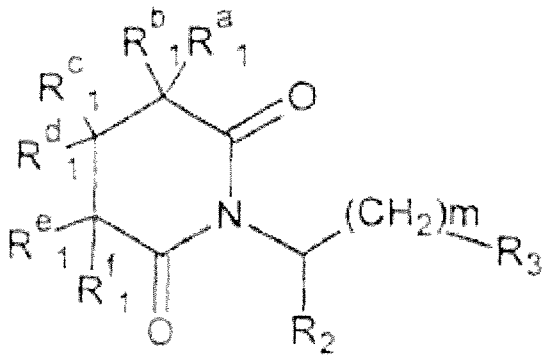
CLAIMS

1. A compound of general formula I:



wherein m is an integer from 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, -C(O)OH, $-C(O)OC_1$-C_6alkyl;

R_3 is:

1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, -C(O)OH, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:

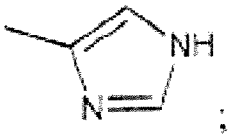


,

or a pharmaceutically acceptable salt thereof,

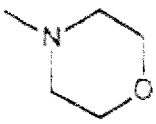
with a proviso that the compound is not a compound, wherein:

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is $-C(O)OCH_3$, R_3 is not:



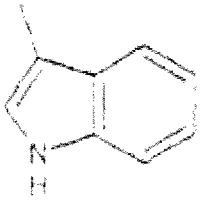
;

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



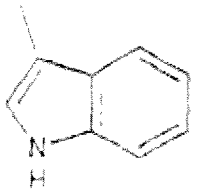
;

when m is 1, R^a_1 is an amino group and R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen, or R^e_1 is an amino group and R^a_1, R^b_1, R^c_1, R^d_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:

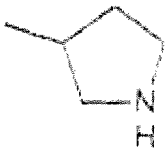


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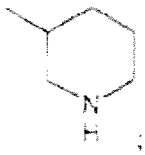
when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



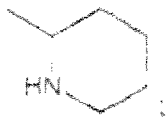
when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



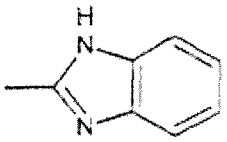
when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:

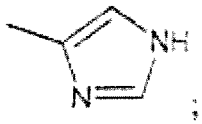


when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



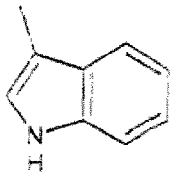
;

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is -C(O)OH, R_3 is not:



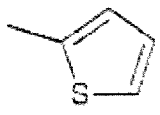
;

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is -C(O)OH, R_3 is not:



;

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



;

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



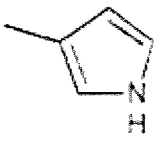
;

when m is 2, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



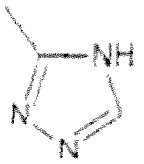
;

when m is 2, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



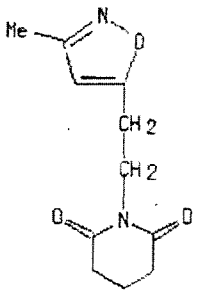
;

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:

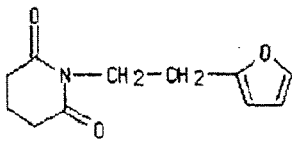


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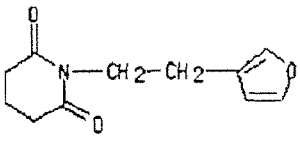
and with a proviso that the compound is not the following compound:



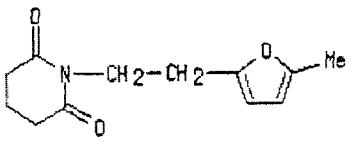
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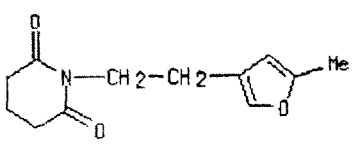
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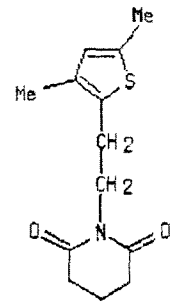
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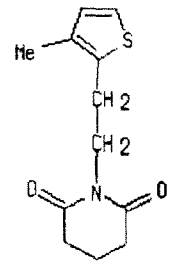


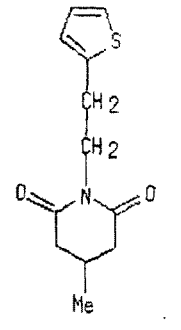
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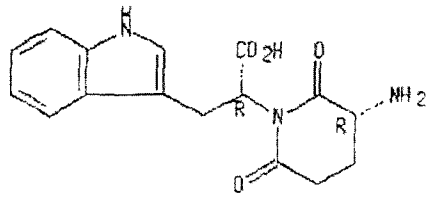


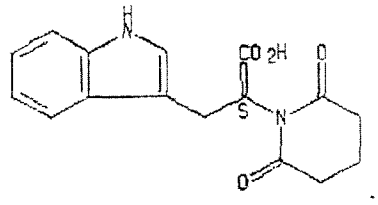
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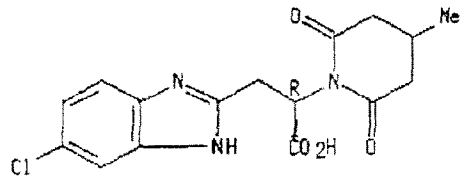


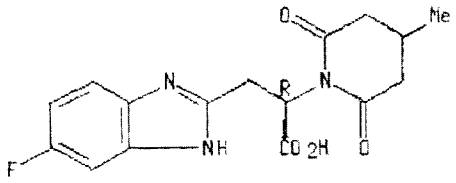


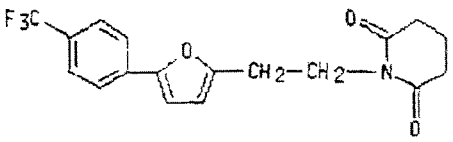


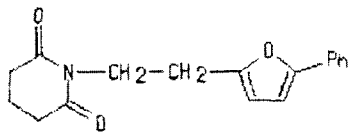


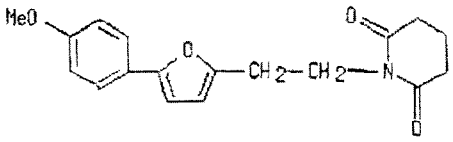


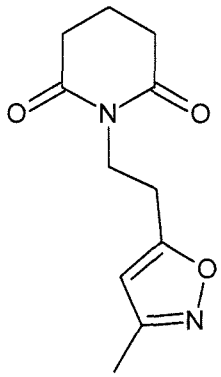


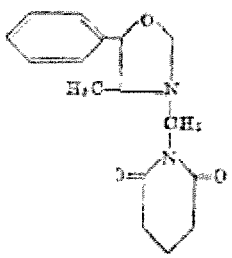


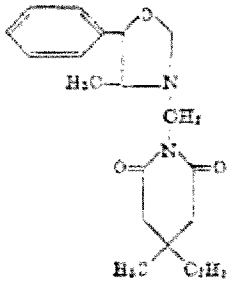












2. The compound of claim 1, wherein m is an integer from 0 to 2;

R^a_1 and R^b_1 are hydrogen, methyl, amino, or hydroxyl;

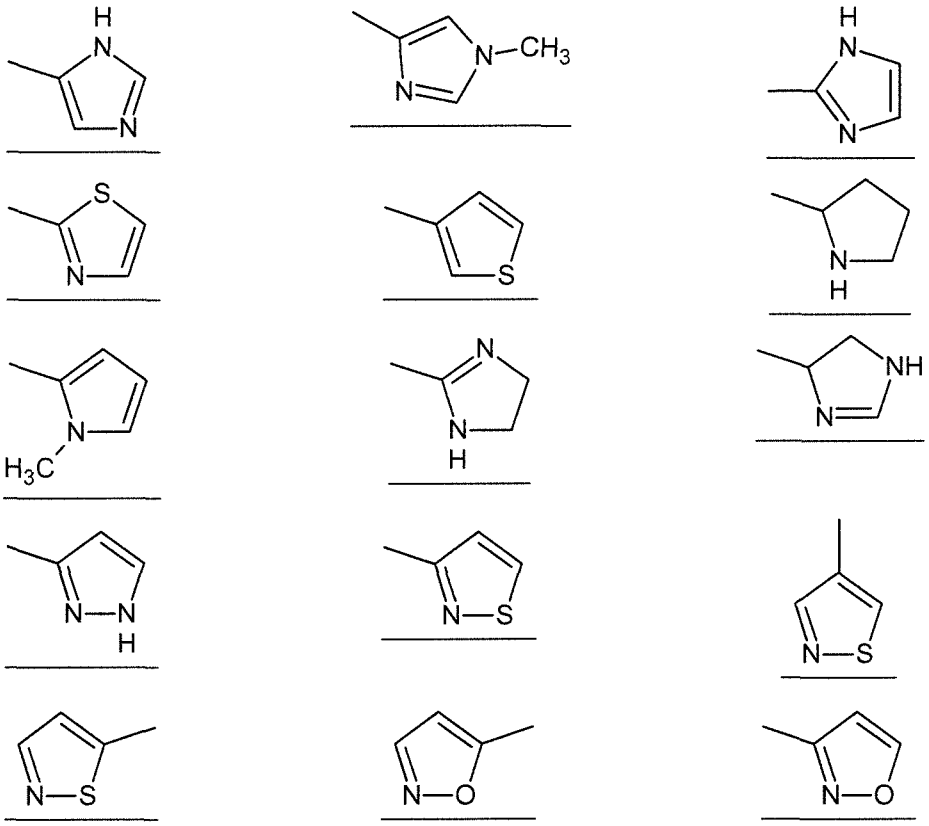
R^c_1 and R^d_1 are hydrogen, methyl, amino, or hydroxyl;

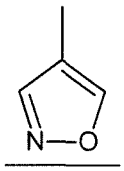
R^e_1 and R^f_1 are hydrogen or methyl;

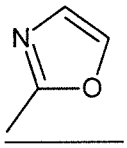
R2 is hydrogen, methyl, carboxyl, methoxycarbonyl, or ethoxycarbonyl;

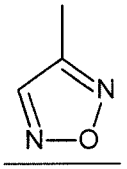
R3 is

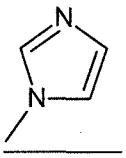
a group selected from:

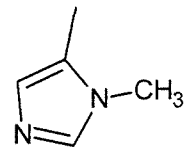


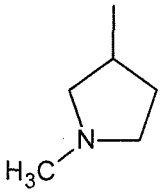


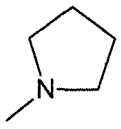


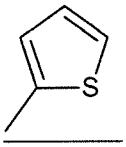


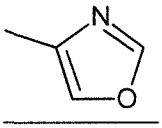


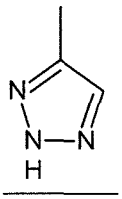


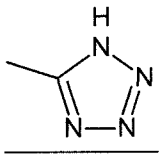


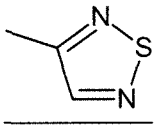


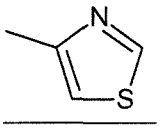


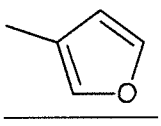


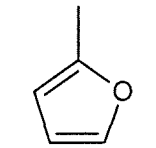


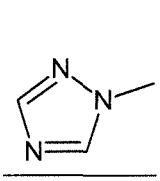


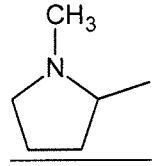


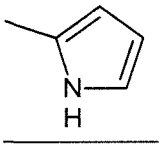


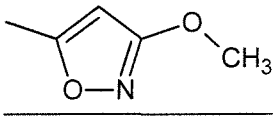


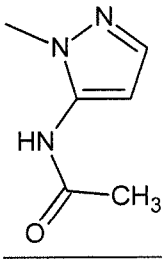


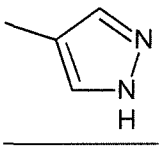


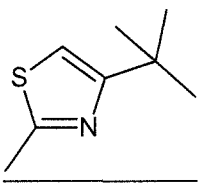


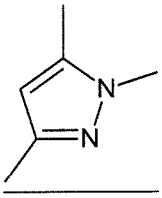


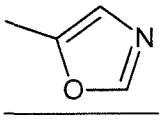


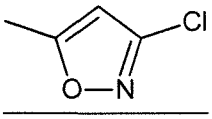


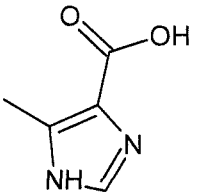


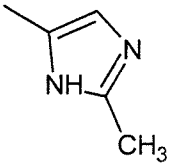


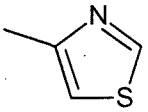


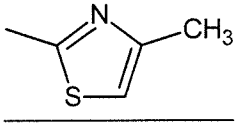


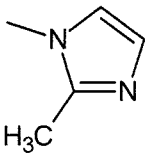


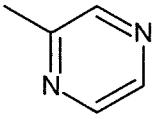


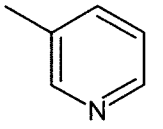


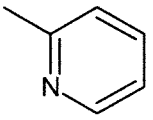


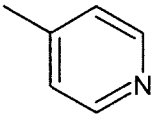


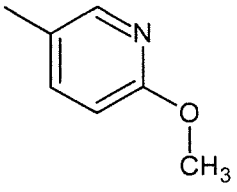


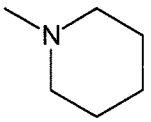


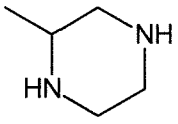


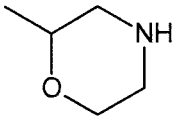


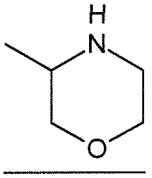


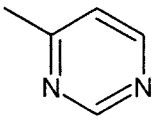


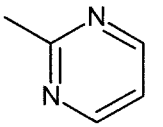


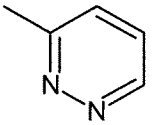


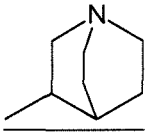


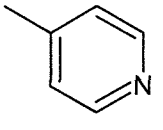


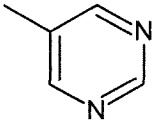


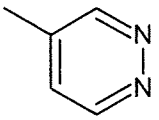


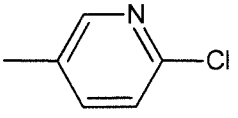


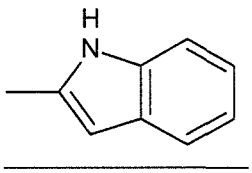


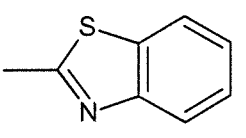


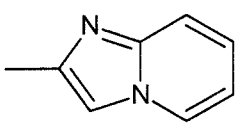


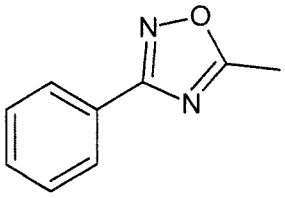


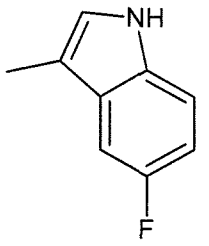


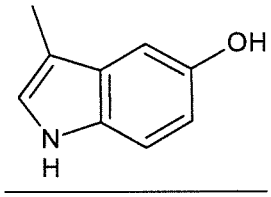


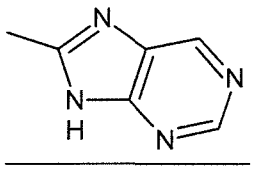


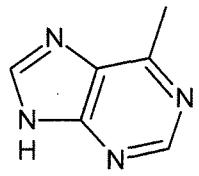


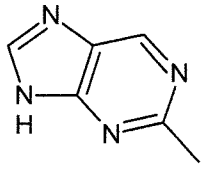


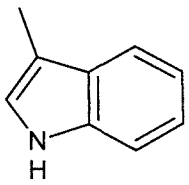


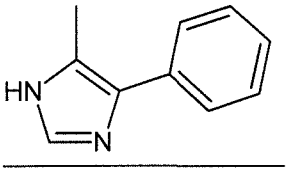


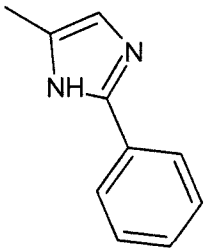


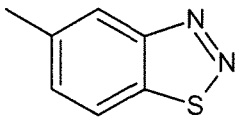


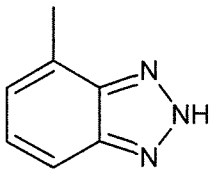


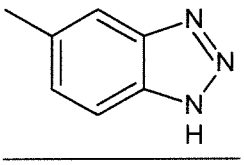


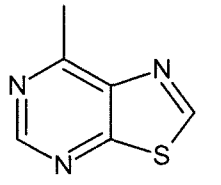


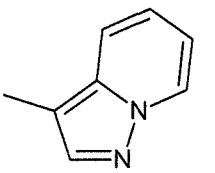


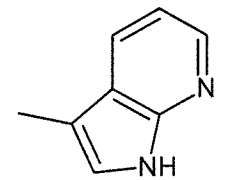


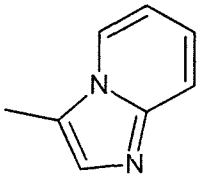


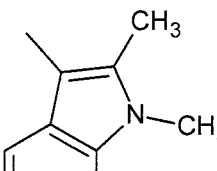


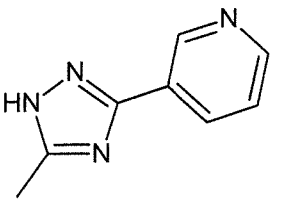


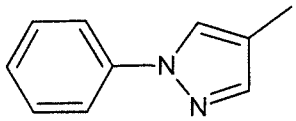


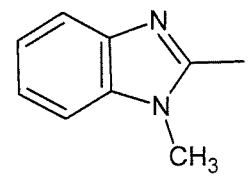


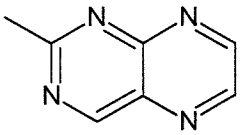


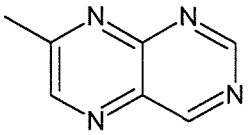




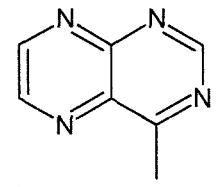






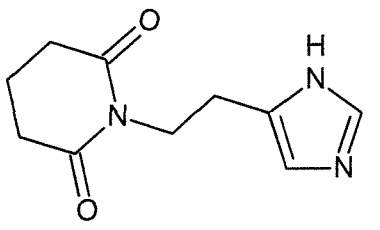


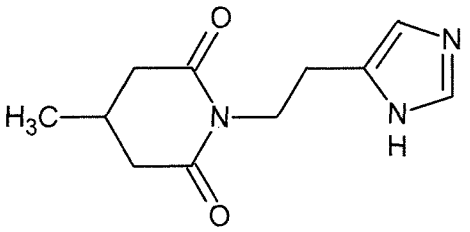
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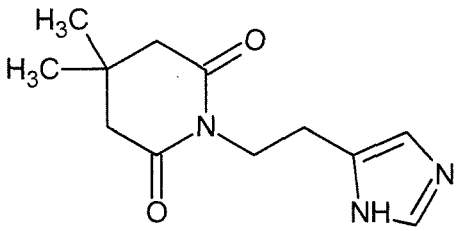


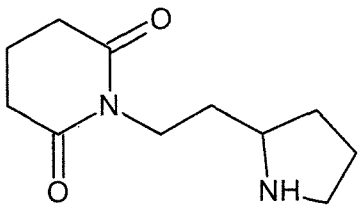
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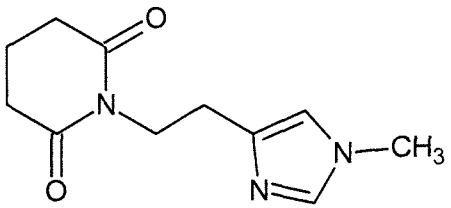
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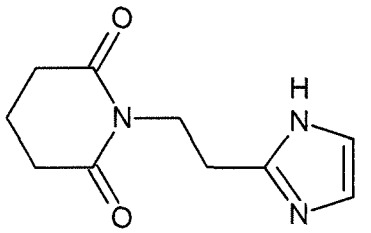


