants are selected from the group consisting of benzodiazepines, SSRIs, Serotonin-norepinephrine reuptake inhibitors (SNRIs), Noradrenergic and specific serotonergic antidepressants (NaSSAs), Norepinephrine (noradrenaline) reuptake inhibitors (NRIs), Norepinephrine-dopamine reuptake inhibitors (NDRIs), Selective serotonin reuptake enhancers (SSREs), Melatonergic agonists, Tricyclic antidepressants (TCAs), and Monoamine oxidase inhibitor (MAOIs).

5. The composition of claim 1, wherein the SSRIs comprise citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine, sertraline, zimelidine or any combinations thereof.

6. A method of treating withdrawal symptoms, side-effects or both following treatment with anti-depressants, selective serotonin inhibitors (SSRI), or other neurological agents in a subject in a human subject comprising the steps of:

identifying a subject in need for treatment against the withdrawal symptoms, side-effects or both following treatment with anti-depressants, selective serotonin inhibitors (SSRI), or other neurological agents; and

administering a pharmaceutical composition comprising N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer,

saline or other pharmaceutically acceptable carriers once daily at a dosage of 10-100 mg/kg of body weight, wherein the pharmaceutical composition is administered orally, subcutaneously, parenterally, intravenously, peritoneally, or intramuscularly.

7. The method of claim 6, wherein the anti-depressant comprises benzodiazepines or derivatives thereof.

8. A pharmaceutical composition for treating one or more neurodegenerative diseases, treating one or more demyelination diseases or both in a subject comprising:

N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat the one or more neurodegenerative diseases, the one or more demyelination diseases or both; and

one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.

9. The composition of claim 8, wherein the one or more demyelination diseases comprise multiple sclerosis, transverse myelitis, Devic's disease, progressive multifocal leukoencephalopathy, optic neuritis, Leukodystrophies, Guillain-Barré syndrome, Charcot-Marie-Tooth Disease or any combinations thereof.

10. The composition of claim 8, wherein the one or more neurodegenerative diseases comprise Parkinson's disease, Alper's disease, Alzheimer's disease, Lou Gehrig's Disease Corticobasal degeneration, Creutzfeldt-Jakob disease, Frontotemporal lobar degeneration Huntington's disease, Krabbe's disease, Multiple System Atrophy, Multiple sclerosis, Pick's disease, Primary lateral sclerosis, Progressive Supranuclear Palsy, Refsum's disease, Sandhoff disease, Schilder's disease, Spinal muscular atrophy, Steele-Richardson-Olszewski disease or any combinations thereof.

11. The composition of claim 8, wherein the demyelinating disease is Multiple Sclerosis.

12. The composition of claim 8, wherein the neurodegenerative disease is Parkinson's disease.

13. The composition of claim 8, wherein the HEPES is dissolved in sterile water for injection for oral, subcutaneous, parenteral, intravenous, peritoneal, or intramuscular administration.

14. The composition of claim 8, wherein the composition is administered once daily on a body weight basis at 10-100 mg/kg.

15. The composition of claim 8, wherein the composition treats the one or more demyelination diseases by restoring, repairing, and/or regenerating a myelin sheath.

16. A method of treating one or more neurodegenerative diseases, treating one or more demyelination diseases or both in a human subject comprising the steps of:

identifying a subject in need for treatment against the one or more neurodegenerative diseases, treating one or more demyelination diseases or both; and

administering a pharmaceutical composition comprising N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers once daily at a dosage of 10-100 mg/kg of body weight, wherein the pharmaceutical composition is administered orally, subcutaneously, parenterally, intravenously, peritoneally, or intramuscularly.

17. The method of claim 16, wherein the demyelinating disease is Multiple Sclerosis.

18. The method of claim 16, wherein the neurodegenerative disease is Parkinson's disease.

19. The method of claim 16, wherein the composition treats the one or more demyelination diseases by restoring, repairing, and/or regenerating a myelin sheath.

20. A pharmaceutical composition for treating symptoms associated with one or more neurological diseases, one or more neuropsychiatric disorders or both in a subject comprising:

N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat the one or more neurodegenerative diseases, the one or more demyelination diseases or both; and

one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.

21. The composition of claim 20, wherein the one or more neurological or neuropsychiatric disorders comprise cerebral palsy, Tourette's syndrome, choreia, athetosis, bipolar disorder, schizophrenia or any combinations thereof.

22. The composition of claim 20, wherein the HEPES is dissolved in sterile water for injection for oral, subcutaneous, parenteral, intravenous, peritoneal, or intramuscular administration.

23. The composition of claim 20, wherein the composition is administered once daily on a body weight basis at 10-100 mg/kg.