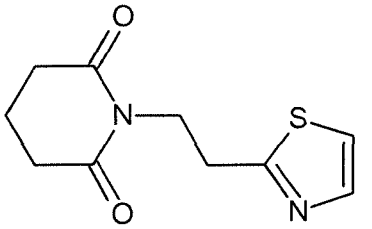


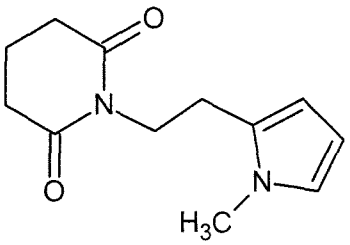


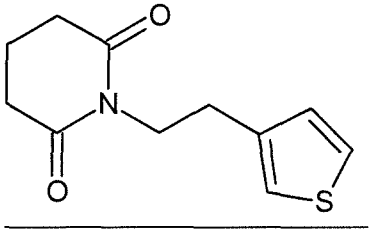


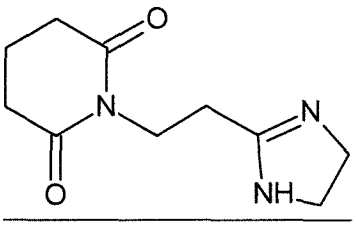


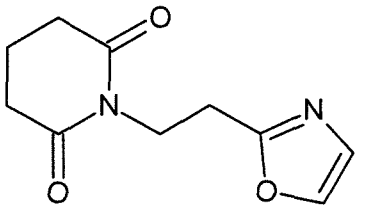


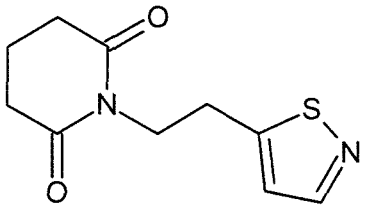


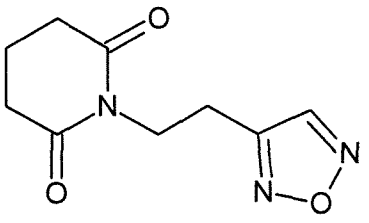


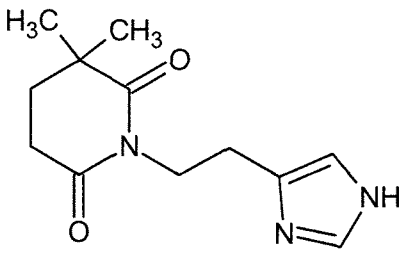


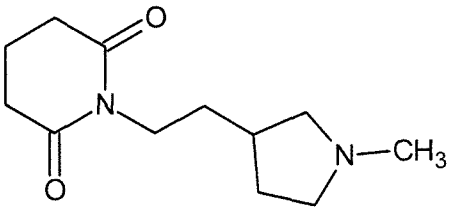


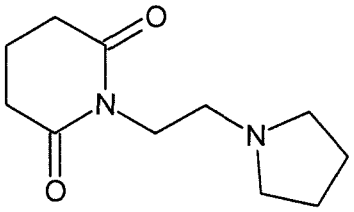


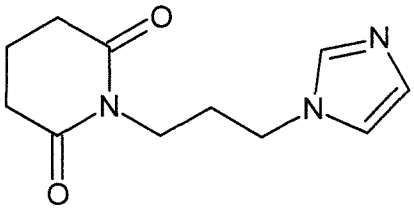


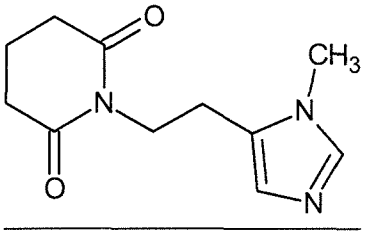


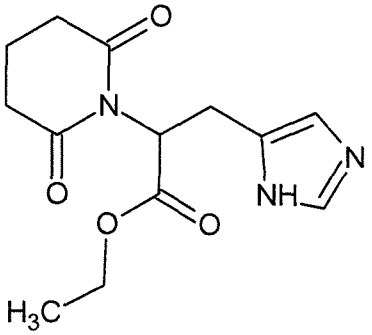


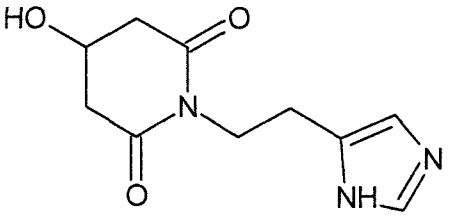


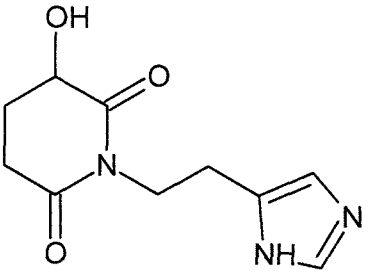


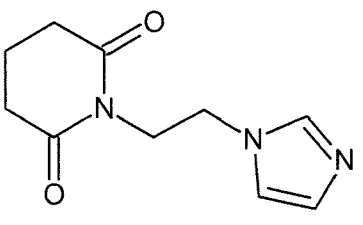


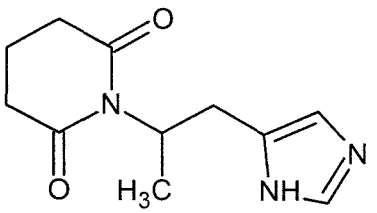


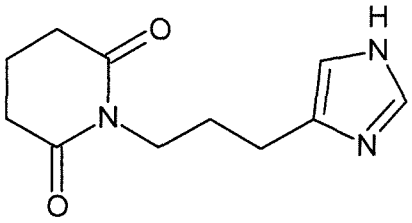


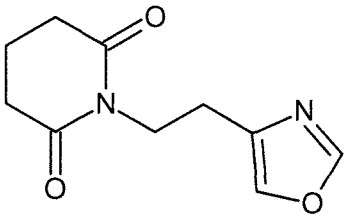


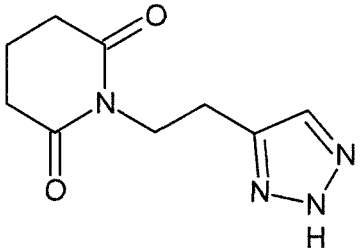


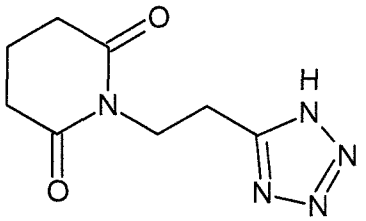


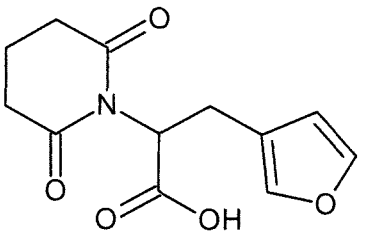


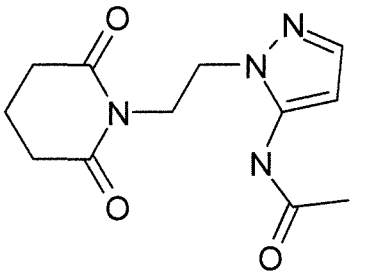


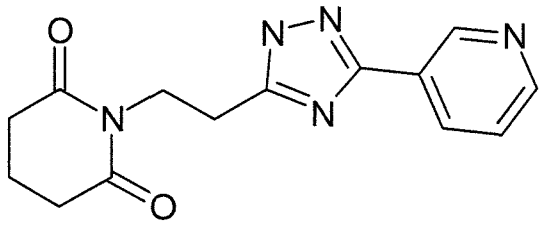


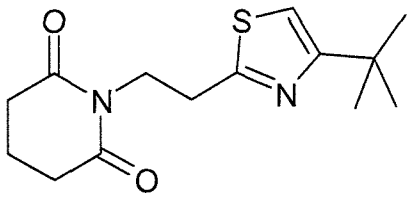


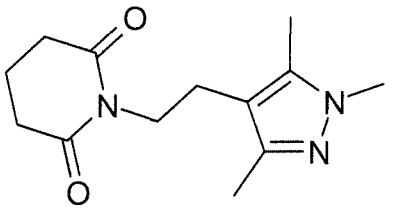


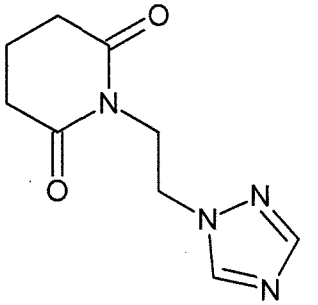


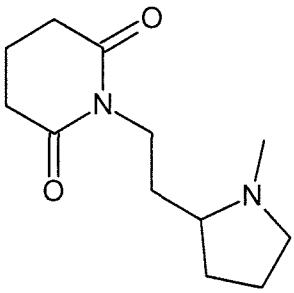


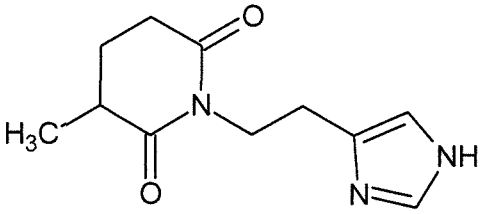


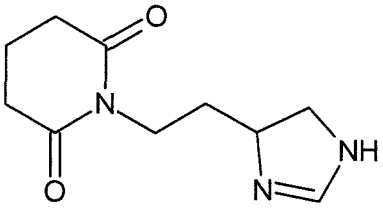


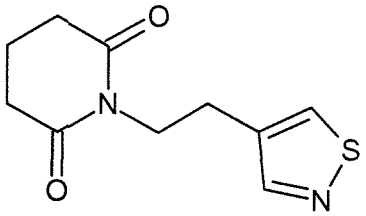


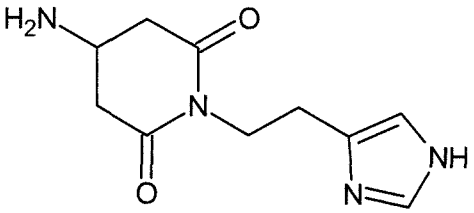


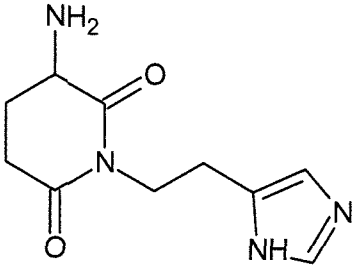


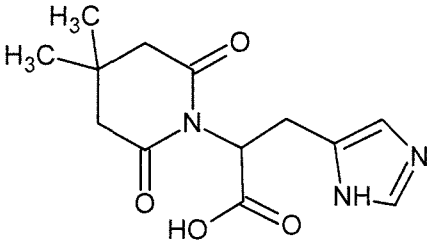


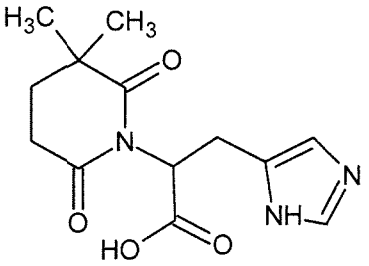


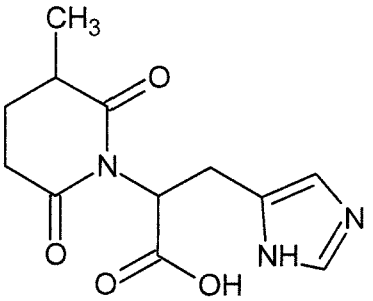


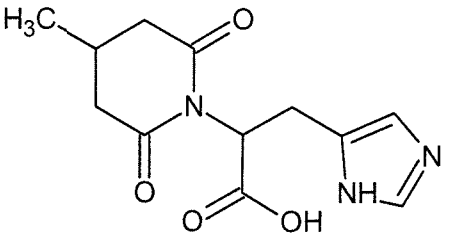


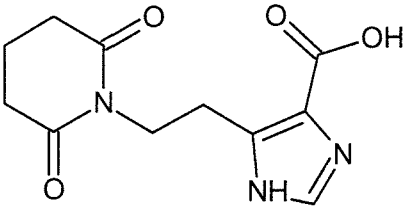


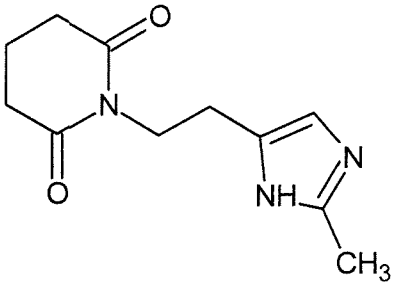


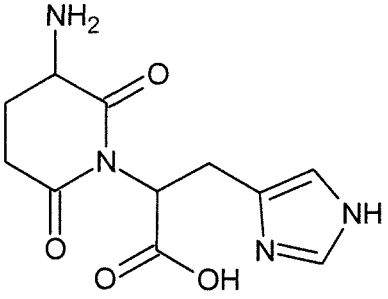


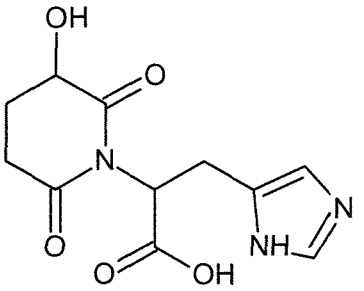


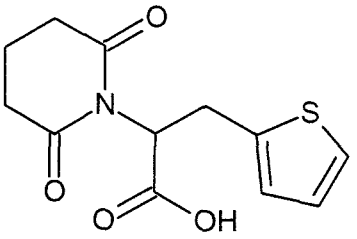


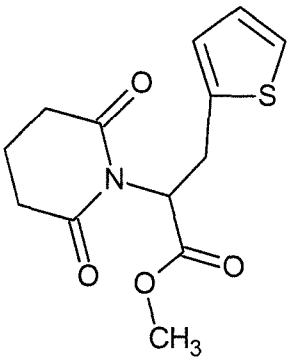


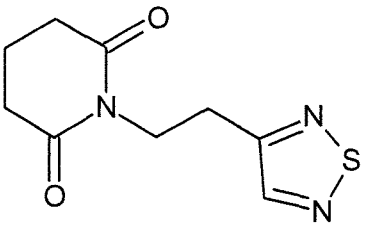


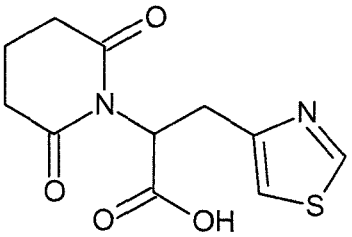


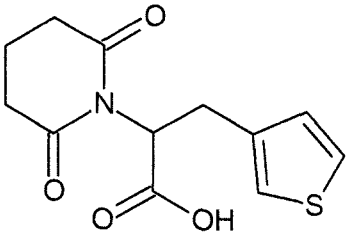


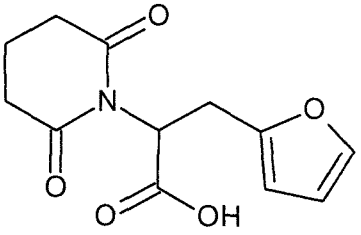


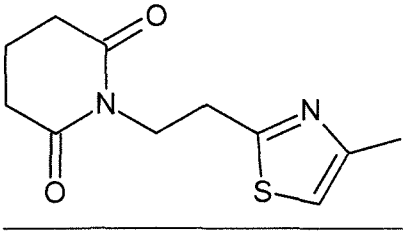


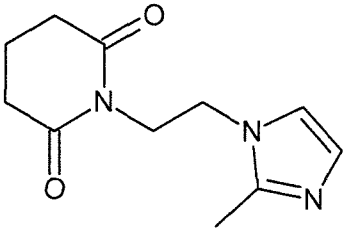


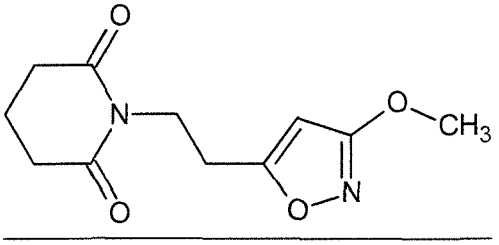


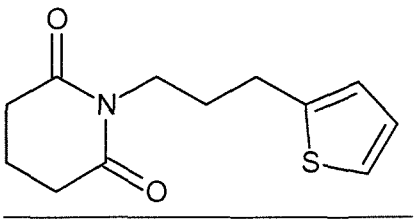


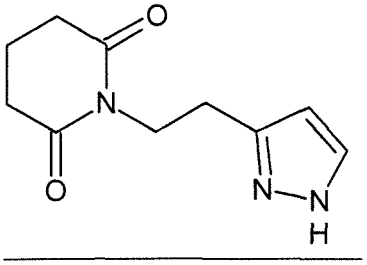


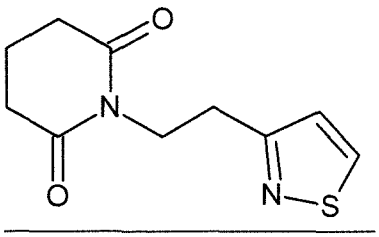


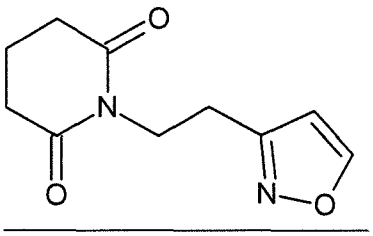


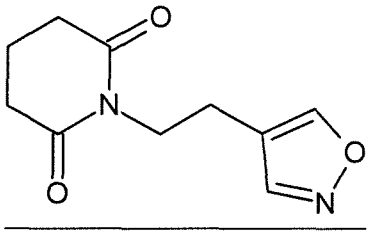


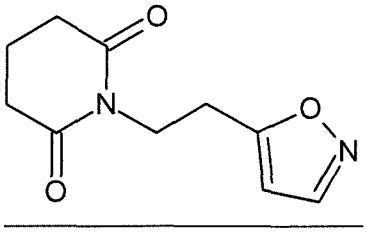


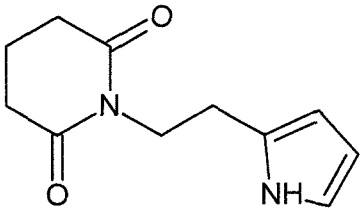


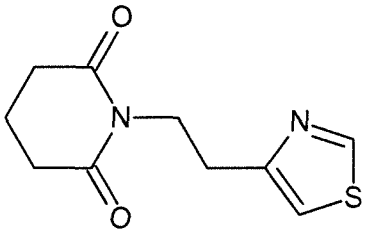


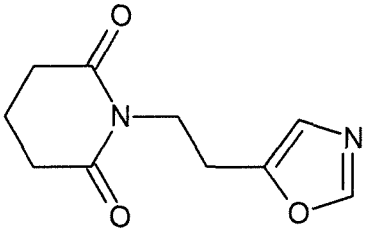


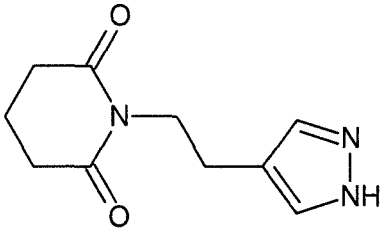


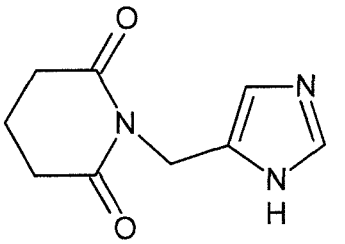


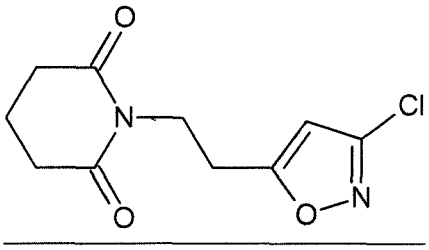


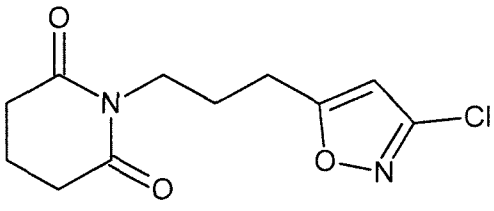


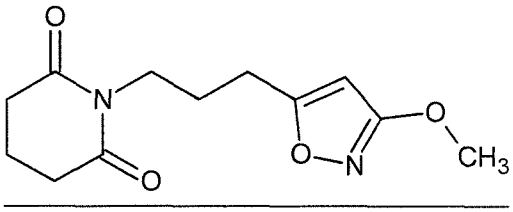


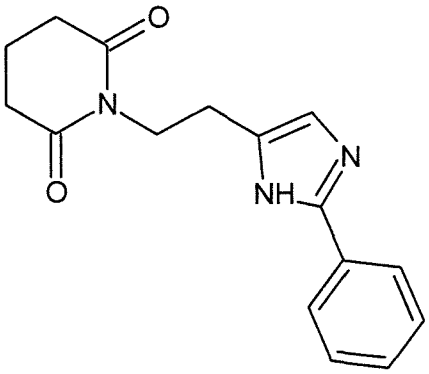


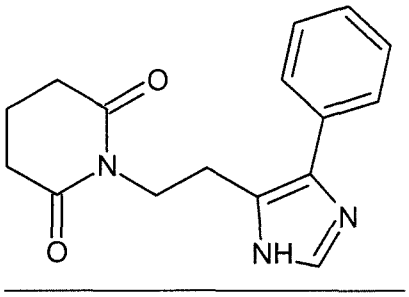


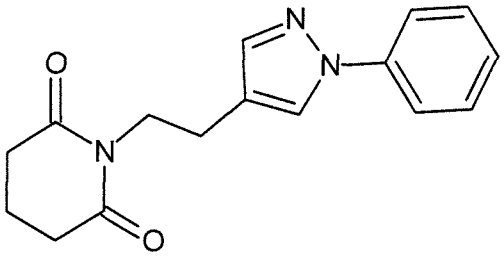


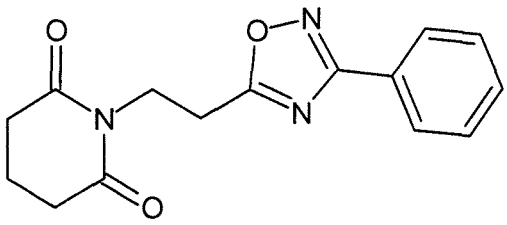


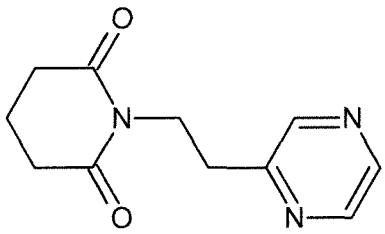


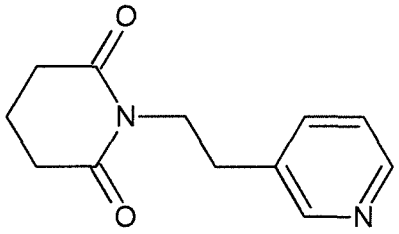


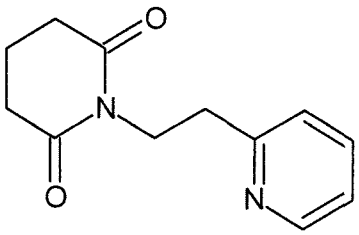


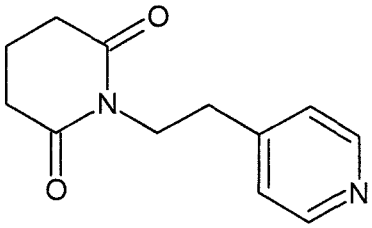


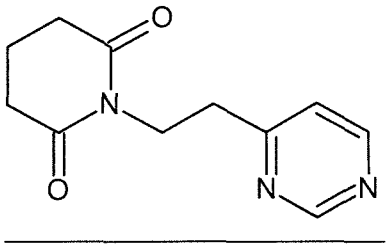


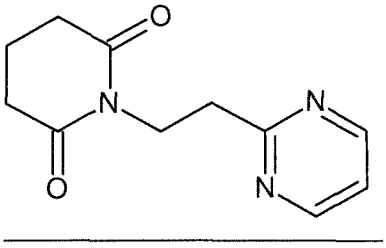


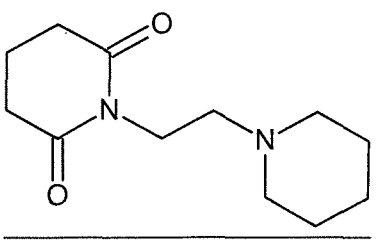


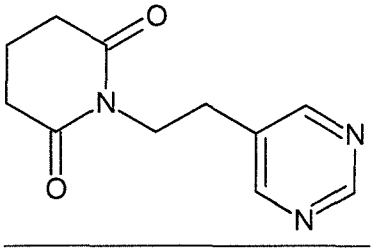


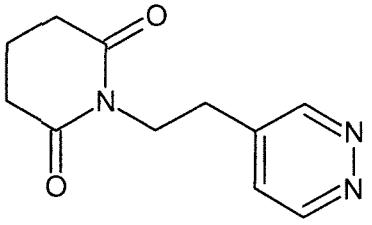


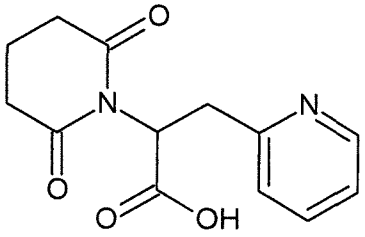


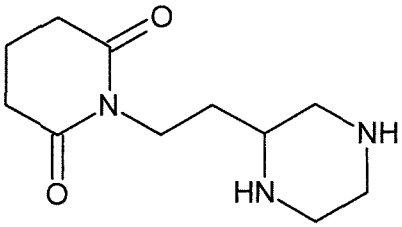


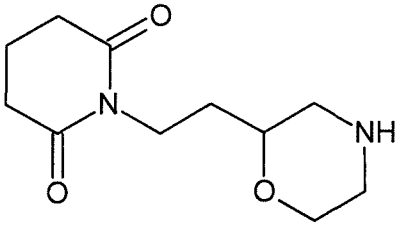


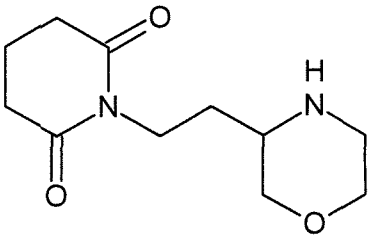


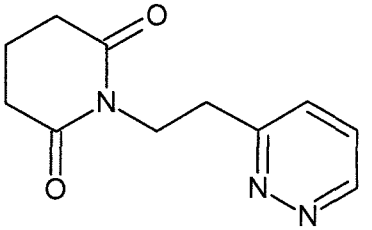


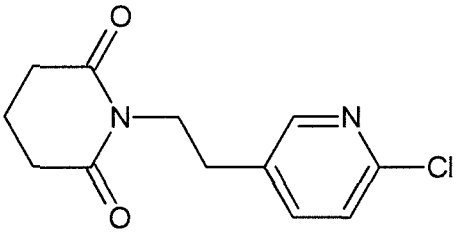


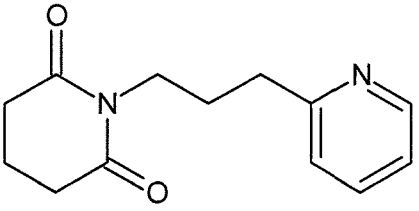


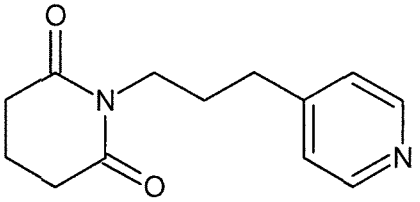


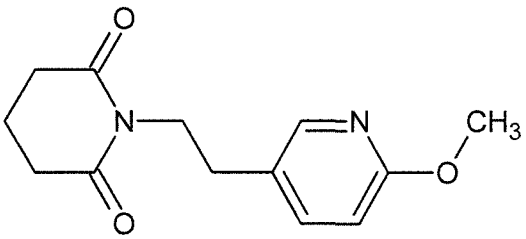


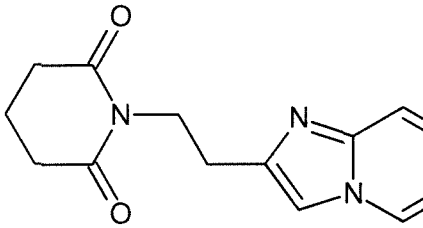


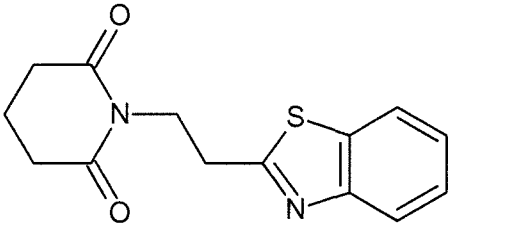


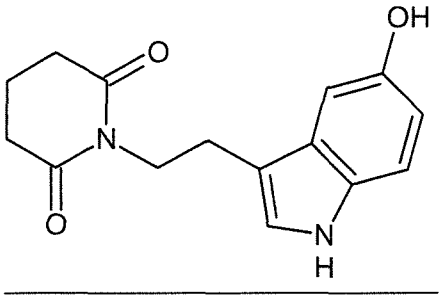


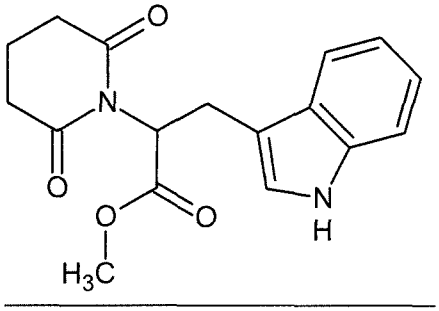


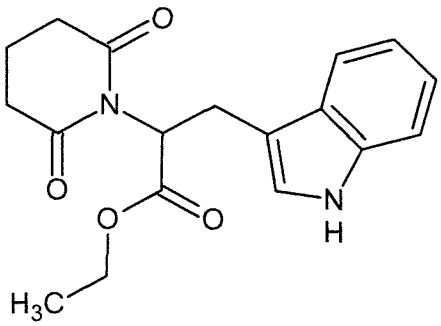


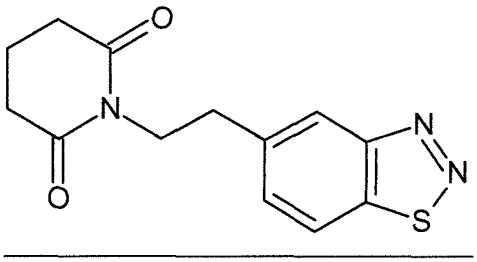


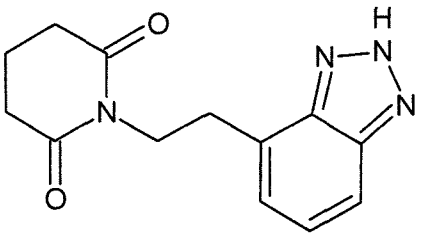


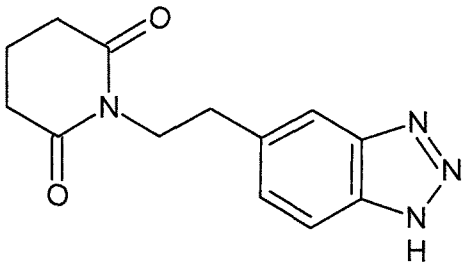


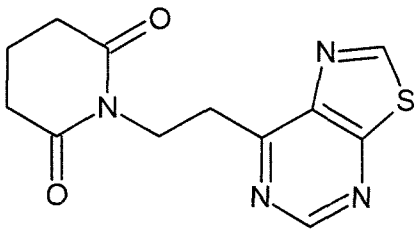


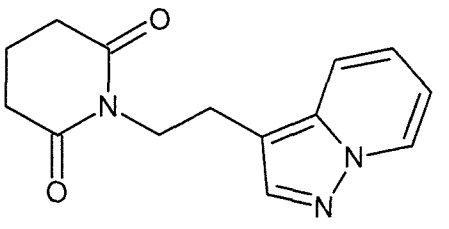


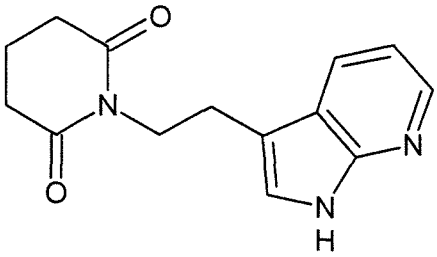


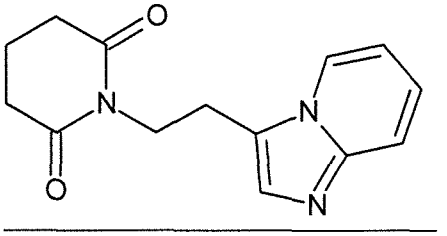


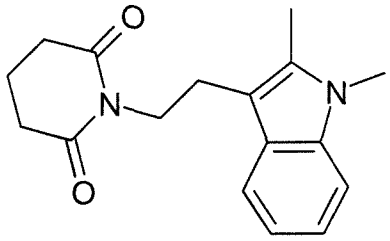


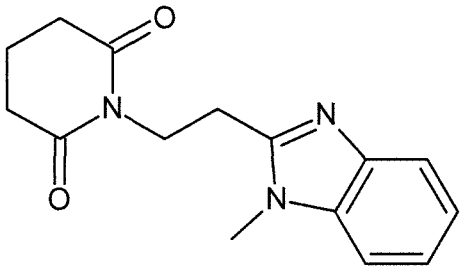


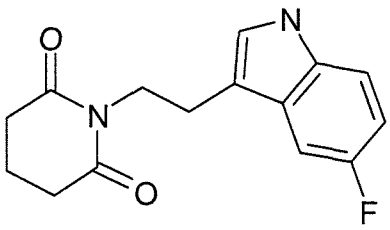


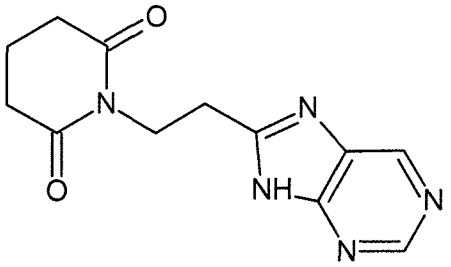


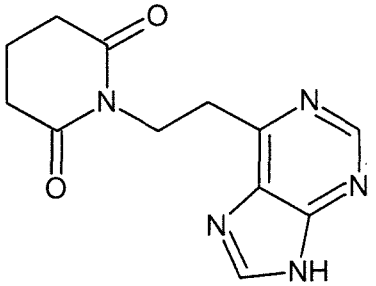


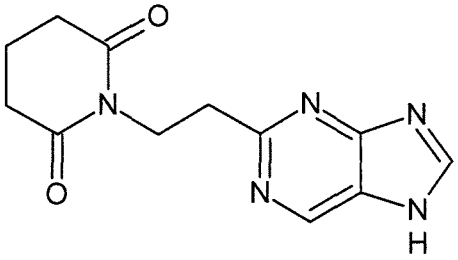


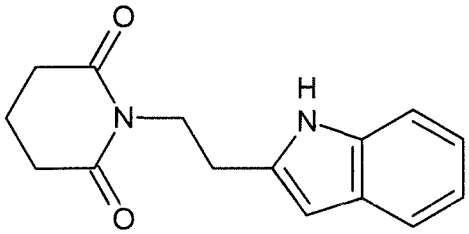


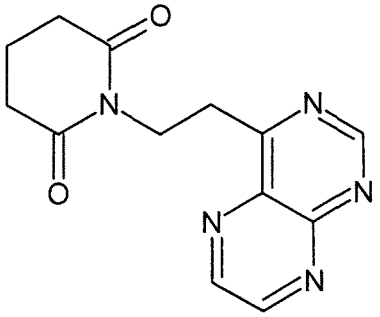


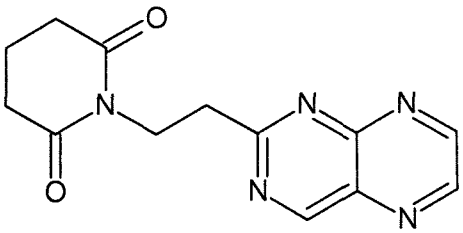


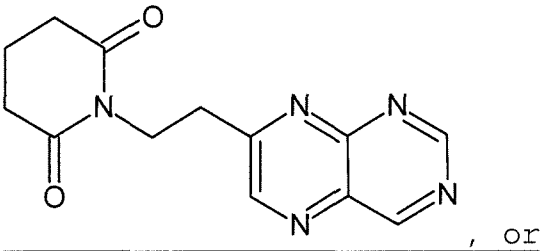


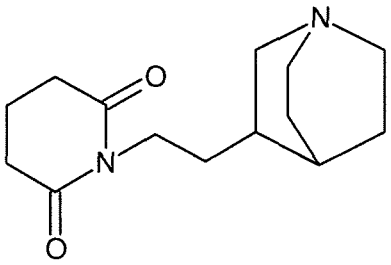




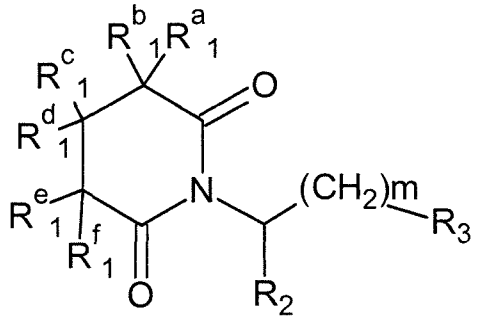




 , or



4. A medicament for the treatment of a respiratory tract disease, comprising a compound of general formula I:



,

wherein m is an integer from 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, $-C(O)OH$, $-C(O)OC_1$-C_6alkyl;

R_3 is:

1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, $-C(O)OH$, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

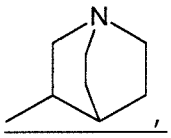
2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected

from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:



,

or a pharmaceutically acceptable salt thereof.

5. The medicament of claim 4, wherein the compound of formula (I) is a compound as defined in any one of claims 1 to 3.

6. The medicament of claim 4 or 5, wherein the respiratory tract disease is rhinosinusitis.

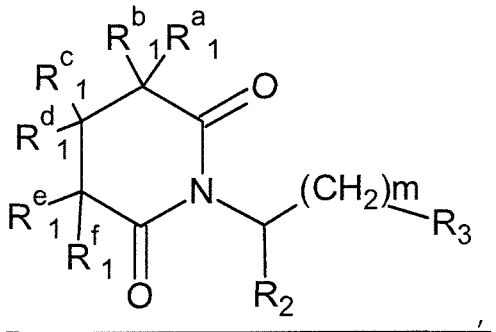
7. The medicament of claim 4 or 5, wherein the respiratory tract disease is caused by an RNA-comprising virus.

8. The medicament of claim 7, wherein the virus is selected from the group consisting of rhinovirus, Coxsackie virus, respiratory syncytial virus, and influenza virus.

9. The medicament of claim 4 or 5, wherein the disease is exacerbations of asthma, chronic obstructive pulmonary disease, bronchitis and mucoviscidosis, which are caused by

rhinovirus, influenza virus and/or respiratory syncytial virus.

10. A pharmaceutical composition, comprising an effective amount of a compound of general formula I



,

wherein m is an integer from 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, -C(O)OH, $-C(O)OC_1$-C_6alkyl;

R_3 is:

1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, -C(O)OH, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

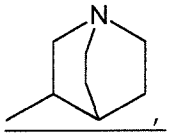
2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally

substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:



or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier, for the treatment of a respiratory tract disease.

11. The pharmaceutical composition of claim 10, wherein the compound of formula (I) is a compound as defined in any one of claims 1 to 3.

12. The pharmaceutical composition of claim 10 or 11, wherein the respiratory tract disease is rhinosinusitis.

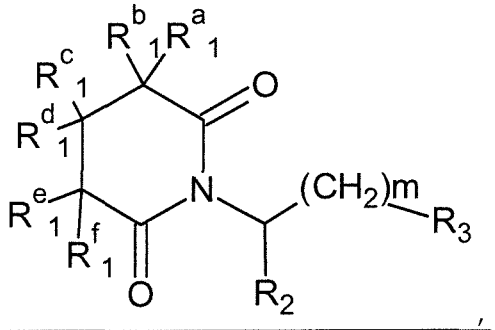
13. The pharmaceutical composition of claim 10 or 11, wherein the respiratory tract disease is caused by an RNA-comprising virus.

14. The pharmaceutical composition of claim 13, wherein the virus is selected from the group consisting of rhinovirus, Coxsackie virus, respiratory syncytial virus, and influenza.

15. The pharmaceutical composition of claim 10 or 11, wherein the disease is exacerbations of asthma, chronic

obstructive pulmonary disease, bronchitis and mucoviscidosis, which are caused by rhinovirus, influenza virus and/or respiratory syncytial virus.

16. Use of a compound of general formula I



,

wherein m is an integer from 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, -C(O)OH, $-C(O)OC_1$-C_6alkyl;

R_3 is:

1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, -C(O)OH, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

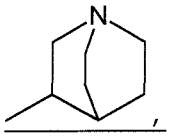
2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally

substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:



or a pharmaceutically acceptable salt thereof for the manufacture of a medicament for the treatment of a respiratory tract disease.

17. The use of claim 16, wherein the compound of formula I is a compound as defined in any one of claims 1 to 3.

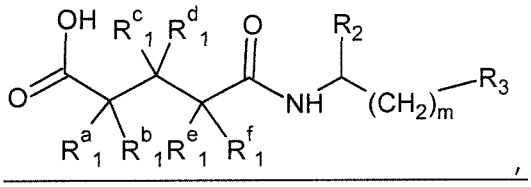
18. The use of claim 16 or 17, wherein the respiratory tract disease is rhinosinusitis.

19. The use of claim 16 or 17, wherein the respiratory tract disease is caused by an RNA-comprising virus.

20. The use of claim 19, wherein the virus is selected from the group consisting of rhinovirus, Coxsackie virus, respiratory syncytial virus, and influenza virus.

21. The use of claim 16 or 17, wherein the disease is exacerbations of asthma, chronic obstructive pulmonary disease, bronchitis and mucoviscidosis, which are caused by rhinovirus, influenza virus and/or respiratory syncytial virus.

22. A method for preparing a compound of general formula I according to claim 1 or a pharmaceutically acceptable salt thereof, comprising heating of dicarboxylic acid monoamide of general formula II



,

wherein

m represents an integer of 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, -C(O)OH, $-C(O)OC_1$-C_6alkyl;

R_3 is:

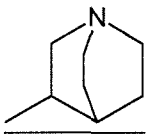
1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, -C(O)OH, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:



with a dehydrating agent in an organic solvent.

23. The method of claim 22, wherein the dehydrating agent is glutaric anhydride, and the method is performed under heating in an organic solvent, preferably in dimethylformamide.

24. The method of claim 22, wherein the dehydrating agent is propionic anhydride, and the method is performed under heating in an organic solvent, preferably in toluene.

25. The process of claim 24, wherein the method is performed with addition of sodium acetate.

26. The method of claim 22, wherein the dehydrating agent is acetic anhydride, and the method is performed under heating in an organic solvent, preferably in dioxane.

27. The process of claim 26, wherein the method is performed with addition of sodium acetate.

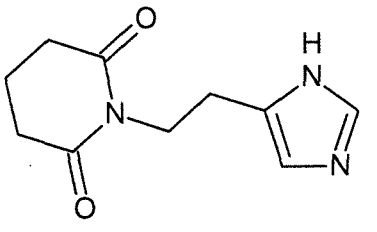
28. The method of claim 22, wherein the dehydrating agent is acetic acid chloroanhydride, and the method is performed

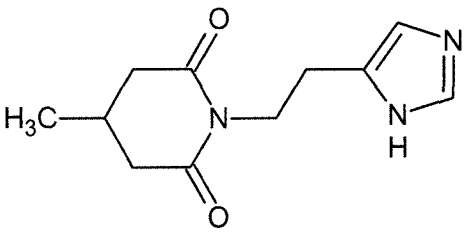
under heating in an organic solvent, preferably in acetic acid.

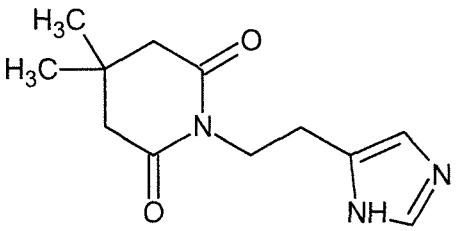
29. The method of claim 22, wherein the dehydrating agent and the solvent are acetic acid anhydride, and the method is performed at 90-100°C.

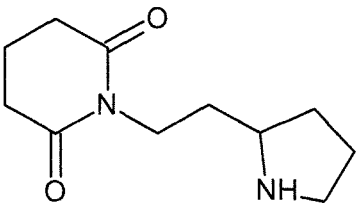
30. The method of claim 22, wherein the dehydrating agent is carbonyldiimidazole.

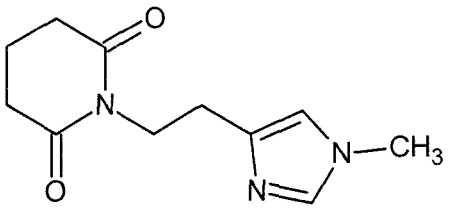
31. A compound which is:

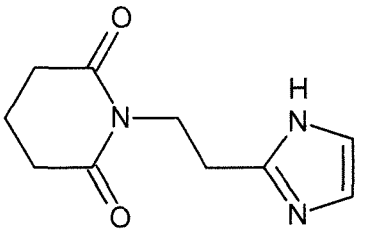


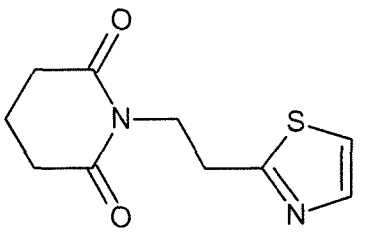


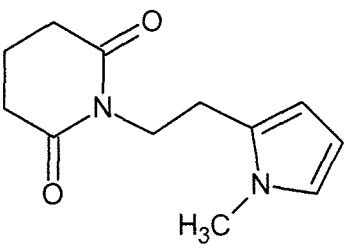


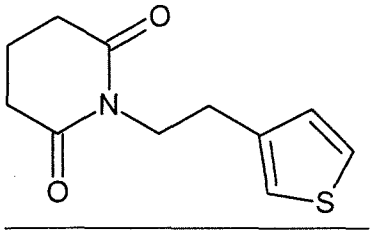


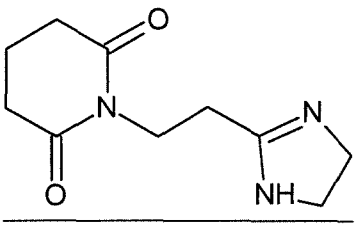


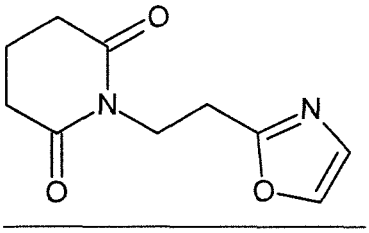


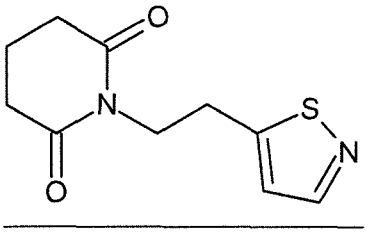


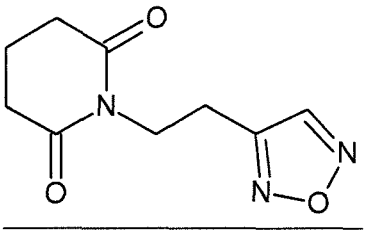


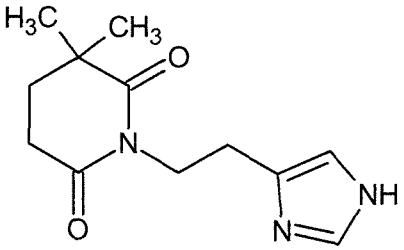


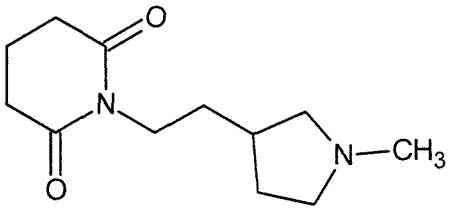


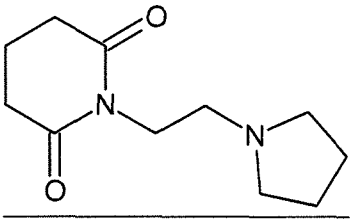


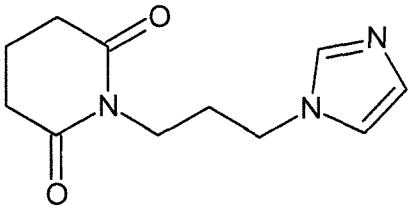


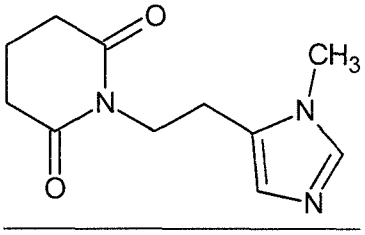


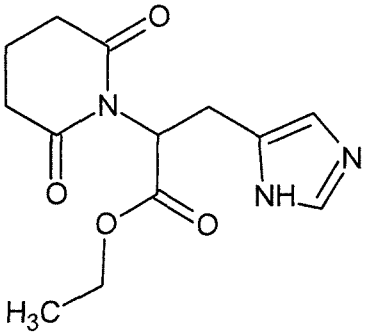


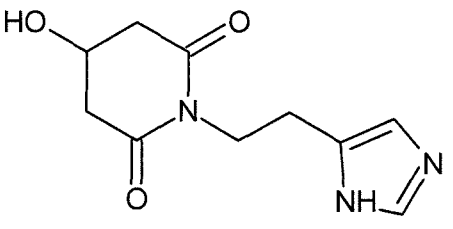


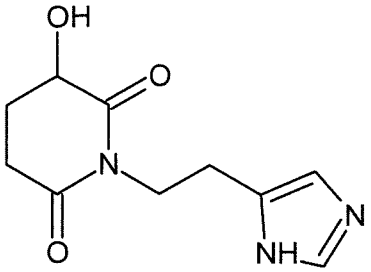


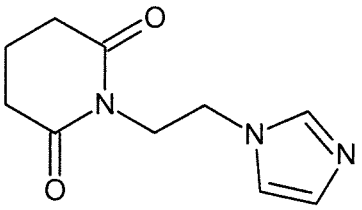


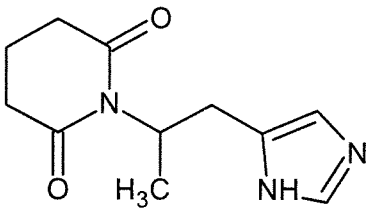


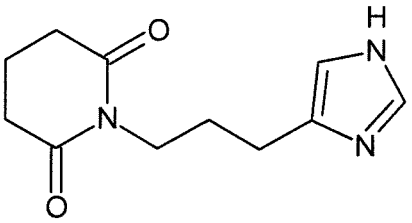


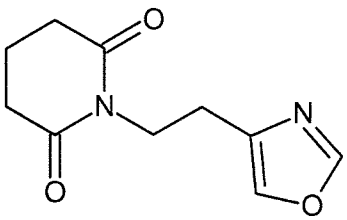


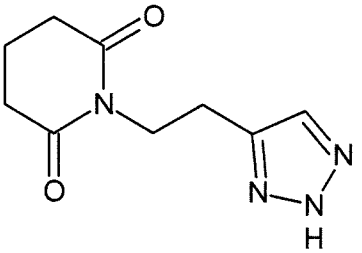


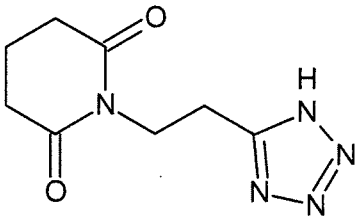


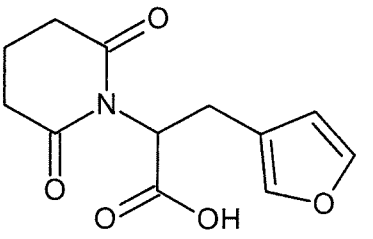


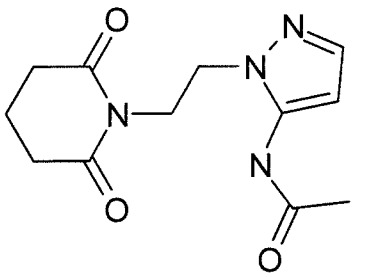


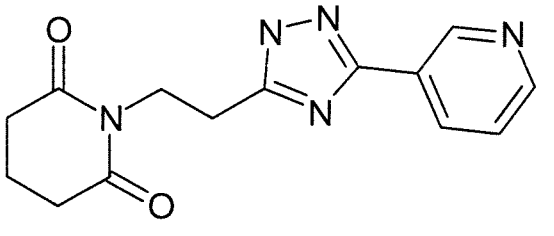


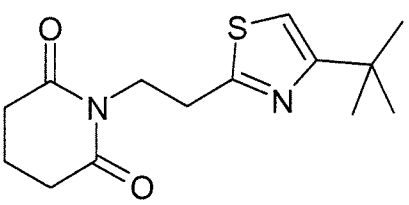


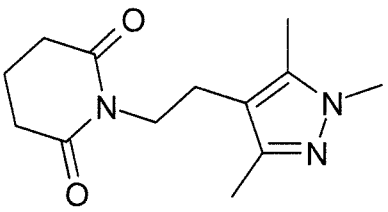


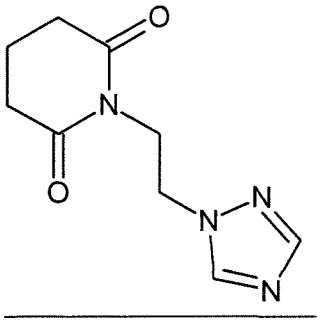


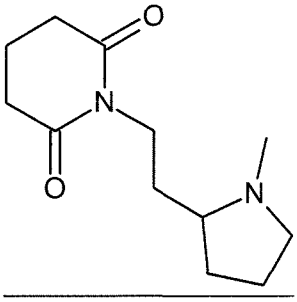


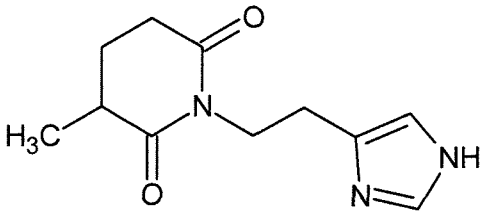


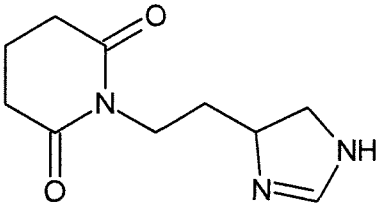


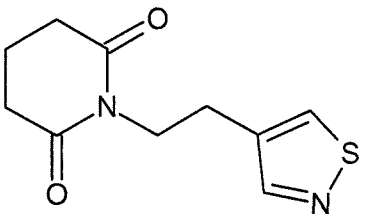


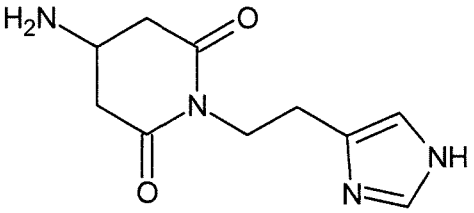


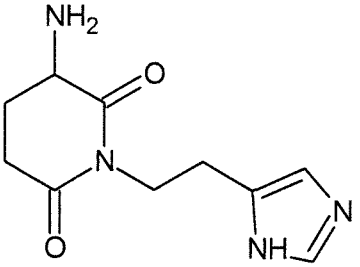


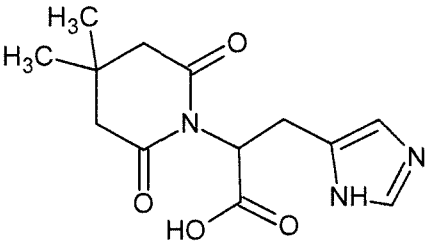


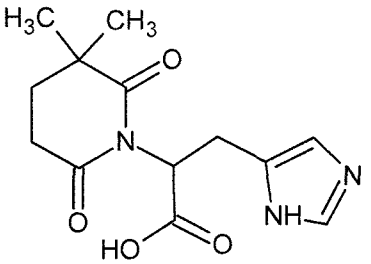


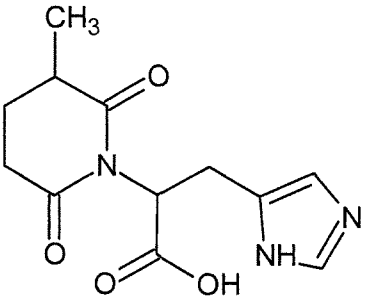


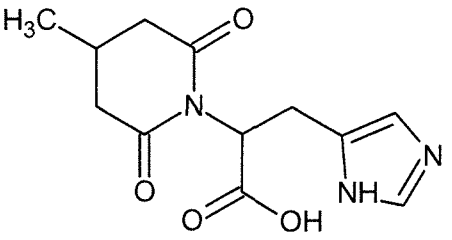


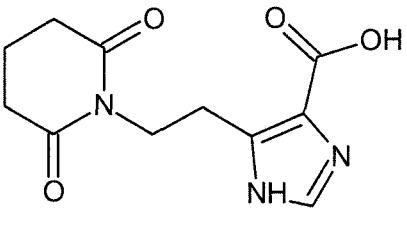


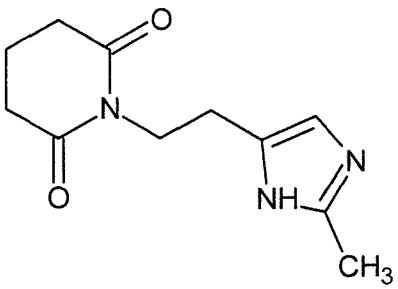


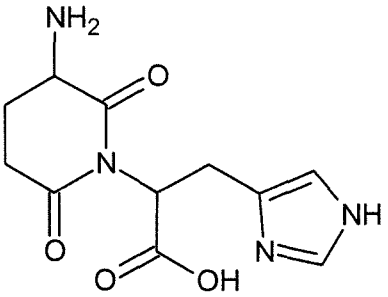


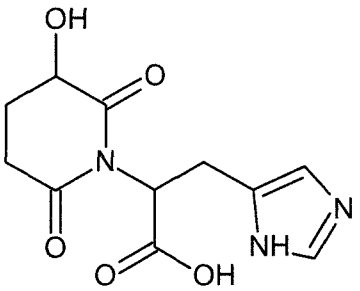


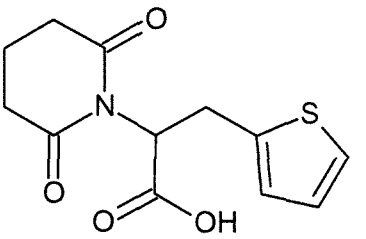


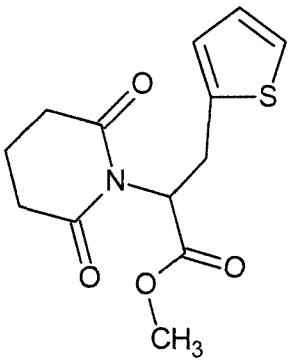


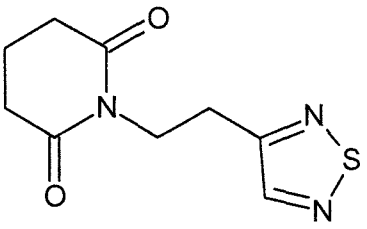


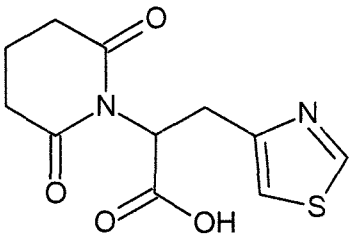


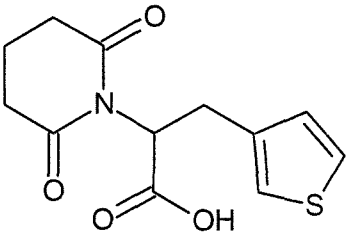


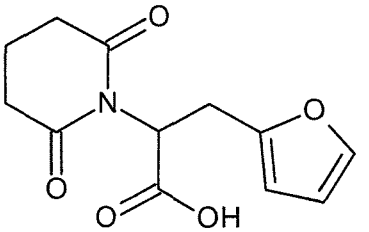


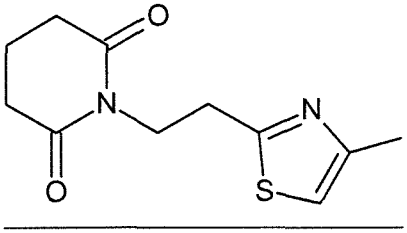


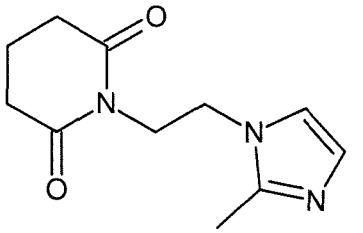


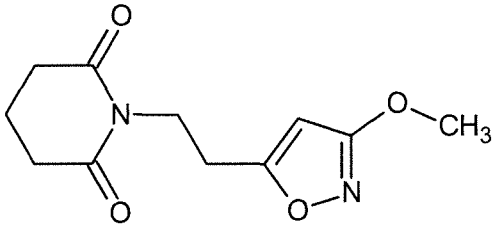


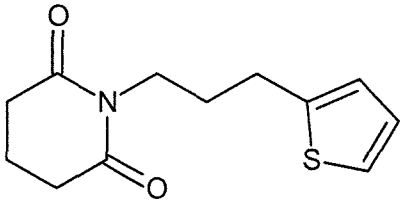


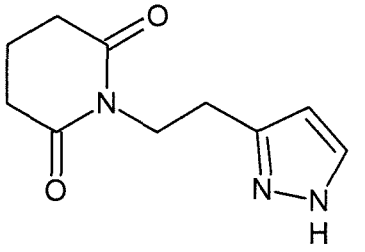


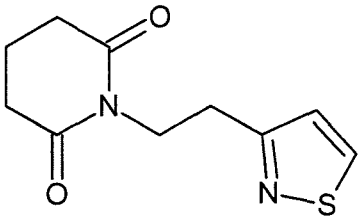


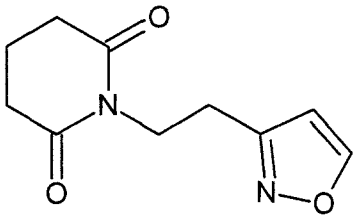


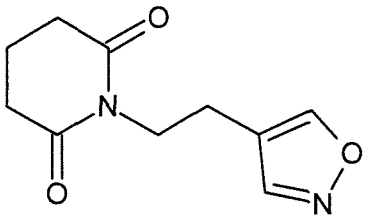


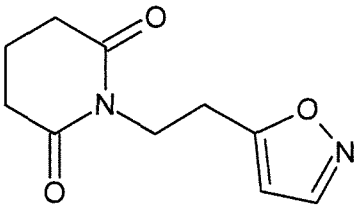


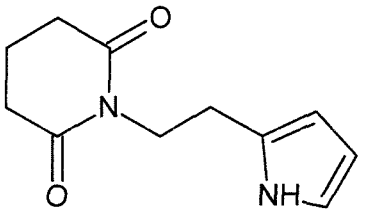


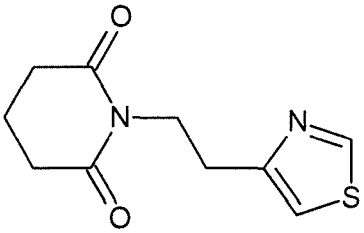


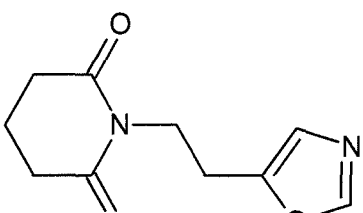


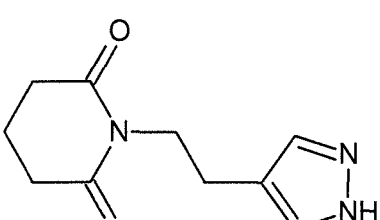


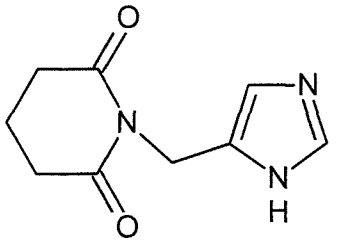


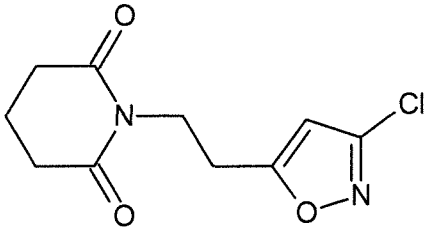


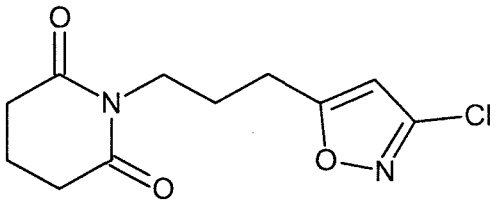


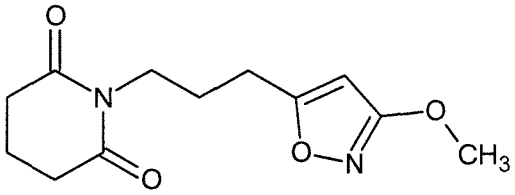


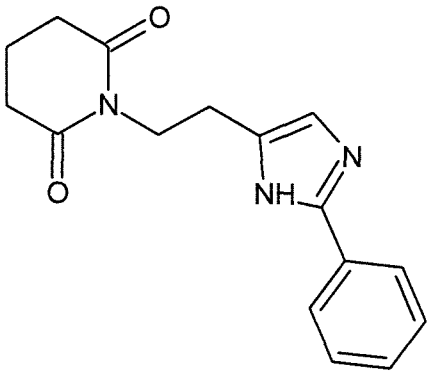


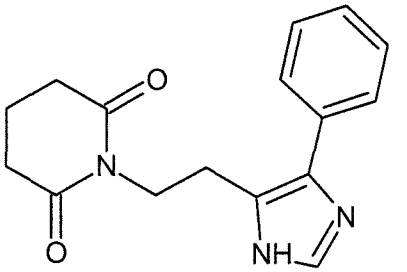


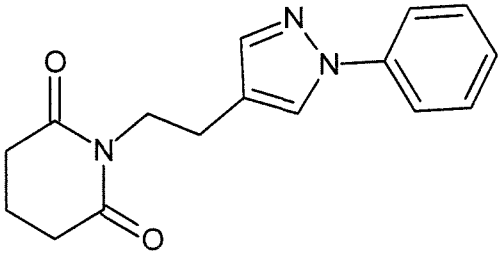


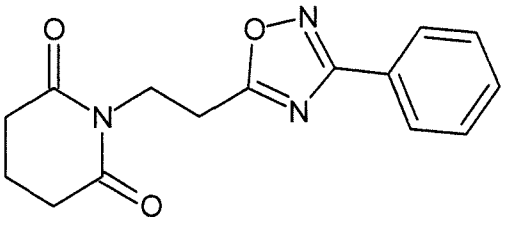


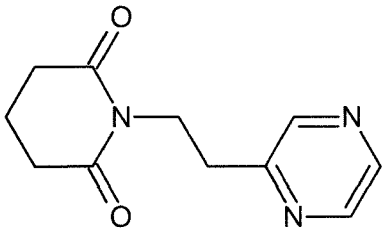


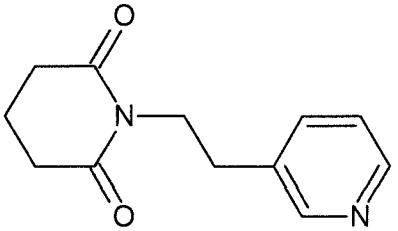


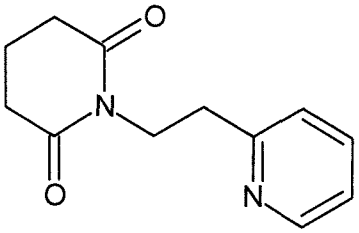


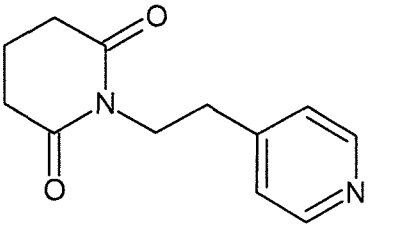


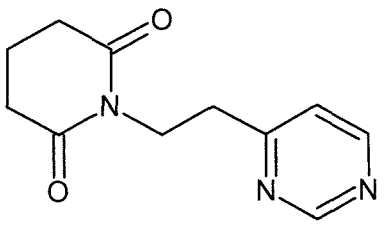


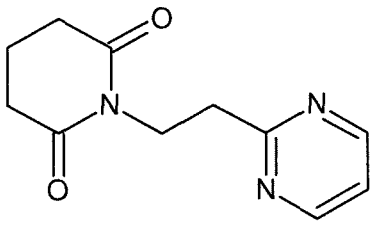


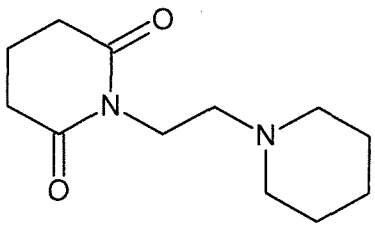


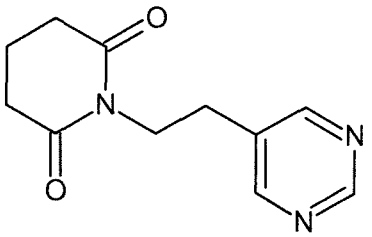


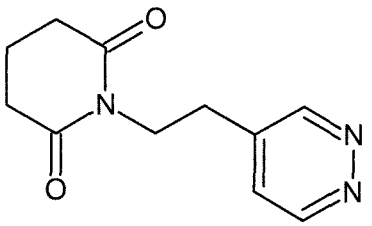


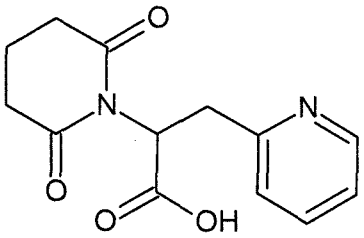


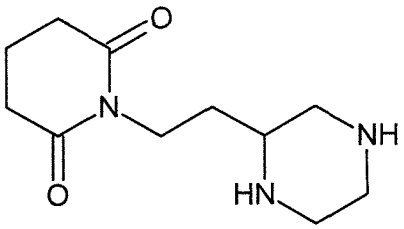


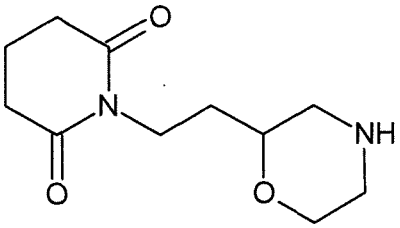


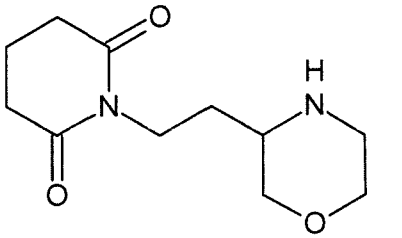


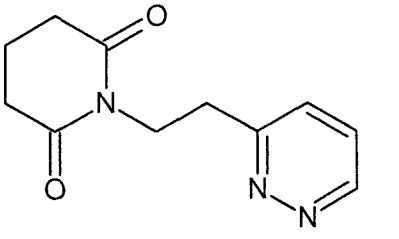


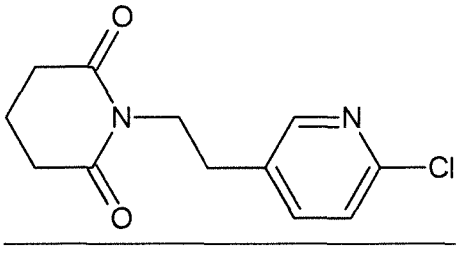


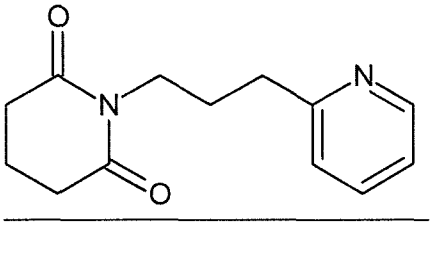


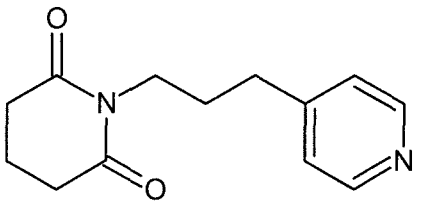


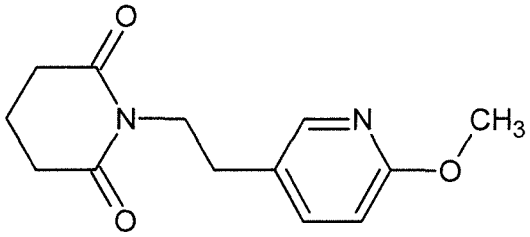


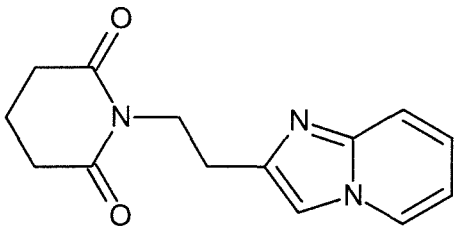


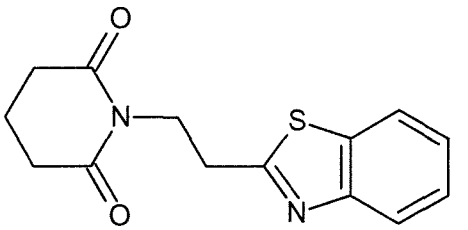


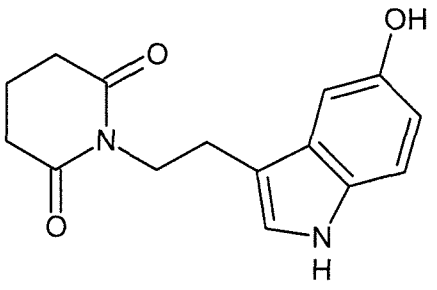


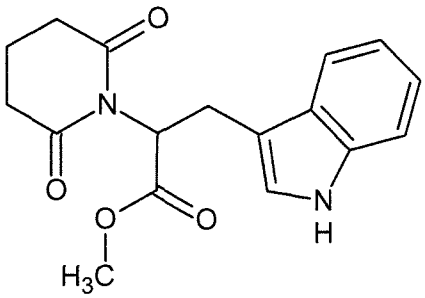


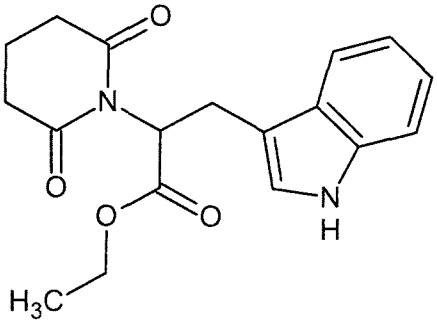


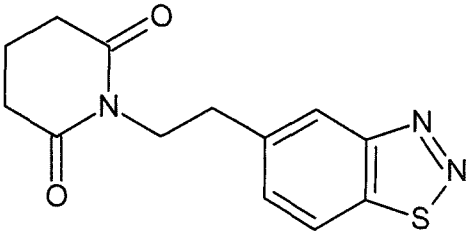


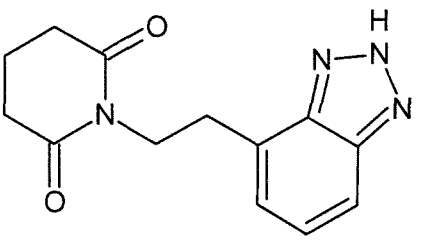


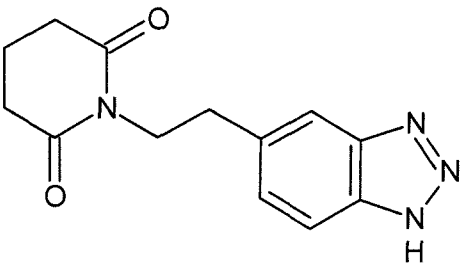


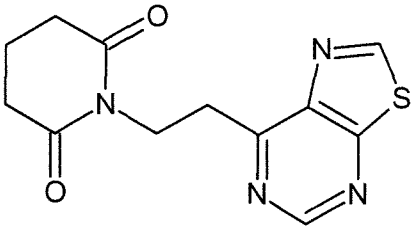


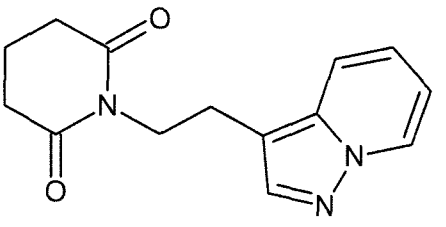


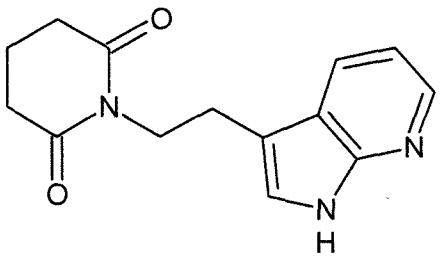


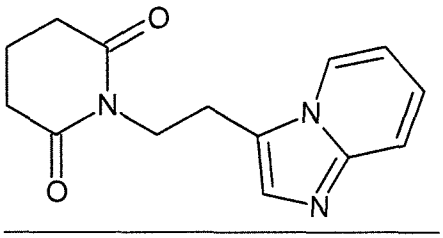


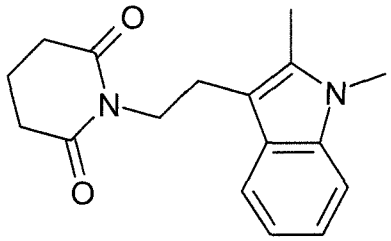


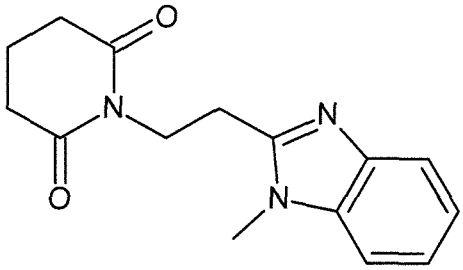


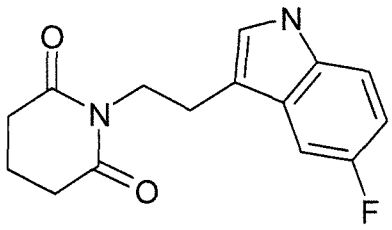


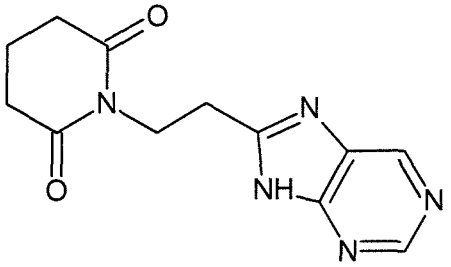


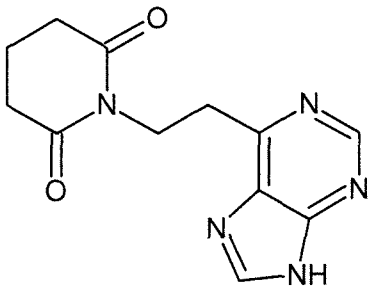


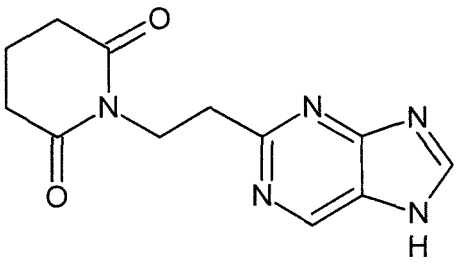


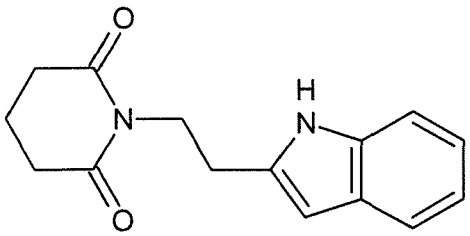


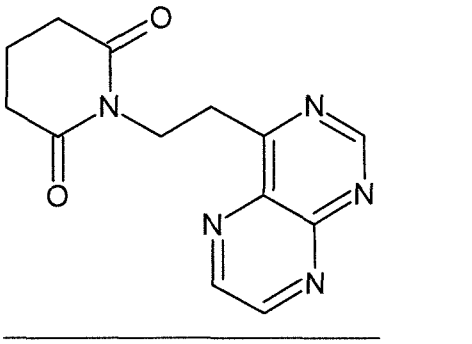


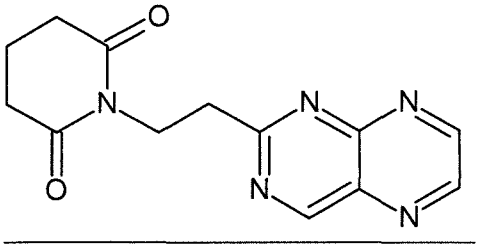


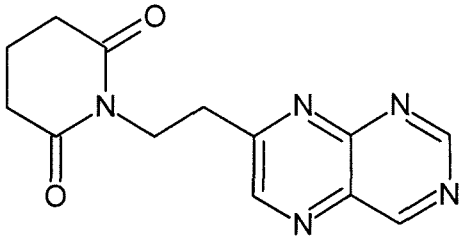




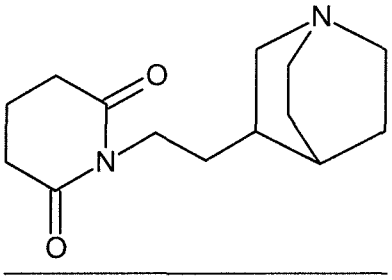




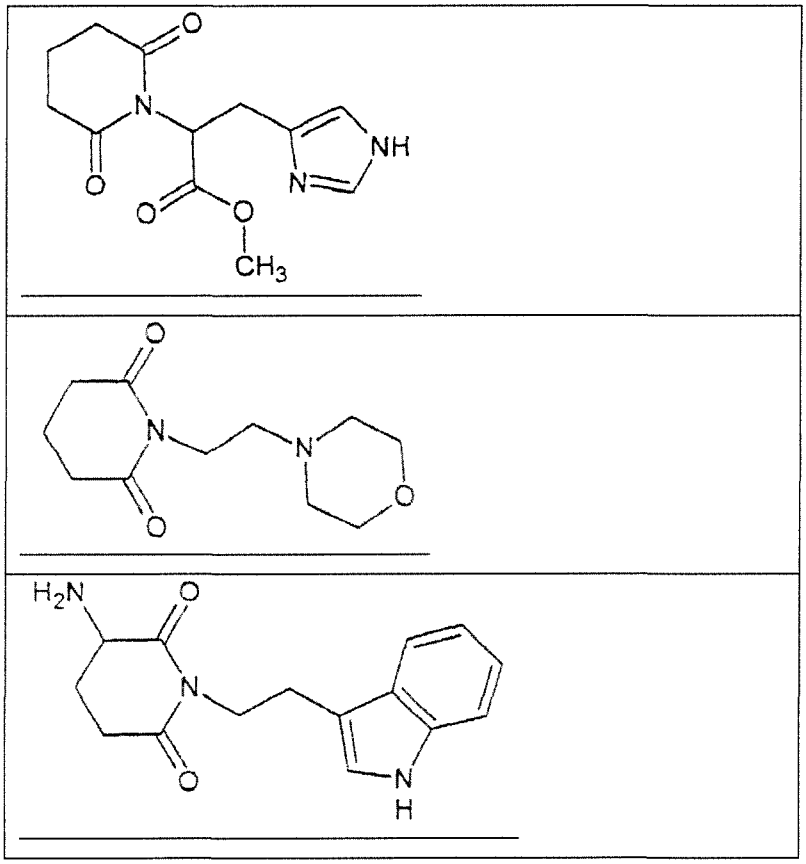


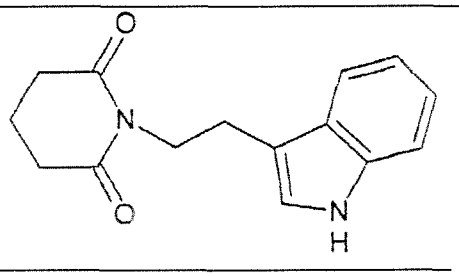


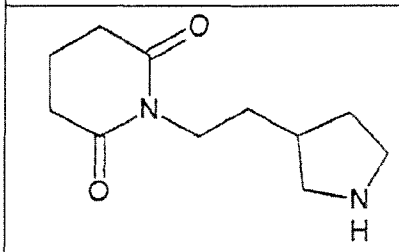
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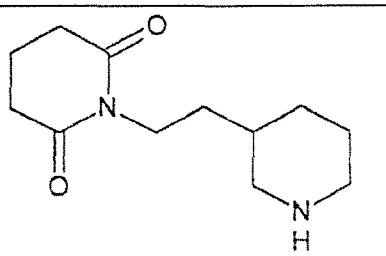