24. A method for treating symptoms associated with one or more neurological diseases, one or more neuropsychiatric disorders or both in a human subject comprising the steps of:

identifying a subject in need for treatment against the symptoms associated with the one or more neurological diseases, the one or more neuropsychiatric disorders or both; and

administering a pharmaceutical composition comprising N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers once daily at a dosage of 10-100 mg/kg of body weight, wherein the pharmaceutical composition is administered orally, subcutaneously, parenterally, intravenously, peritoneally, or intramuscularly.

25. The method of claim 24, wherein the neurological disease is cerebral palsy, choreia, or athetosis.

26. The method of claim 24, wherein the neuropsychiatric disorder is Tourette's syndrome.

27. A pharmaceutical composition for treating pain associated with a cancer, side-effects following cancer treatment including post-chemotherapy cognitive impairment or both in a subject comprising:

N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat the pain associated with the cancer, side-effects following the cancer treatment including post-chemotherapy cognitive impairment or both; and

one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.

28. The composition of claim 27, wherein the composition is used to treat pain associated with pancreatic cancer, breast cancer, colorectal cancer, ovarian cancer, lung cancer, cervical cancer, gastric cancer, liver cancer, melanomas, brain tumors, multiple myeloma, prostate cancer, and bladder cancer.

29. The composition of claim 27, wherein the composition is used to treat post-chemotherapy cognitive impairment following a breast cancer treatment.

30. The composition of claim 27, wherein the HEPES is dissolved in sterile water for injection for oral, subcutaneous, parenteral, intravenous, peritoneal, or intramuscular administration.

31. The composition of claim 27, wherein the composition is administered once daily on a body weight basis at 10-100 mg/kg.

32. A method of treating pain associated with a cancer, side-effects following cancer treatment including post-chemotherapy cognitive impairment or both in a human subject comprising the steps of:

identifying a subject in need for treatment against the pain associated with the cancer, side-effects following cancer treatment including post-chemotherapy cognitive impairment or both; and

administering a pharmaceutical composition comprising N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers once daily at a dosage of 10-100 mg/kg of body weight, wherein the pharmaceutical composition is administered orally, subcutaneously, parenterally, intravenously, peritoneally, or intramuscularly.

33. The method of claim 32, wherein the composition is used to pain associated with a pancreatic cancer.

34. The method of claim 32, wherein the composition is used to treat post-chemotherapy cognitive impairment following a breast cancer treatment.

35. A pharmaceutical composition for treating pancreatic cancer in a subject comprising:

N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat the pancreatic cancer; and

one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.

36. A method of treating pancreatic cancer in a human subject comprising the steps of:

identifying a subject in need for treatment against the pancreatic cancer; and

administering a pharmaceutical composition comprising N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers once daily at a dosage of 10-100 mg/kg of body weight, wherein the pharmaceutical composition is administered orally, subcutaneously, parenterally, intravenously, peritoneally, or intramuscularly.

# CLAIMS

1. Use of a composition for treating withdrawal symptoms and pain associated with the withdrawal of anti-depressants, selective serotonin inhibitors (SSRI), or other neurological agents in a subject comprising:

N-2-hydroxy-ethyl-piperazine-N'-2-ethane sulfonic acid (HEPES) and derivatives thereof dissolved in sterile water, buffer, saline or other pharmaceutically acceptable carriers in an amount sufficient to treat withdrawal symptoms and pain associated with the withdrawal of following treatment with one or more anti-depressants, one or more selective serotonin inhibitors (SSRI), or other neurological agents; and

one or more optional excipients, diluents, extended or controlled release agents, coloring agents, preservatives or any combinations thereof.

2. The use of claim 1, wherein the HEPES is dissolved in sterile water for injection for oral, subcutaneous, parenteral, intravenous, peritoneal, or intramuscular administration.

3. The use of claim 1, wherein the composition is administered once daily on a body weight basis at 10-100 mg/kg.

4. The use of claim 1, wherein the anti-depressants are selected from the group consisting of benzodiazepines, SSRIs, Serotonin-norepinephrine reuptake inhibitors (SNRIs), Noradrenergic and specific serotonergic antidepressants (NaSSAs), Norepinephrine (noradrenaline) reuptake inhibitors (NRIs), Norepinephrine-dopamine reuptake inhibitors (NDRIs), Selective serotonin reuptake enhancers (SSREs), Melatonergic agonists, Tricyclic antidepressants (TCAs), and Monoamine oxidase inhibitor (MAOIs).

5. The use of claim 1, wherein the SSRIs comprise citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine, sertraline, zimelidine or any combinations thereof.