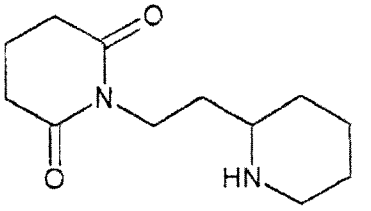
32. A medicament for the treatment of a respiratory tract disease, comprising a compound of claim 31 or one of the following compounds:

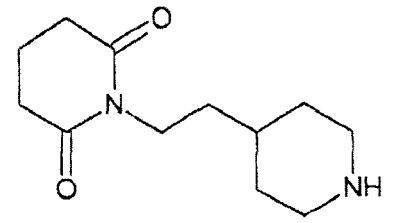


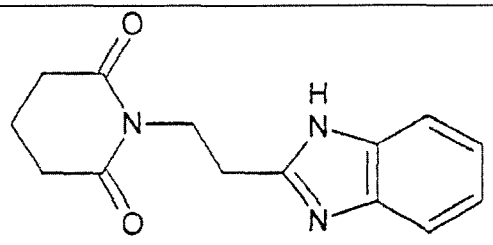


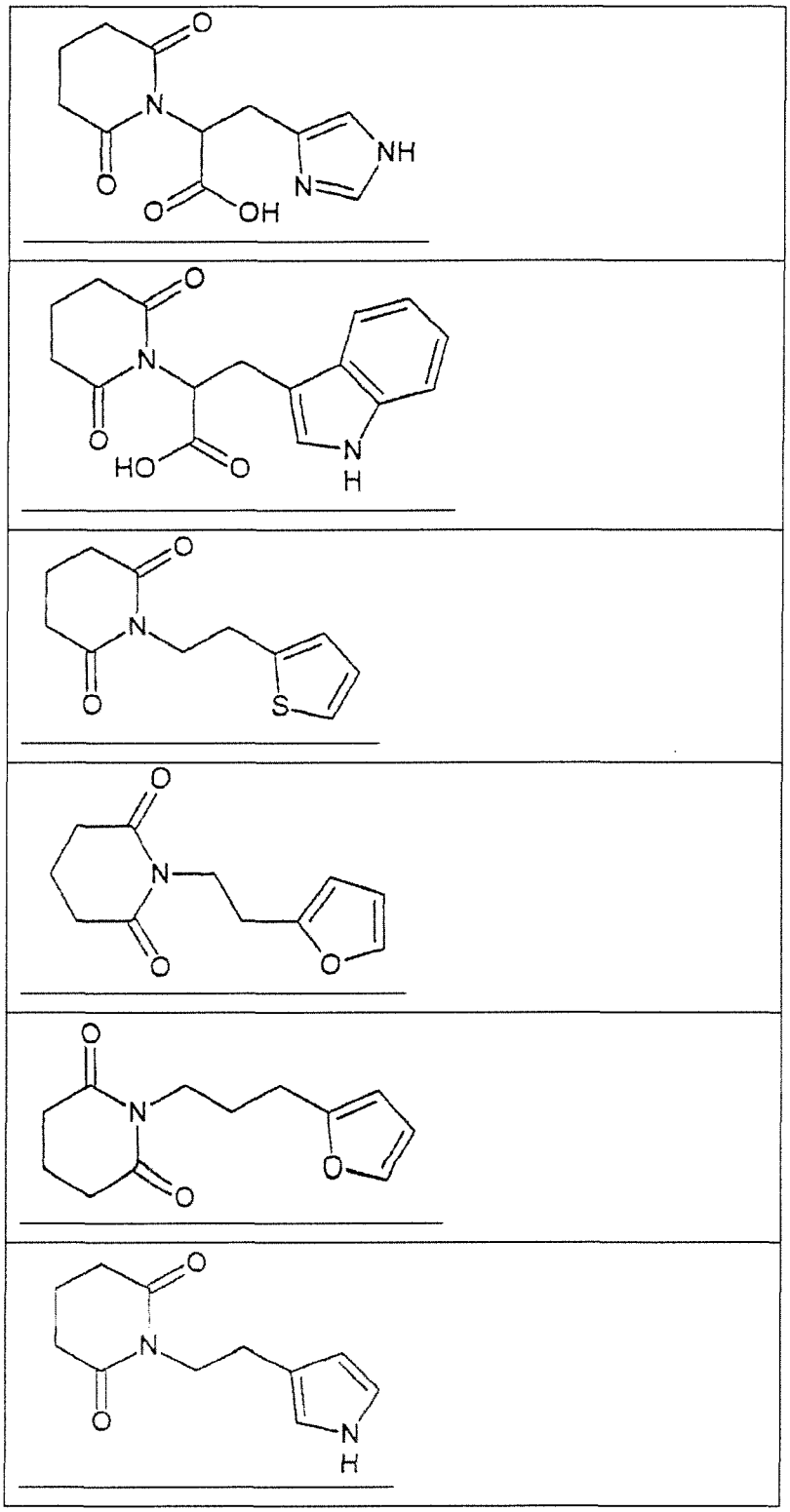


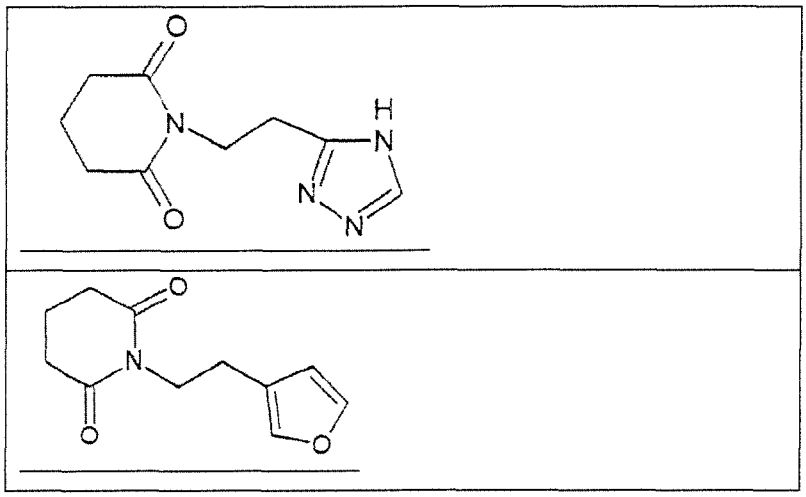












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or a pharmaceutically acceptable salt thereof.

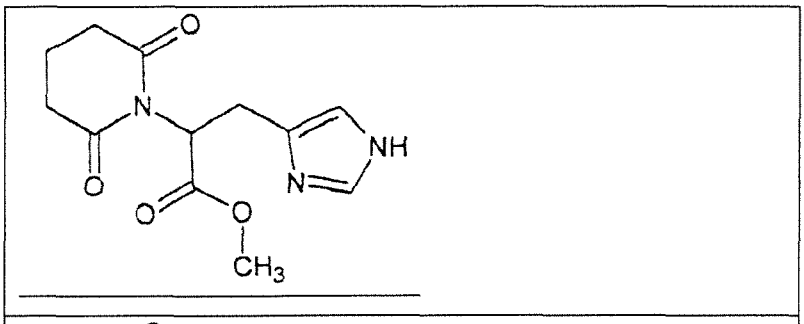
33. The medicament of claim 32, wherein the respiratory tract disease is rhinosinusitis.

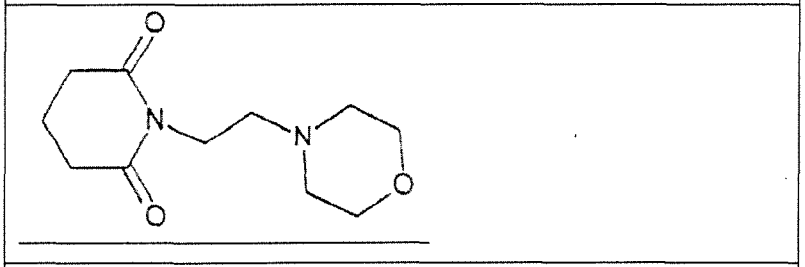
34. The medicament of claim 32, wherein the respiratory tract disease is caused by an RNA-comprising virus.

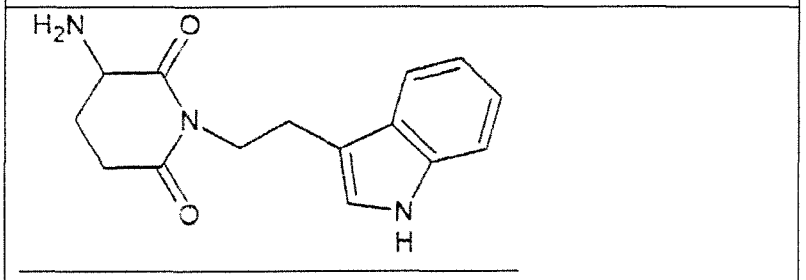
35. The medicament of claim 34, wherein the virus is selected from the group consisting of rhinovirus, Coxsackie virus, respiratory syncytial virus, and influenza virus.

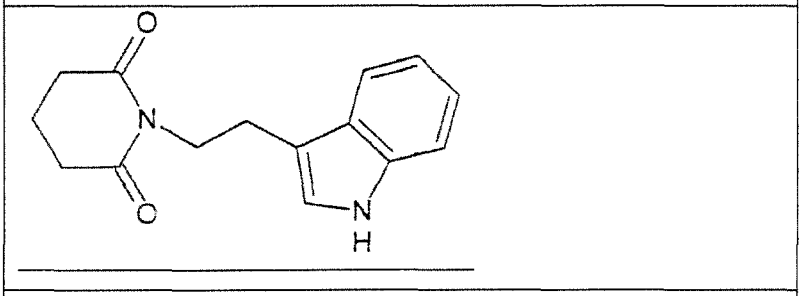
36. The medicament of claim 32, wherein the disease is exacerbations of asthma, chronic obstructive pulmonary disease, bronchitis and mucoviscidosis, which are caused by rhinovirus, influenza virus and/or respiratory syncytial virus.

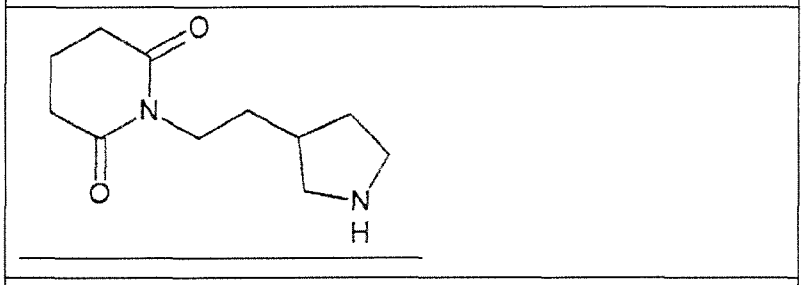
37. A pharmaceutical composition, comprising an effective amount of a compound of claim 31 or one of the following compounds:

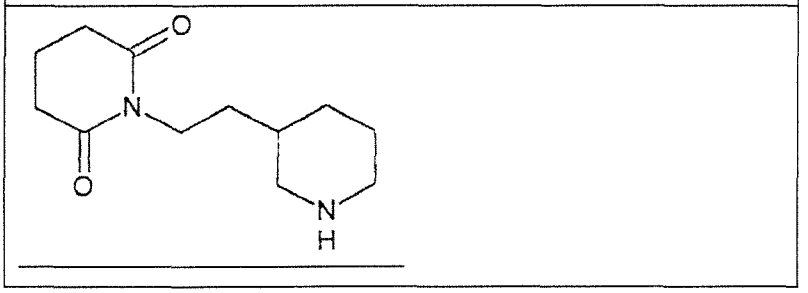


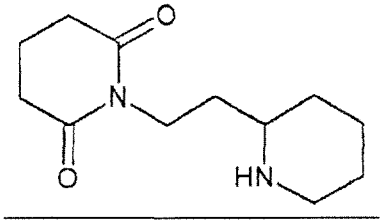


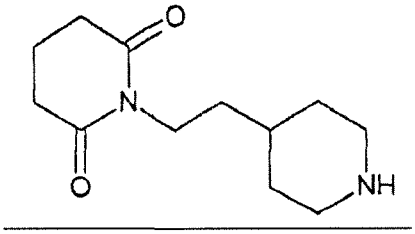


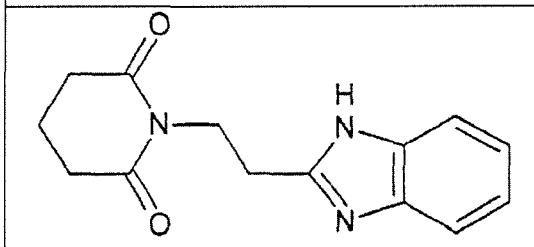


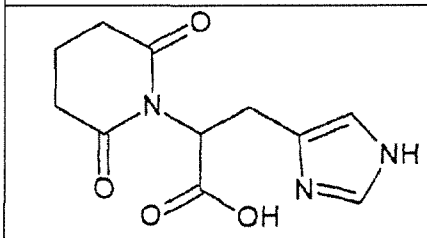


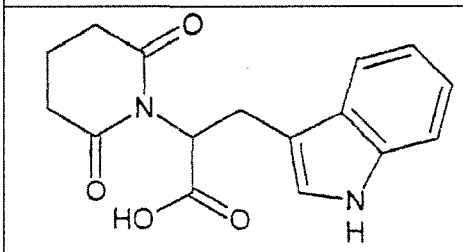


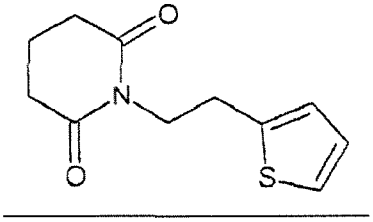


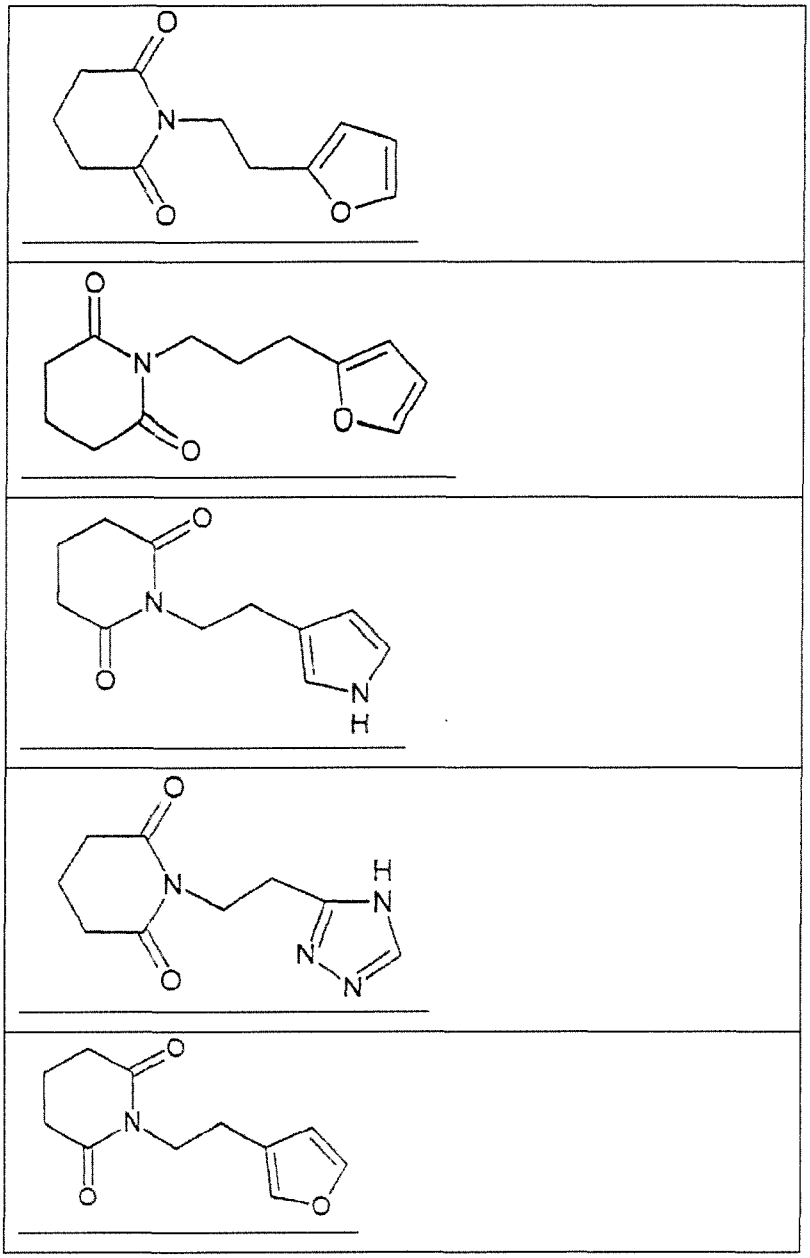












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or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier, for the treatment of a respiratory tract disease.

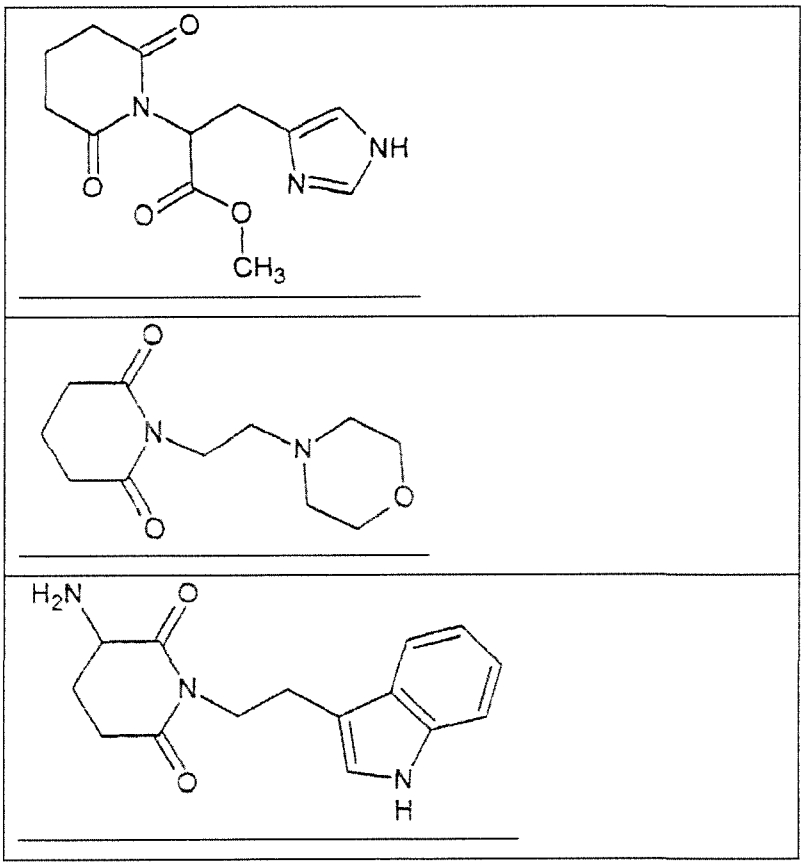
38. The pharmaceutical composition of claim 37, wherein the respiratory tract disease is rhinosinusitis.

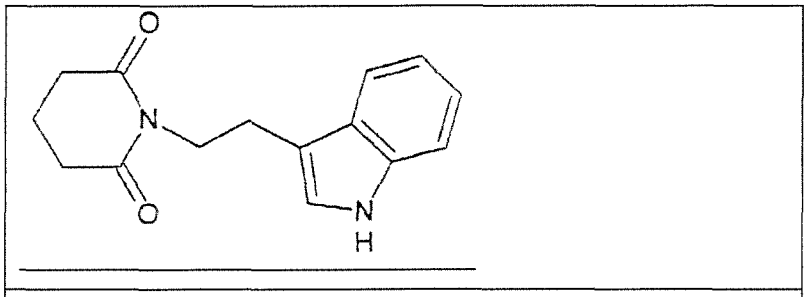
39. The pharmaceutical composition of claim 37, wherein the respiratory tract disease is caused by an RNA-comprising virus.

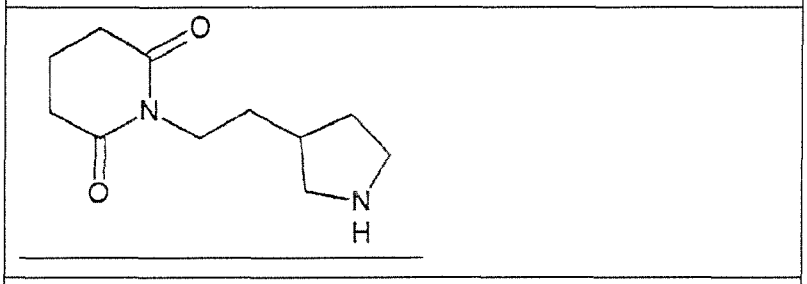
40. The pharmaceutical composition of claim 39, wherein the virus is selected from the group consisting of rhinovirus, Coxsackie virus, respiratory syncytial virus, and influenza.

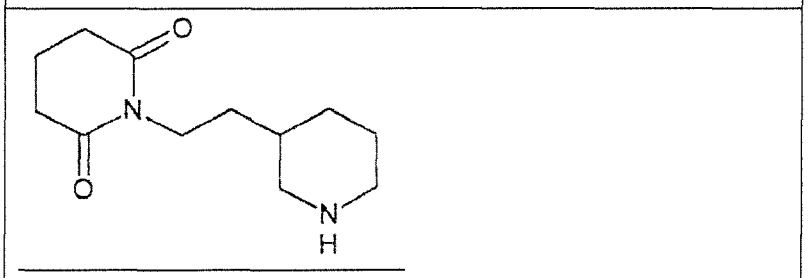
41. The pharmaceutical composition of claim 37, wherein the disease is exacerbations of asthma, chronic obstructive pulmonary disease, bronchitis and mucoviscidosis, which are caused by rhinovirus, influenza virus and/or respiratory syncytial virus.

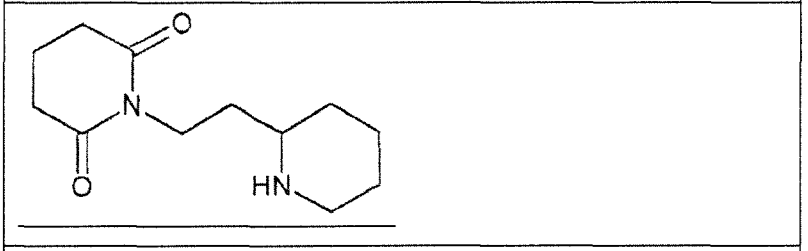
42. Use of a compound of claim 31 or one of the following compounds:

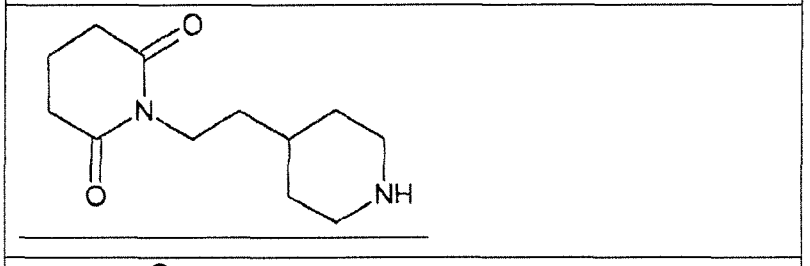


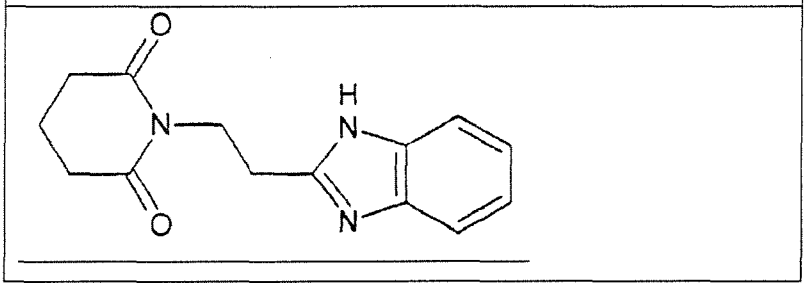


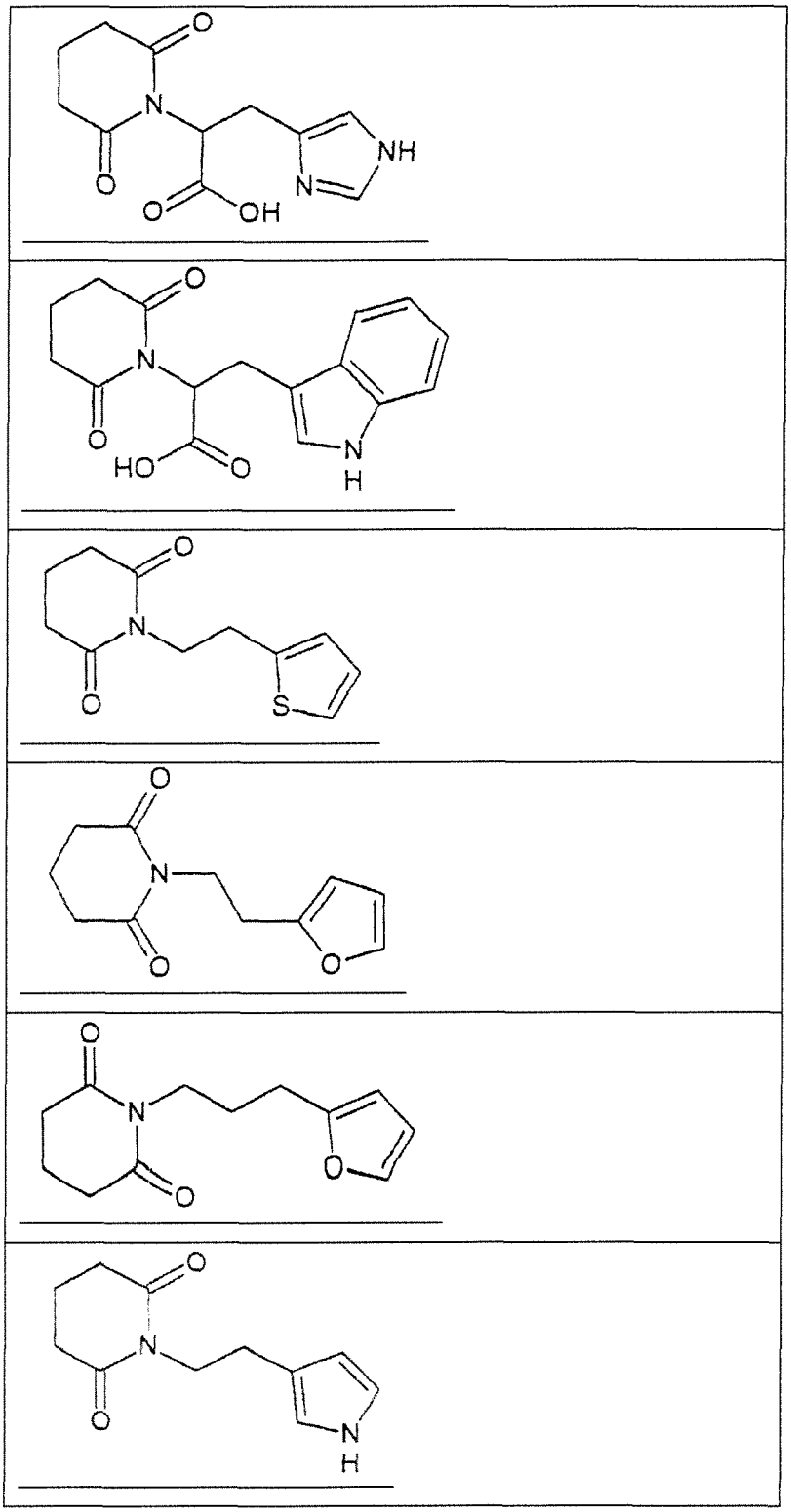


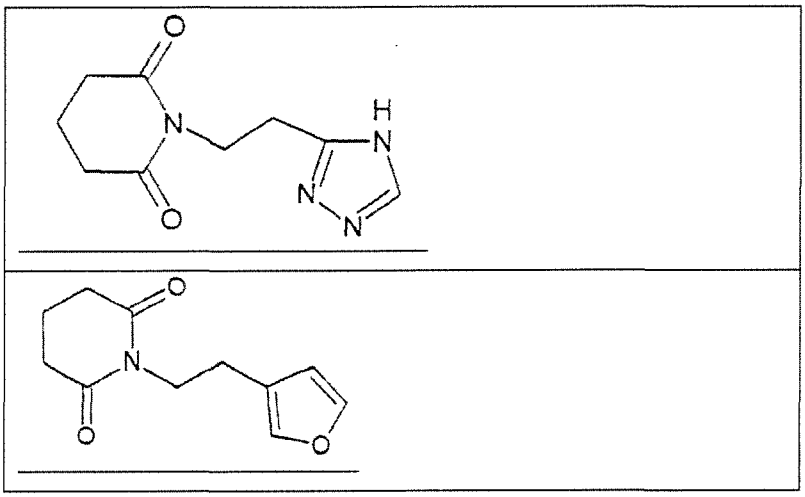












,

or a pharmaceutically acceptable salt thereof for the manufacture of a medicament for the treatment of a respiratory tract disease.

43. The use of claim 42, wherein the respiratory tract disease is rhinosinusitis.

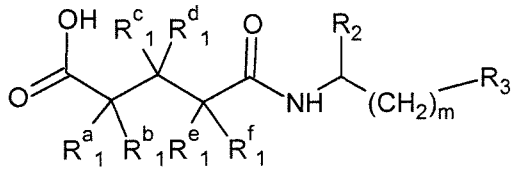
44. The use of claim 42, wherein the respiratory tract disease is caused by an RNA-comprising virus.

45. The use of claim 44, wherein the virus is selected from the group consisting of rhinovirus, Coxsackie virus, respiratory syncytial virus, and influenza virus.

46. The use of claim 42, wherein the disease is exacerbations of asthma, chronic obstructive pulmonary disease, bronchitis and mucoviscidosis, which are caused by rhinovirus, influenza virus and/or respiratory syncytial virus.

47. A method for preparing a compound according to claim 41 or a pharmaceutically acceptable salt thereof,

comprising heating of dicarboxylic acid monoamide of general formula II



wherein

m represents an integer of 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, -C(O)OH, $-C(O)OC_1$-C_6alkyl;

R_3 is:

1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, -C(O)OH, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

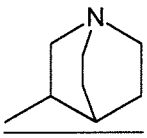
2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group

comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:



with a dehydrating agent in an organic solvent.

48. The method of claim 47, wherein the dehydrating agent is glutaric anhydride, and the method is performed under heating in an organic solvent, preferably in dimethylformamide.

49. The method of claim 47, wherein the dehydrating agent is propionic anhydride, and the method is performed under heating in an organic solvent, preferably in toluene.

50. The process of claim 49, wherein the method is performed with addition of sodium acetate.

51. The method of claim 47, wherein the dehydrating agent is acetic anhydride, and the method is performed under heating in an organic solvent, preferably in dioxane.

52. The process of claim 51, wherein the method is performed with addition of sodium acetate.

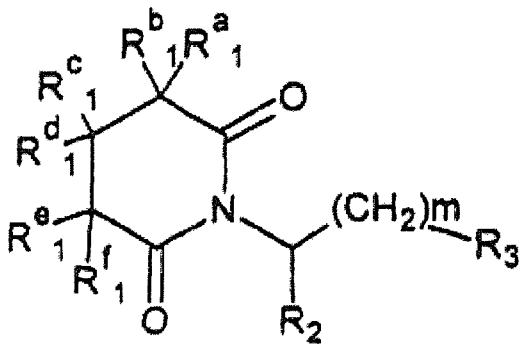
53. The method of claim 47, wherein the dehydrating agent is acetic acid chloroanhydride, and the method is performed under heating in an organic solvent, preferably in acetic acid.

54. The method of claim 47, wherein the dehydrating agent and the solvent are acetic acid anhydride, and the method is performed at 90-100°C.

55. The method of claim 47, wherein the dehydrating agent is carbonyldiimidazole.

AMENDED CLAIMS (ARTICLE 19 PCT)

1. A compound of general formula I:



wherein m is an integer from 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, -C(O)OH, $-C(O)OC_1$-C_6alkyl;

R_3 is:

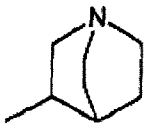
1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, -C(O)OH, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:

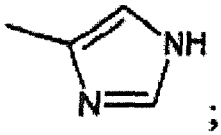


,

or a pharmaceutically acceptable salt thereof,

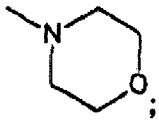
with a proviso that the compound is not a compound, wherein:

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is $-C(O)OCH_3$, R_3 is not:



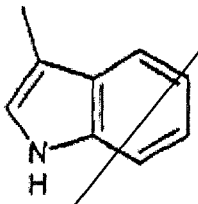
;

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



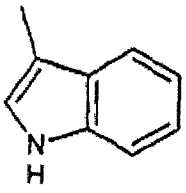
;

when m is 1, R^a_1 is an amino group and R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen, or R^e_1 is an amino group and R^a_1, R^b_1, R^c_1, R^d_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



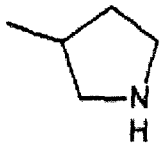
;

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:

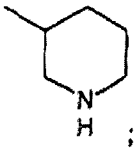


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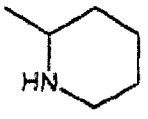
when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



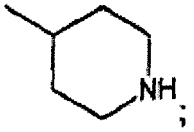
when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



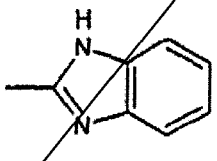
when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



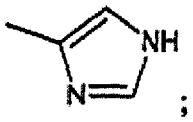
when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



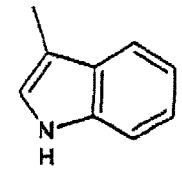
when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is -C(O)OH, R_3 is not:

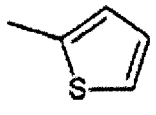


when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is -C(O)OH, R_3 is not:



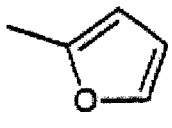
;

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



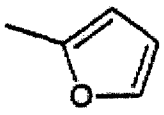
;

when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



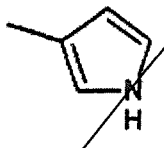
;

when m is 2, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



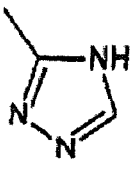
;

when m is 2, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:



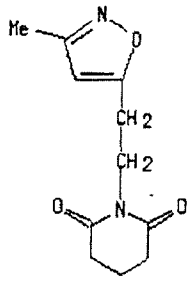
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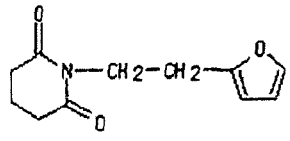
when m is 1, R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1 are hydrogen and R_2 is hydrogen, R_3 is not:

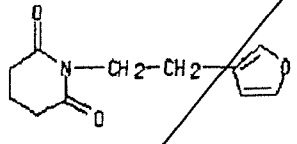


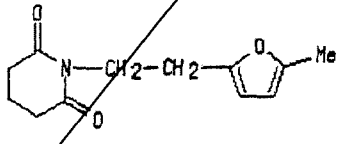
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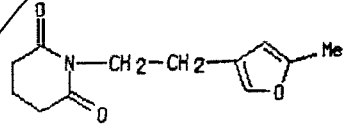
and with a proviso that the compound is not the following compound:

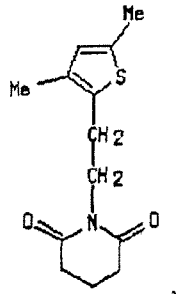


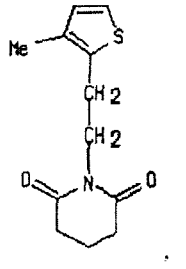


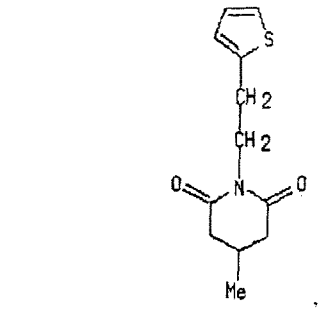


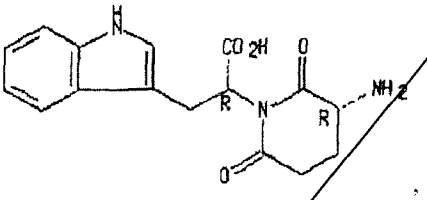


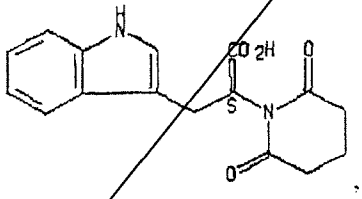


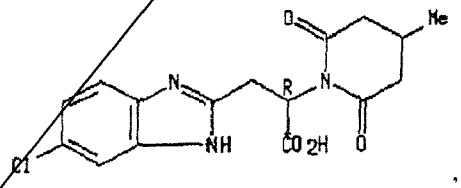


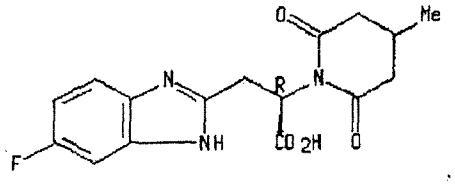


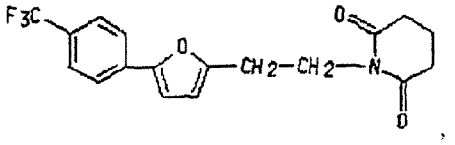


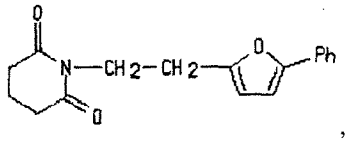




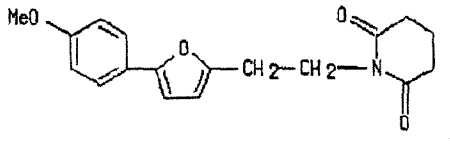








, and



2. The compound of claim 1, wherein m is an integer from 0 to 2;

R^{a}_{1} and R^{b}_{1} are hydrogen, methyl, amino, or hydroxyl;

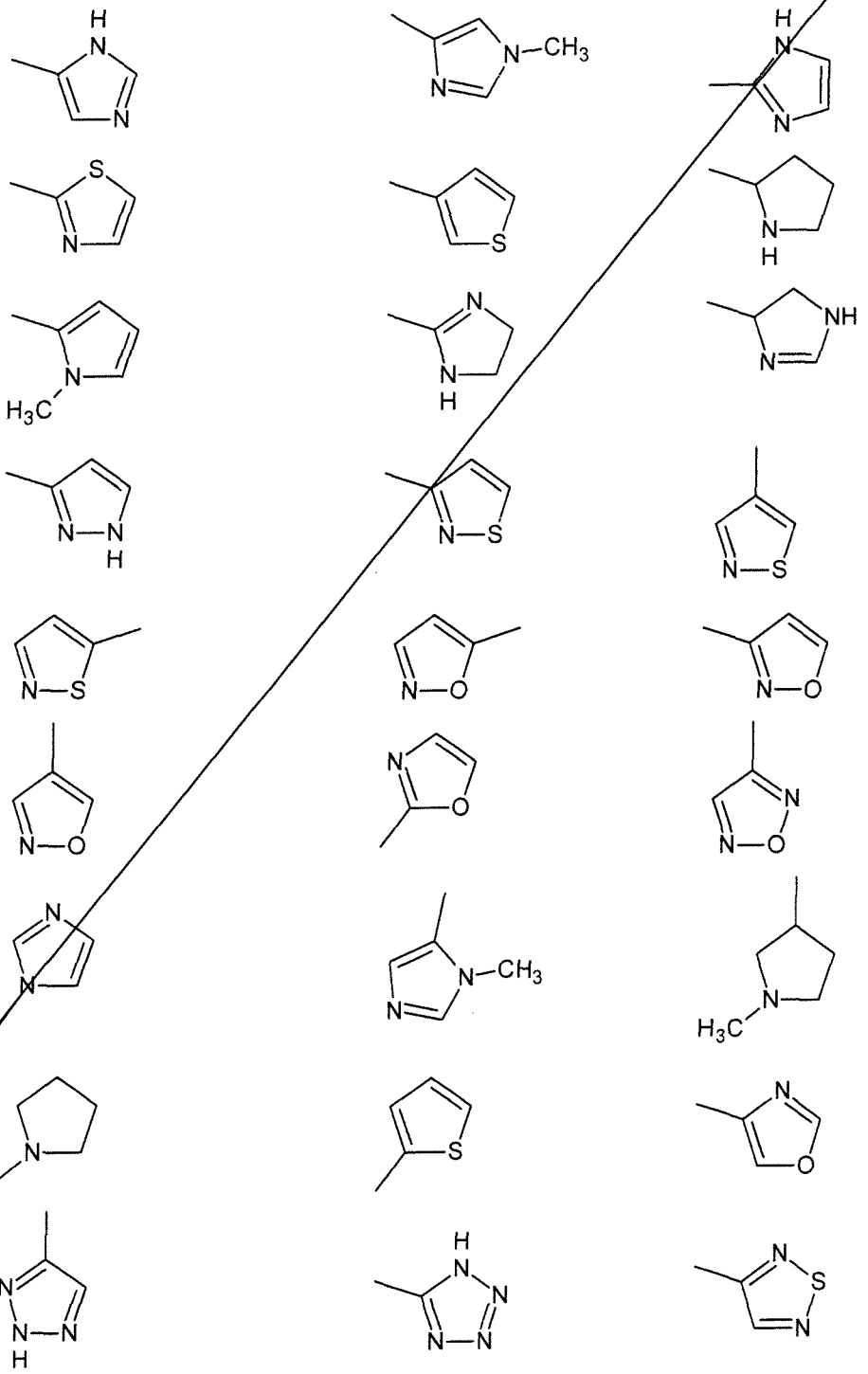
R^{c}_{1} and R^{d}_{1} are hydrogen, methyl, amino, or hydroxyl;

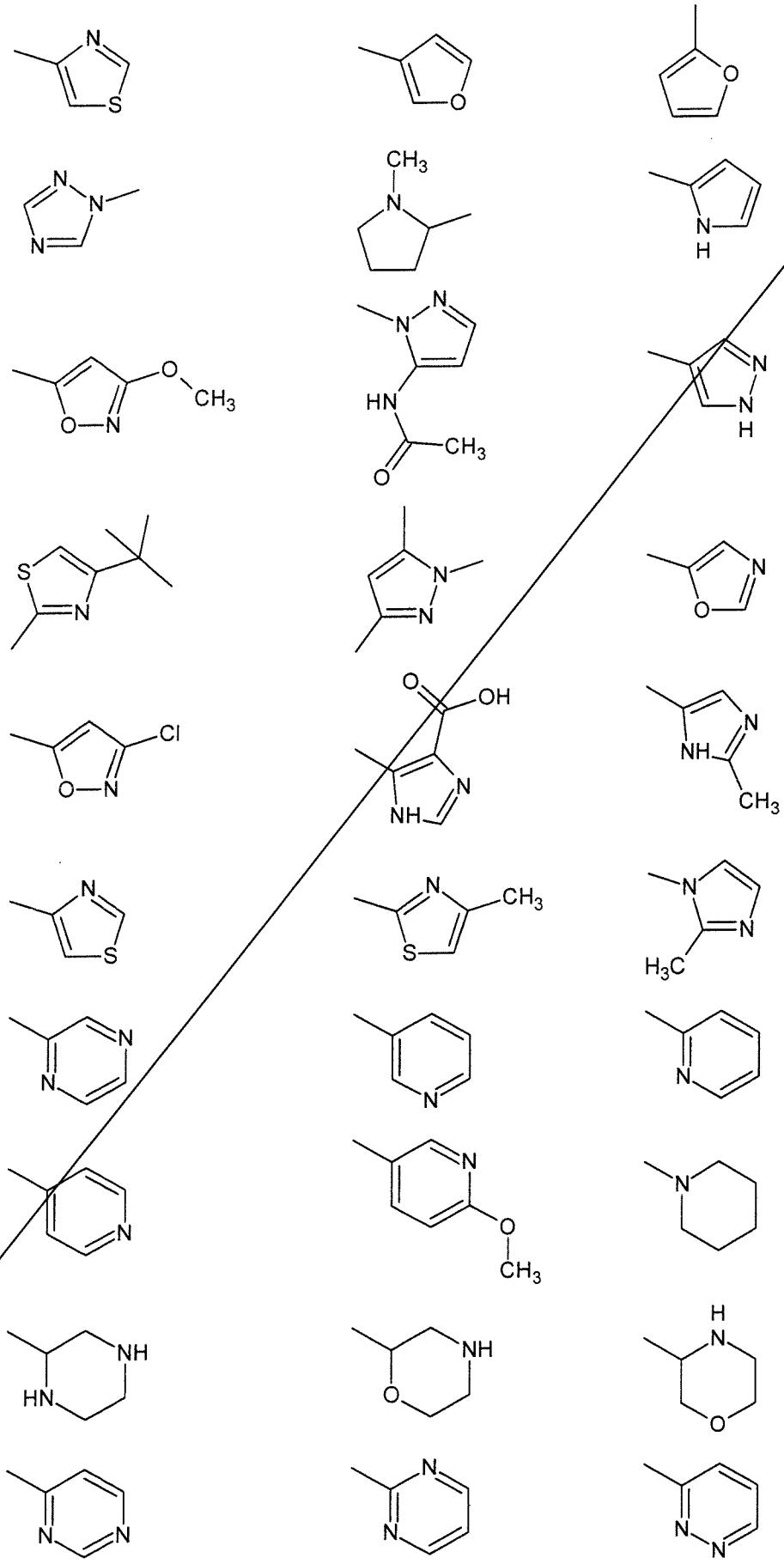
R^{e}_{1} and R^{f}_{1} are hydrogen or methyl;

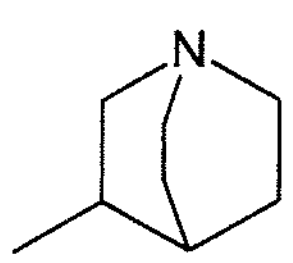
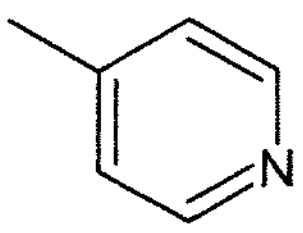
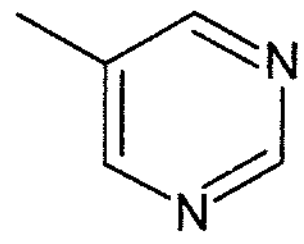
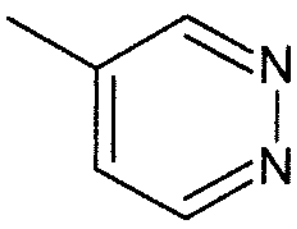
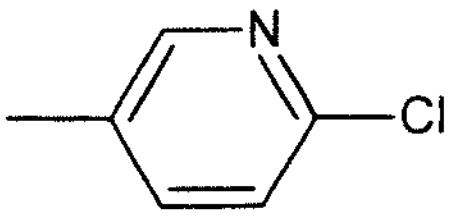
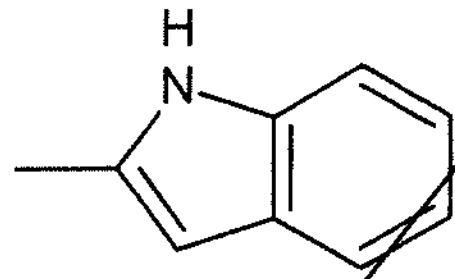
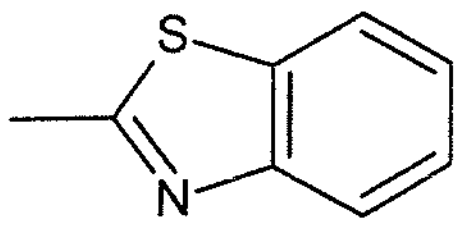
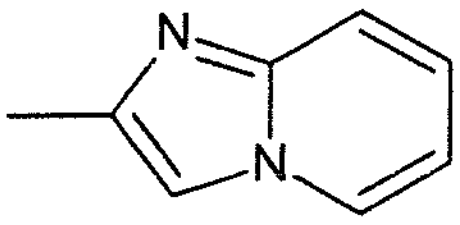
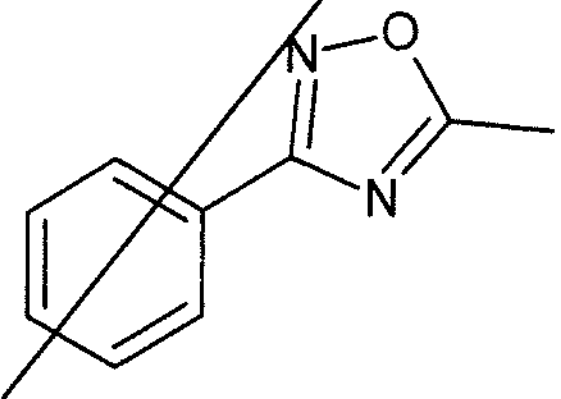
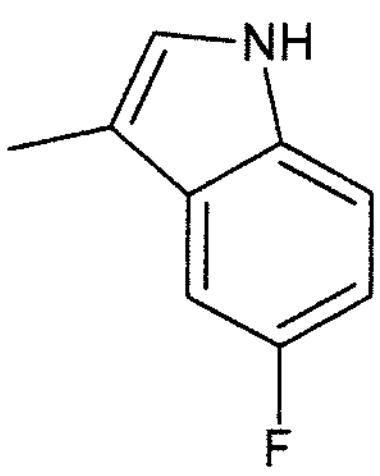
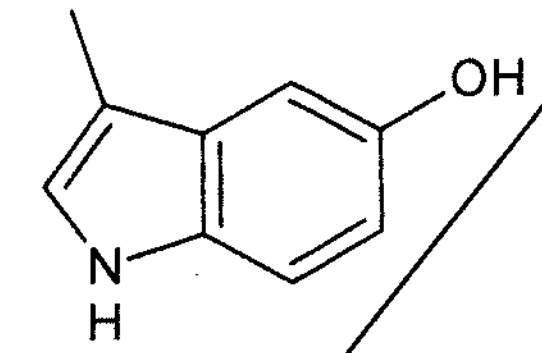
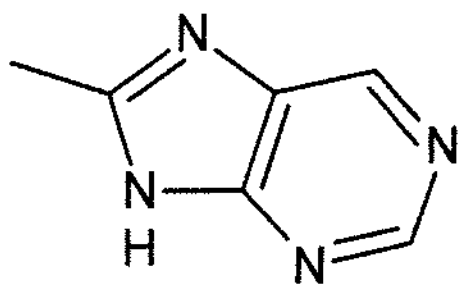
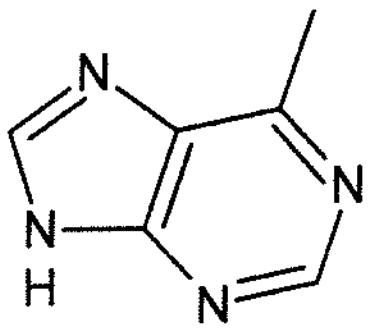
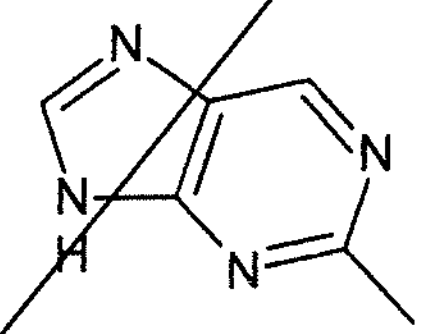
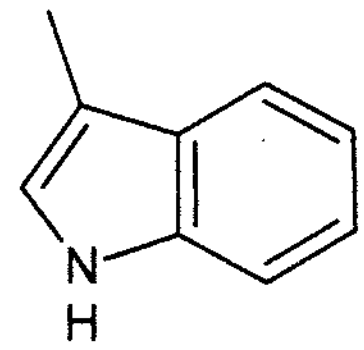
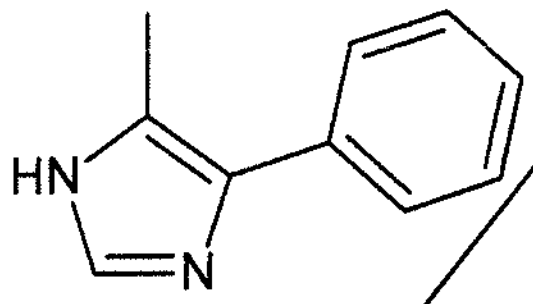
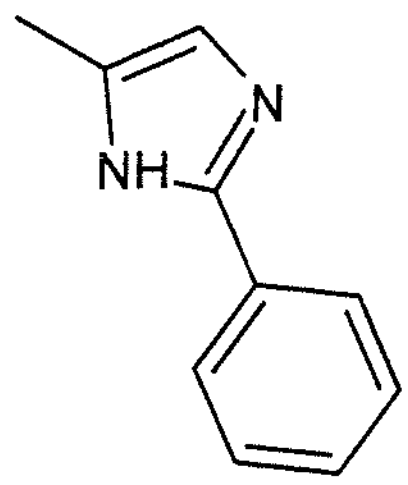
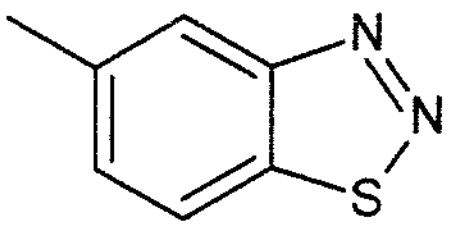
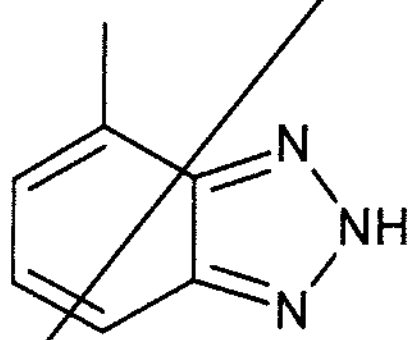
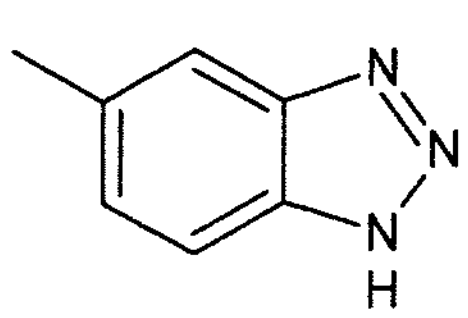
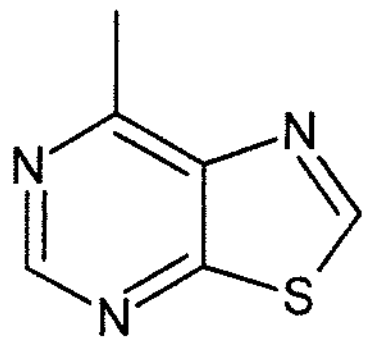
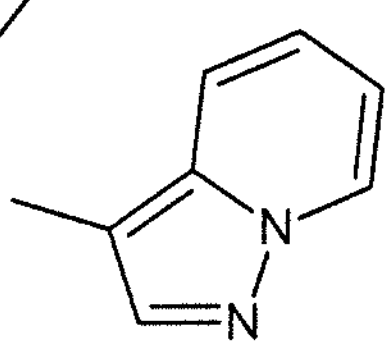
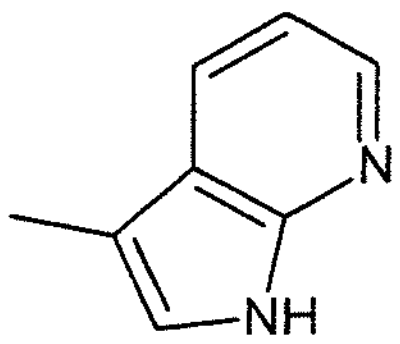
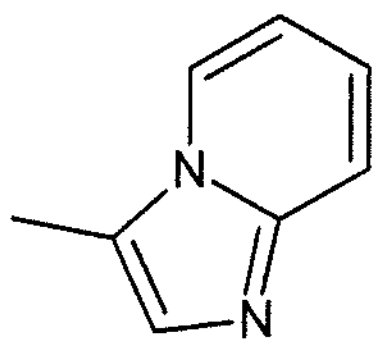
R2 is hydrogen, methyl, carboxyl, methoxycarbonyl, or ethoxycarbonyl;

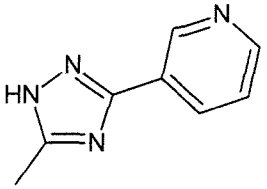
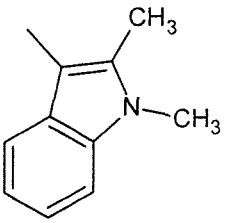
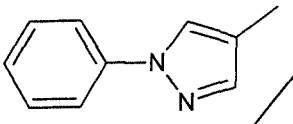
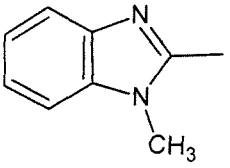
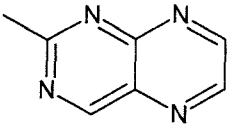
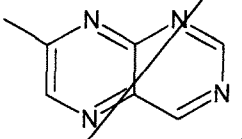
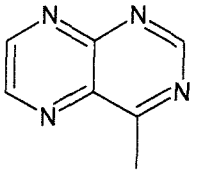
R3 is

a group selected from:





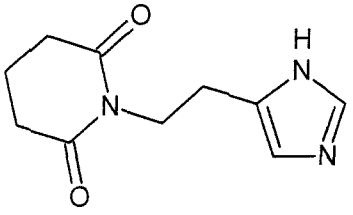
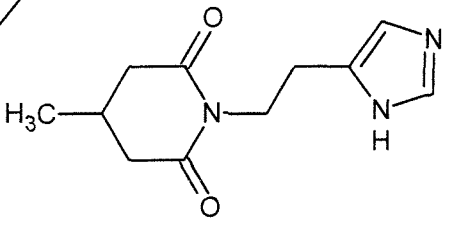
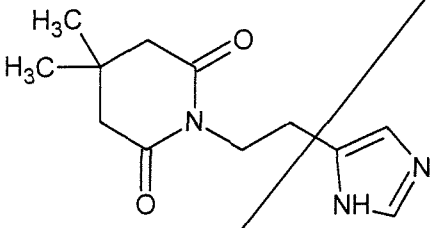
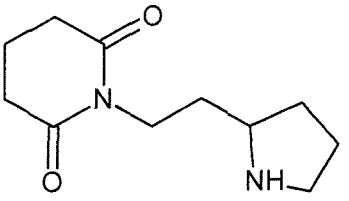
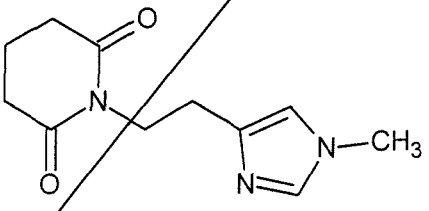
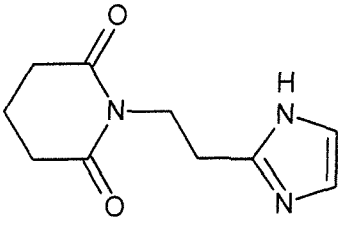
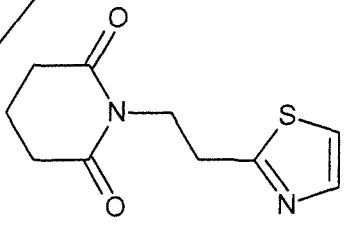
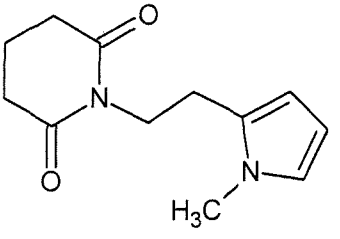

























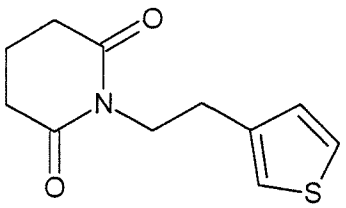








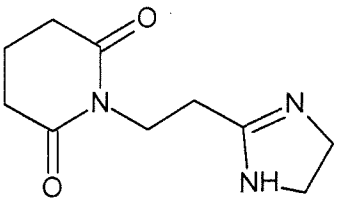
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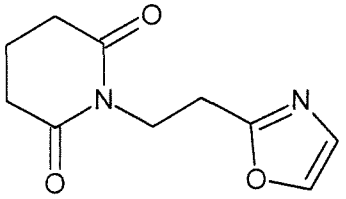
or a pharmaceutically acceptable salt thereof.

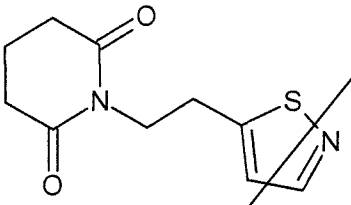
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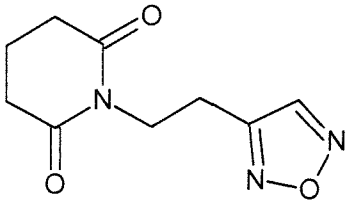









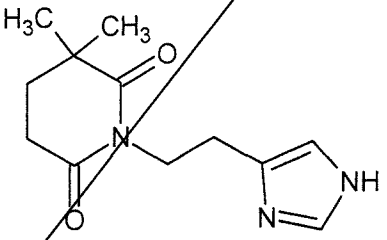


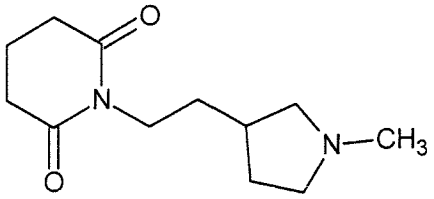


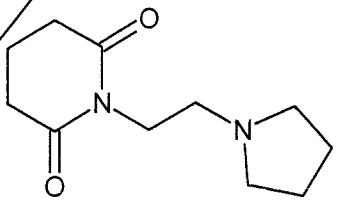


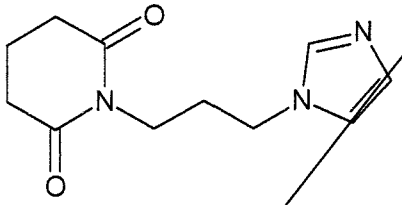


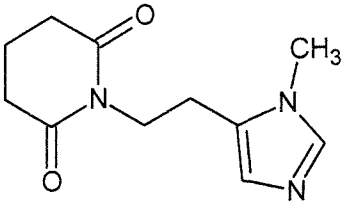


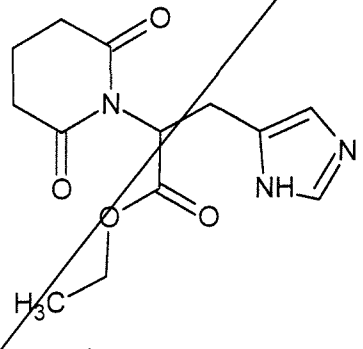


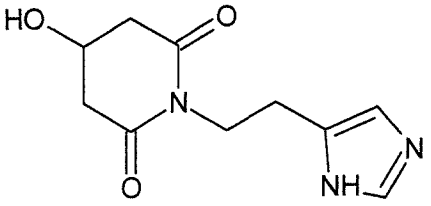


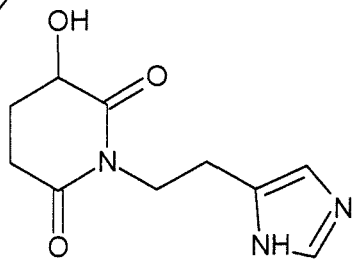


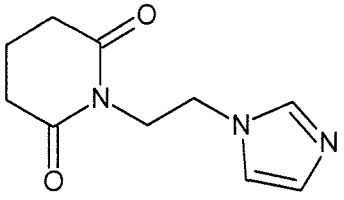




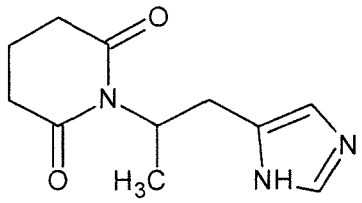


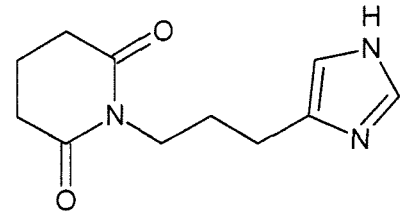


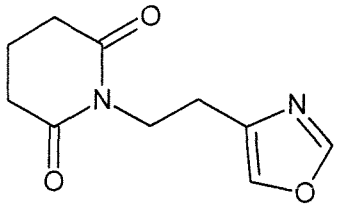


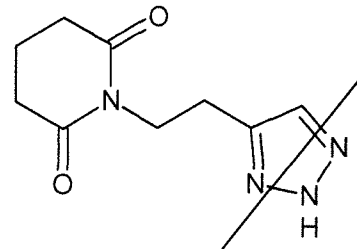


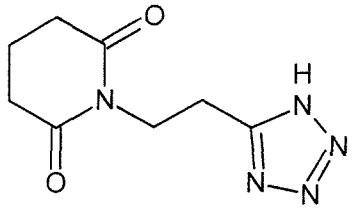
AMENDED SHEET

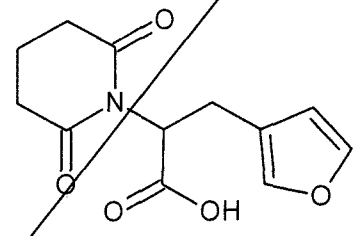


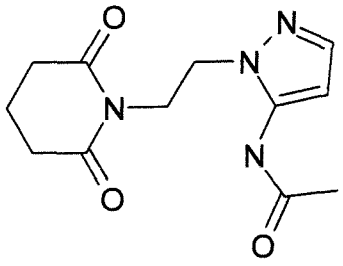


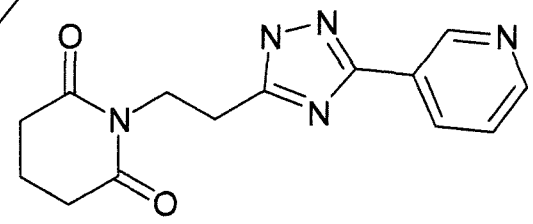


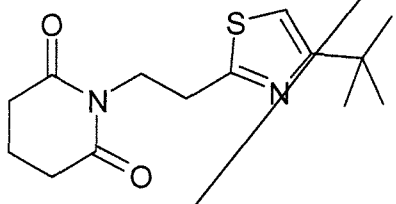


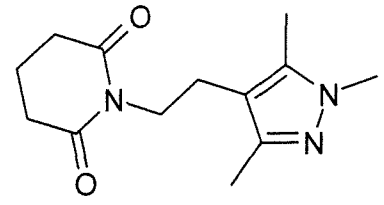


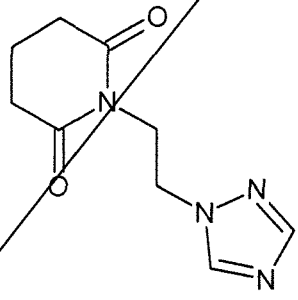


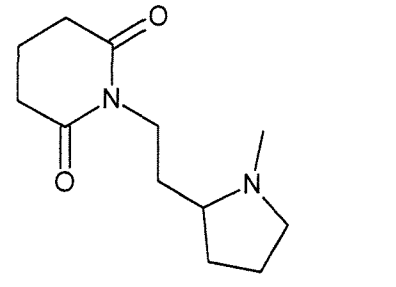


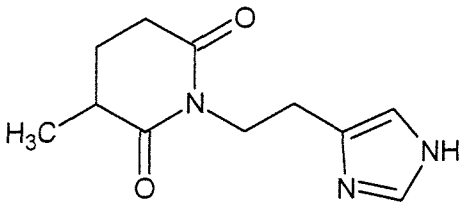


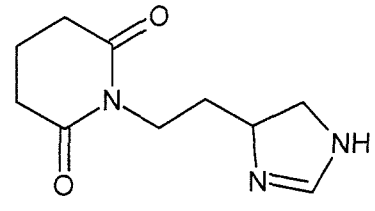


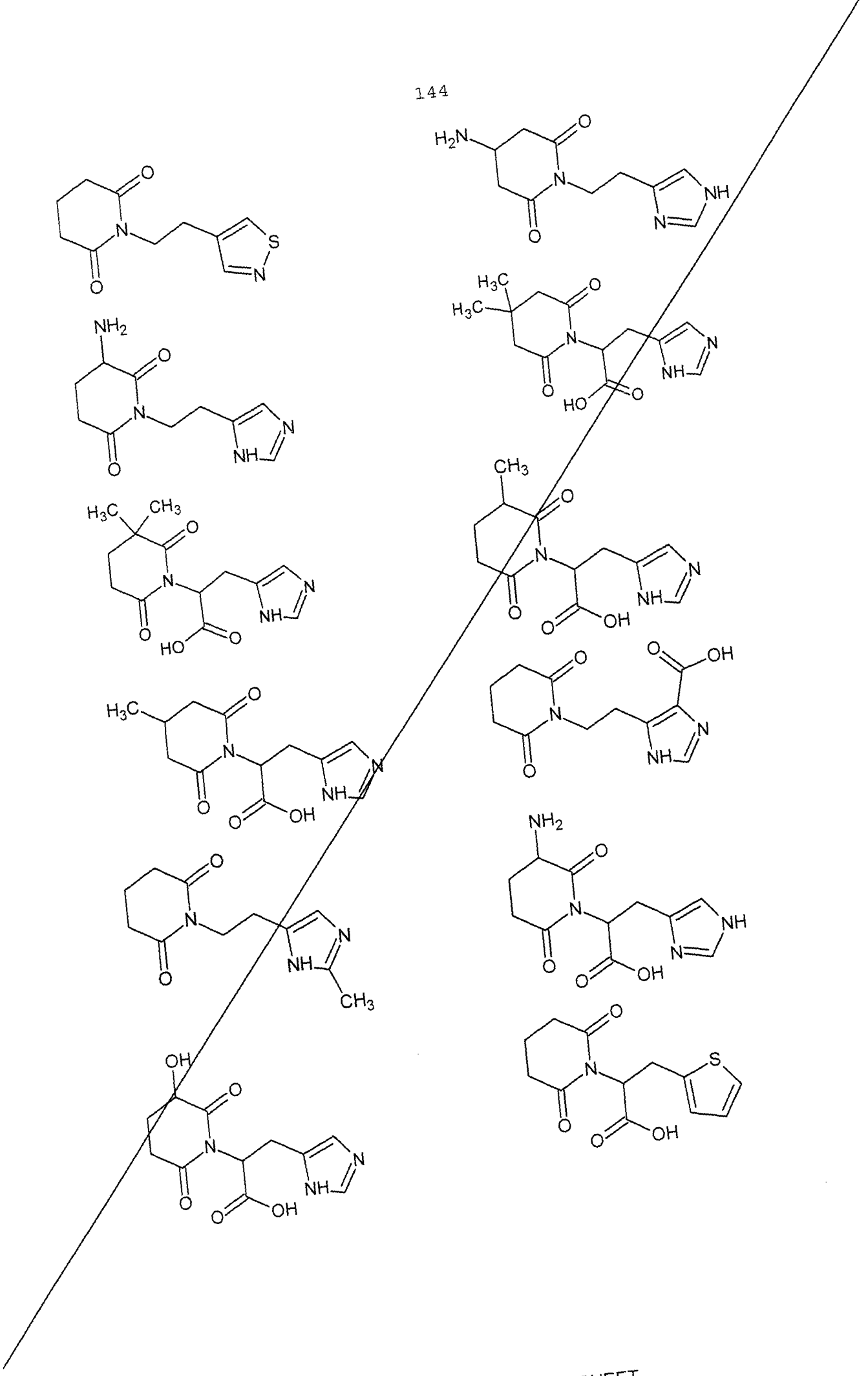


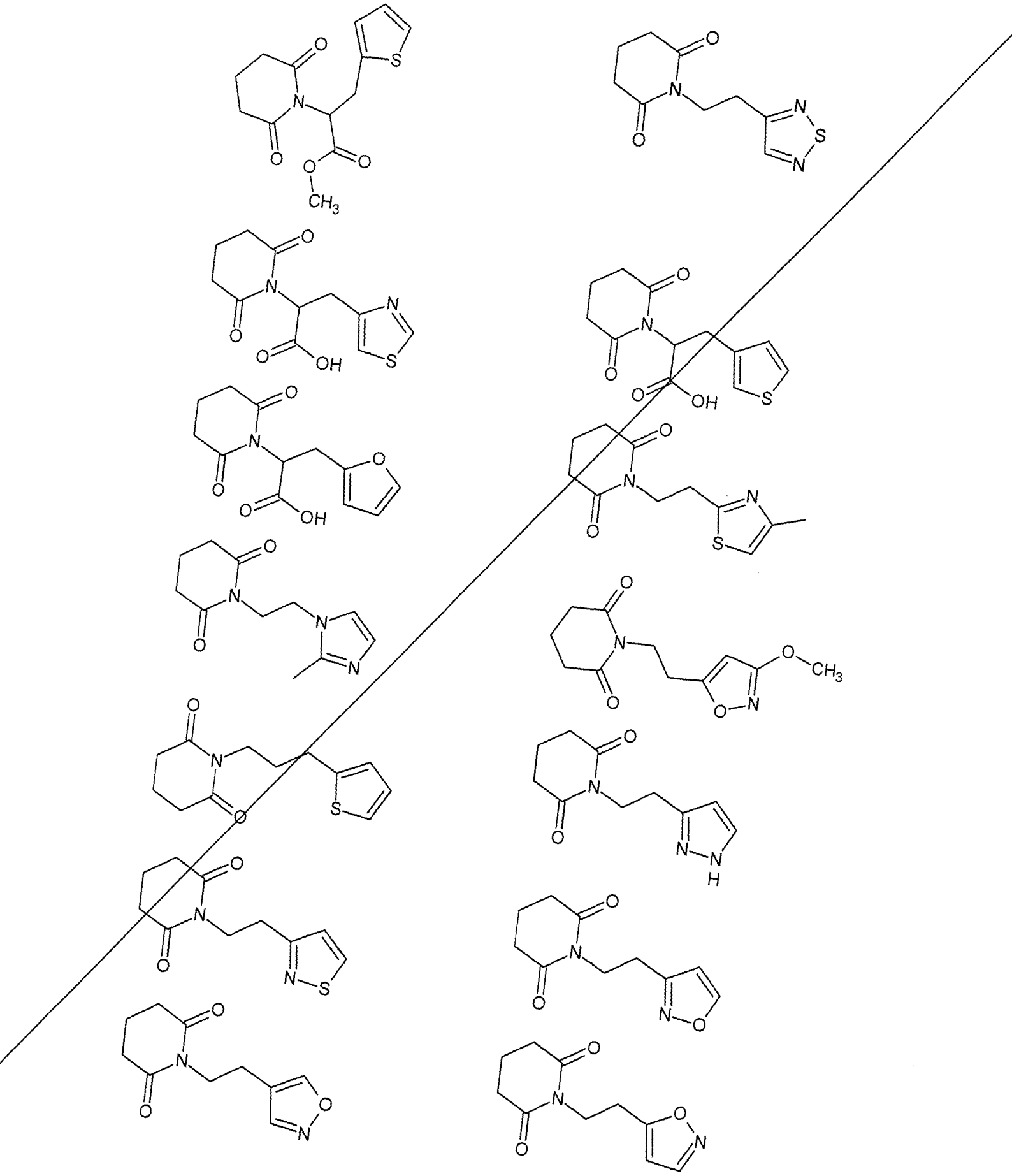


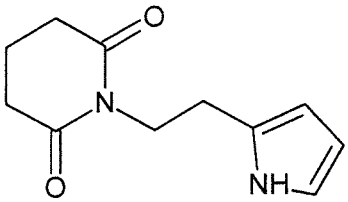


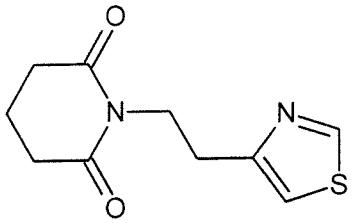


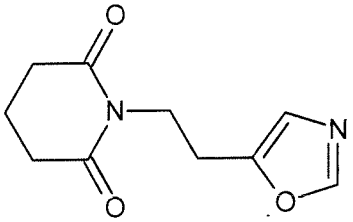


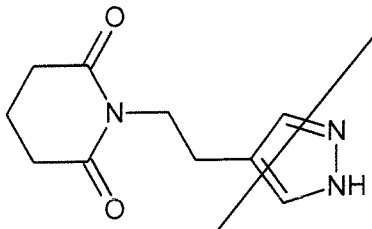


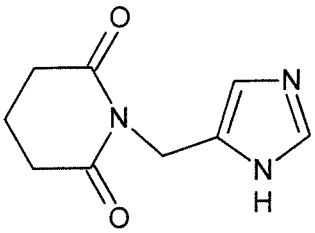


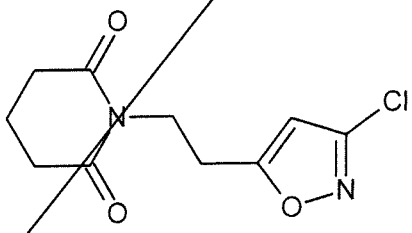


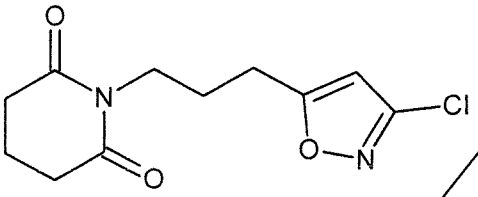


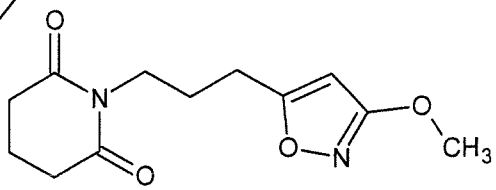


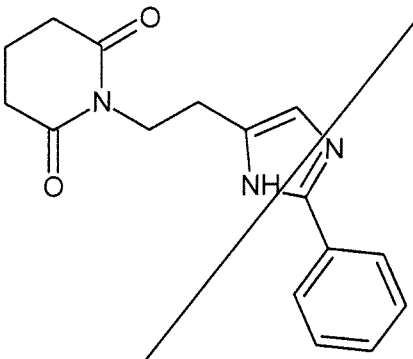


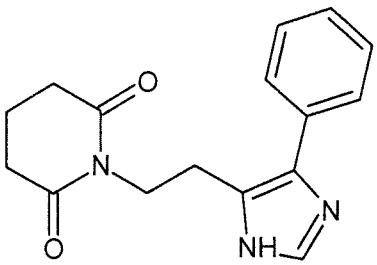


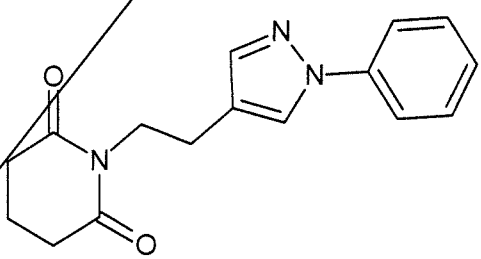


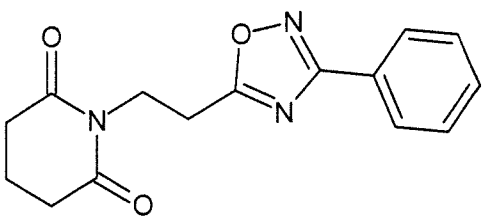


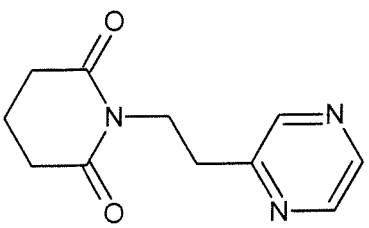


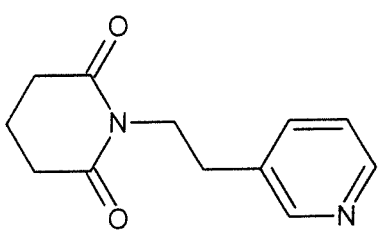




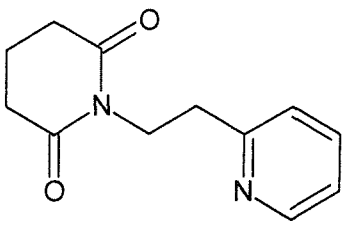


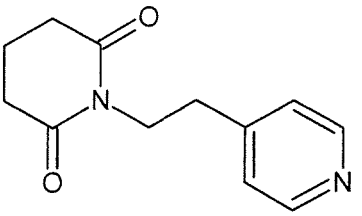


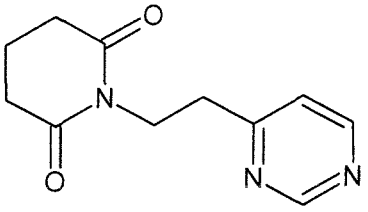


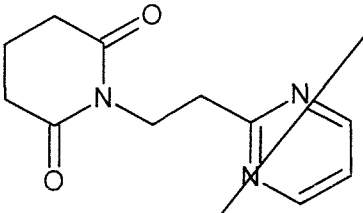


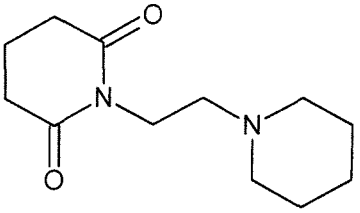
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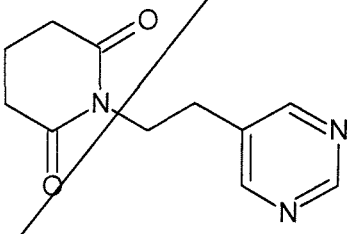


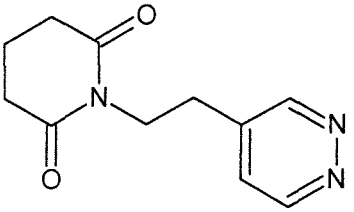


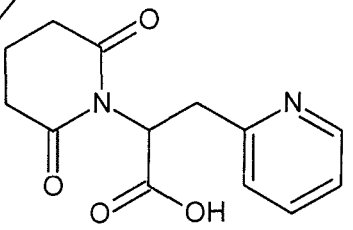


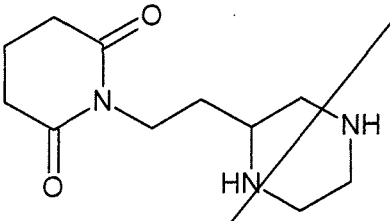


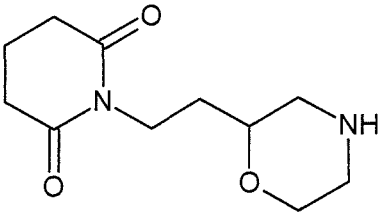


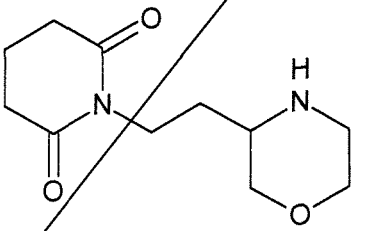


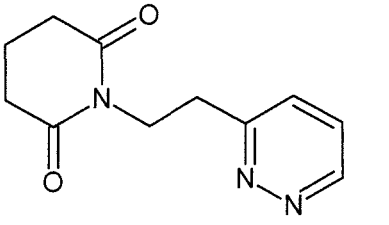


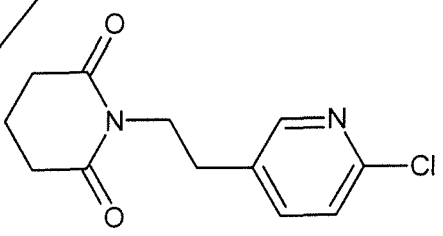


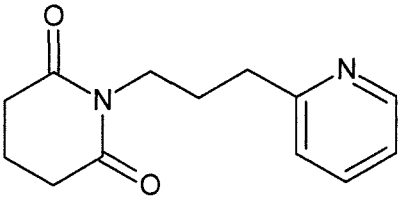




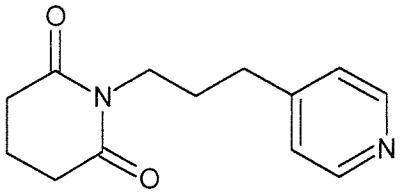


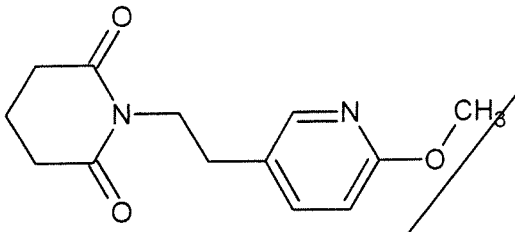


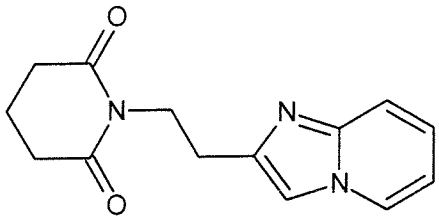


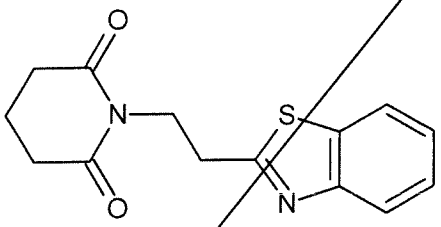


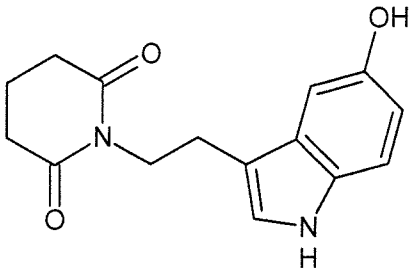
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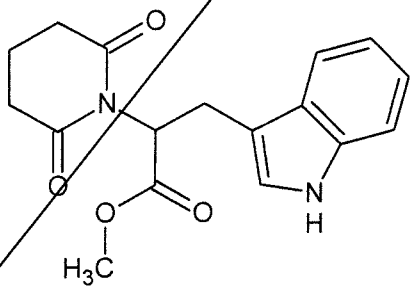


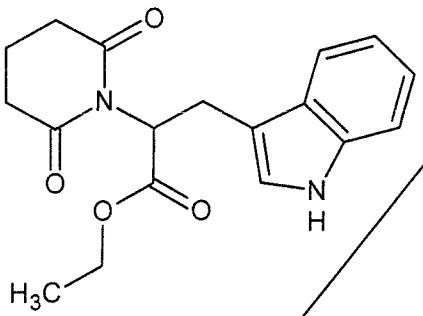


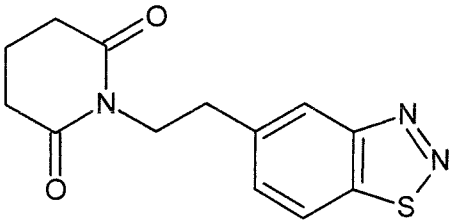


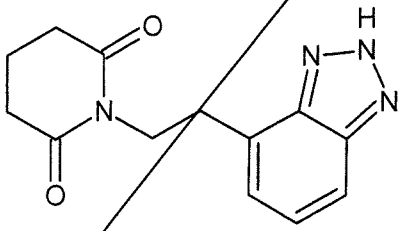


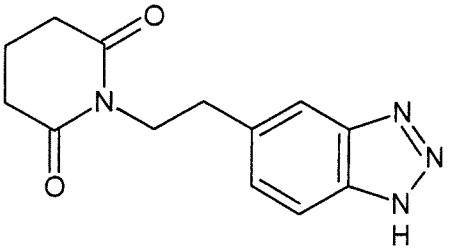


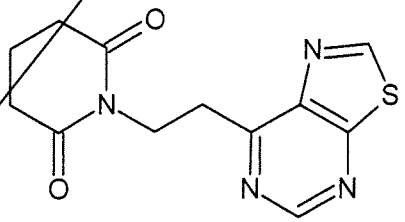


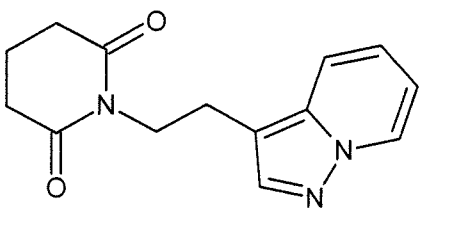




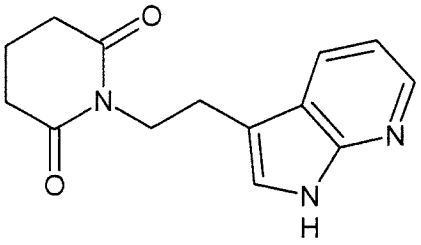


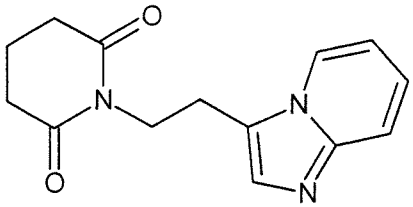


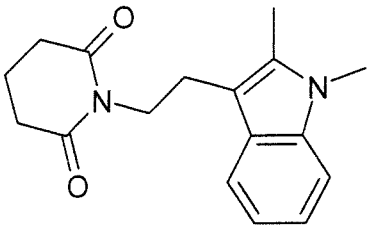


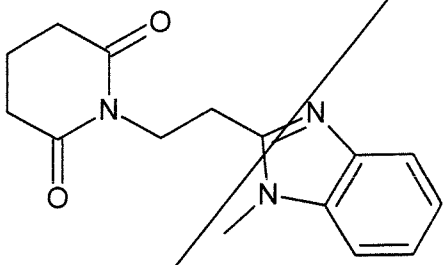


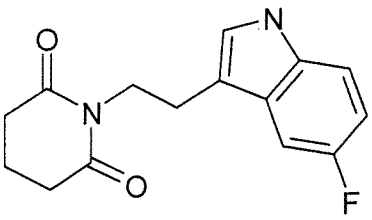
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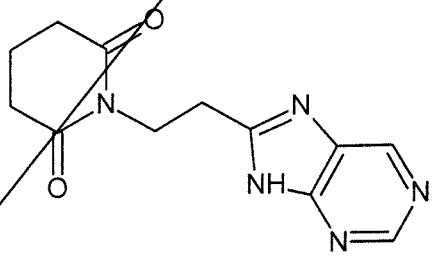


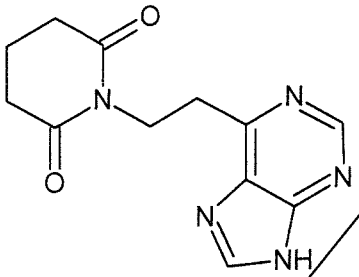


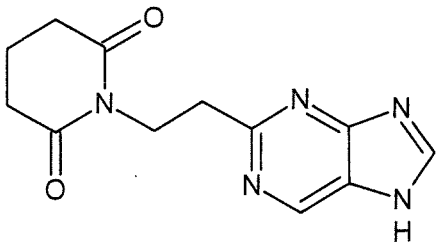


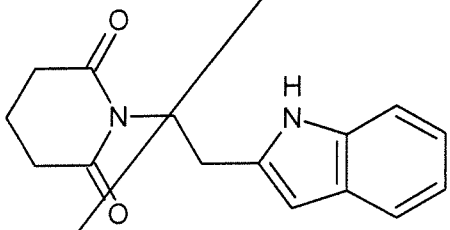


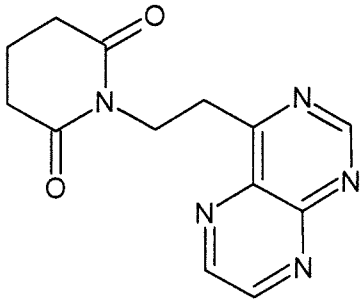


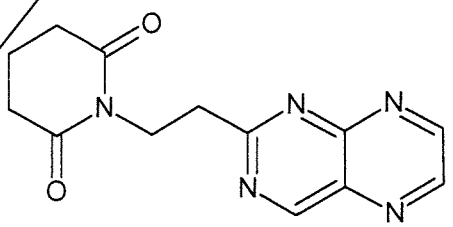


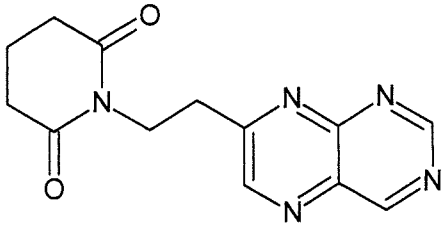




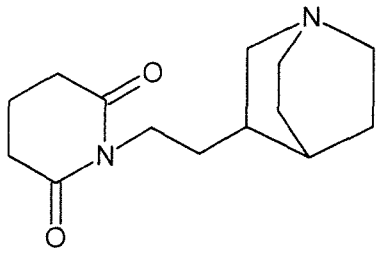




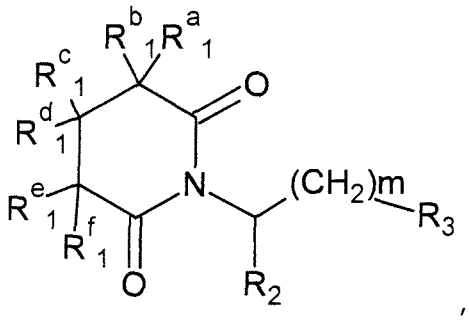




, or



4. A medicament for the treatment of a respiratory tract disease, which is a compound of general formula I:



,

wherein m is an integer from 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, -C(O)OH, $-C(O)OC_1$-C_6alkyl;

R_3 is:

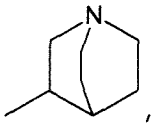
1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, -C(O)OH, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:



,

or a pharmaceutically acceptable salt thereof.

5. The medicament of claim 4, wherein the compound of formula (I) is a compound as defined in any one of claims 1 to 3.

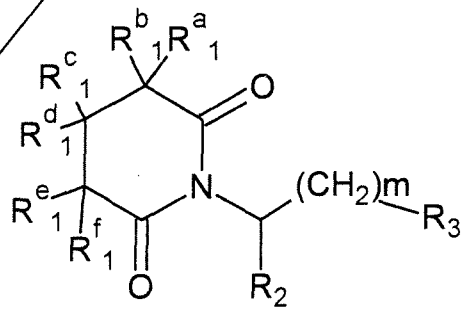
6. The medicament of claim 4 or 5, wherein the respiratory tract disease is rhinosinusitis.

7. The medicament of claim 4 or 5, wherein the respiratory tract disease is caused by an RNA-comprising virus.

8. The medicament of claim 7, wherein the virus is selected from the group consisting of rhinovirus, Coxsackie virus, respiratory syncytial virus, and influenza virus.

9. The medicament of claim 4 or 5, wherein the disease is exacerbations of asthma, chronic obstructive pulmonary disease, bronchitis and mucoviscidosis, which are caused by rhinovirus, influenza virus and/or respiratory syncytial virus.

10. A pharmaceutical composition for the treatment of a respiratory tract disease, comprising an effective amount of a compound of general formula I



,

wherein m is an integer from 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; -NH_2, -NHC_1-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, -C(O)OH, -C(O)OC_1-C_6alkyl;

R_3 is:

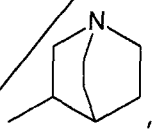
1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, -C(O)OH, -C(O)OC_1-C_6alkyl, -NHC(O)C_1-C_6alkyl, phenyl, or pyridinyl;

2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:



,

or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.

11. The pharmaceutical composition of claim 9, wherein the compound of formula (I) is a compound as defined in any one of claims 1 to 3.

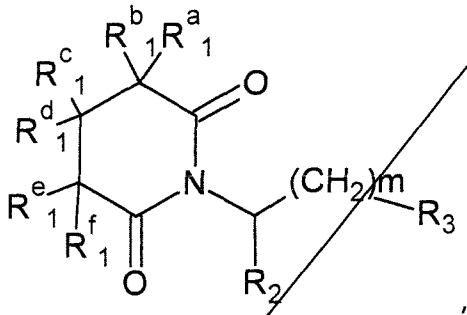
12. The pharmaceutical composition of claim 10 or 11, wherein the respiratory tract disease is rhinosinusitis.

13. The pharmaceutical composition of claim 10 or 11, wherein the respiratory tract disease is caused by an RNA-comprising virus.

14. The pharmaceutical composition of claim 13, wherein the virus is selected from the group consisting of rhinovirus, Coxsackie virus, respiratory syncytial virus, and influenza.

15. The pharmaceutical composition of claim 10 or 11, wherein the disease is exacerbations of asthma, chronic obstructive pulmonary disease, bronchitis and mucoviscidosis, which are caused by rhinovirus, influenza virus and/or respiratory syncytial virus.

16. A method of treating a respiratory tract disease, comprising administering to a patient an effective amount of a compound of general formula I



,

wherein m is an integer from 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, $-C(O)OH$, $-C(O)OC_1$-C_6alkyl;

R_3 is:

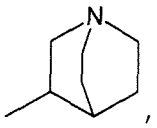
1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, $-C(O)OH$, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:



,

or a pharmaceutically acceptable salt thereof.

17. The method of claim 16, wherein the compound of formula I is a compound as defined in any one of claims 1 to 3.

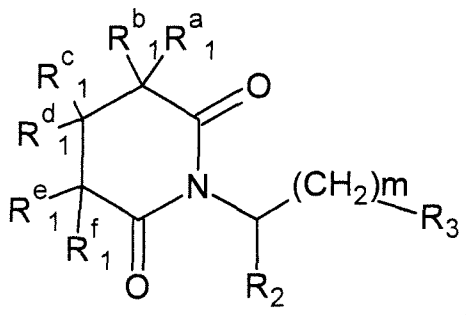
18. The method of claim 16 or 17, wherein the respiratory tract disease is rhinosinusitis.

19. The method of claim 16 or 17, wherein the respiratory tract disease is caused by an RNA-comprising virus.

20. The method of claim 19, wherein the virus is selected from the group consisting of rhinovirus, Coxsackie virus, respiratory syncytial virus, and influenza virus.

21. The method of claim 16 or 17, wherein the disease is exacerbations of asthma, chronic obstructive pulmonary disease, bronchitis and mucoviscidosis, which are caused by rhinovirus, influenza virus and/or respiratory syncytial virus.

22. Use of a compound of general formula I



,

wherein m is an integer from 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, $-C(O)OH$, $-C(O)OC_1$-C_6alkyl;

R_3 is:

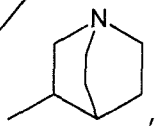
1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, $-C(O)OH$, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl, condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:



or a pharmaceutically acceptable salt thereof for the manufacture of a medicament for the treatment of a respiratory tract disease.

23. The use of claim 22, wherein the compound of formula I is a compound as defined in any one of claims 1 to 3.

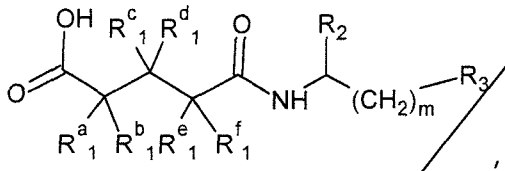
24. The use of claim 22 or 23, wherein the respiratory tract disease is rhinosinusitis.

25. The use of claim 22 or 23, wherein the respiratory tract disease is caused by an RNA-comprising virus.

26. The use of claim 25, wherein the virus is selected from the group consisting of rhinovirus, Coxsackie virus, respiratory syncytial virus, and influenza virus.

27. The use of claim 22 or 23, wherein the disease is exacerbations of asthma, chronic obstructive pulmonary disease, bronchitis and mucoviscidosis, which are caused by rhinovirus, influenza virus and/or respiratory syncytial virus.

28. A method for preparing a compound of general formula I according to claim 1 or a pharmaceutically acceptable salt thereof, comprising heating of dicarboxylic acid monoamide of general formula II



,

wherein

m represents an integer of 0 to 2;

R^a_1, R^b_1, R^c_1, R^d_1, R^e_1, and R^f_1, each independently represents hydrogen, C_1-C_6alkyl; $-NH_2$, $-NHC_1$-C_6alkyl, hydroxyl, or C_1-C_6alkoxy;

R_2 is hydrogen, C_1-C_6alkyl, $-C(O)OH$, $-C(O)OC_1$-C_6alkyl;

R_3 is:

1) a 5-membered saturated or unsaturated heterocyclic group comprising from 1 to 4 heteroatoms selected from N, O and S, optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_6alkyl, C_1-C_6alkoxy, $-C(O)OH$, $-C(O)OC_1$-C_6alkyl, $-NHC(O)C_1$-C_6alkyl, phenyl, or pyridinyl;

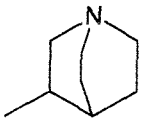
2) a 6-membered saturated or unsaturated heterocyclic group comprising from 1 to 2 heteroatoms selected from N and O, optionally substituted with a group selected from halogen and C_1-C_6alkyl;

3) a 5-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S, optionally substituted with 1 or 2 substituents selected from C_1-C_6alkyl,

condensed with a 6-membered unsaturated nitrogen-containing cyclic or heterocyclic group optionally substituted with 1 or 2 substituents selected from hydroxyl, halogen or C_1-C_6alkyl;

4) a 6-membered unsaturated cyclic or heterocyclic group comprising from 1 to 2 nitrogen atoms, condensed with a 5- or 6-membered unsaturated heterocyclic group comprising from 1 to 3 heteroatoms selected from N and S; or

5) a group of the formula:



with a dehydrating agent in an organic solvent.

29. The method of claim 28, wherein the dehydrating agent is glutaric anhydride, and the method is performed under heating in an organic solvent, preferably in dimethylformamide.

30. The method of claim 28, wherein the dehydrating agent is propionic anhydride, and the method is performed under heating in an organic solvent, preferably in toluene.

31. The process of claim 30, wherein the method is performed with addition of sodium acetate.

32. The method of claim 28, wherein the dehydrating agent is acetic anhydride, and the method is performed under heating in an organic solvent, preferably in dioxane.

33. The process of claim 32, wherein the method is performed with addition of sodium acetate.

34. The method of claim 28, wherein the dehydrating agent is acetic acid chloroanhydride, and the method is performed under heating in an organic solvent, preferably in acetic acid.

35. The method of claim 28, wherein the dehydrating agent and the solvent are acetic acid anhydride, and the method is performed at 90-100°C.

36. The method of claim 28, wherein the dehydrating agent is preferably carbonyldiimidazole.