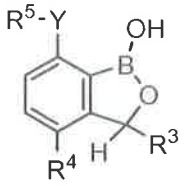
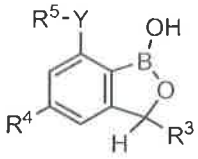
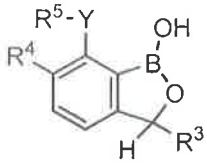
WHAT IS CLAIMED IS:

1. A compound having a structure which is:


(I) or

(II) or

(III)

wherein R^3 is substituted or unsubstituted nitroalkyl or substituted or unsubstituted aminoalkyl;

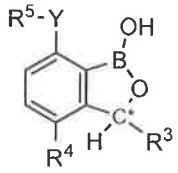
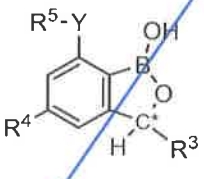
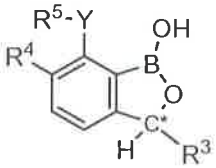
R^4 is selected from the group consisting of halogen, unsubstituted alkyl, unsubstituted alkoxy, and unsubstituted phenyl;

Y is O or S; and

R^5 is selected from the group consisting of substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

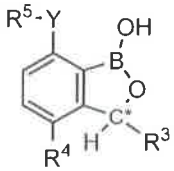
or a salt, hydrate or solvate thereof.

2. The compound of claim **1**, having a structure which is:


or

or


wherein C* is a carbon atom stereocenter which has a configuration which is (R) or (S).

3. The compound of claim **1**, having a structure which is



wherein the C* is a carbon atom stereocenter which has a configuration which is (R) or (S).

4. The compound of claim **2**, wherein the C* stereocenter is in a (S) configuration.

5. The compound of claim **1**, wherein R^3 is $-CH_2NH_2$.

6. The compound of claim **1**, wherein R^4 is selected from the group consisting of fluorine, chlorine, bromine, and iodine.

7. The compound of claim **1**, wherein Y is O.

8. The compound of claim **1**, wherein R^5 is selected from the group consisting of methyl, ethyl, propyl, isopropyl, butyl, isobutyl, t-butyl, and sec-butyl.

9. The compound of claim **1**, wherein R^3 is $-CH_2NH_2$; and R^4 is halogen.

10. The compound of claim **1**, wherein R^3 is $-CH_2NH_2$; R^4 is chlorine; Y is O; and R^5 is substituted or unsubstituted alkyl.

11. A composition comprising:

a) a first stereoisomer of the compound of claim **2**;

b) at least one additional stereoisomer of the first stereoisomer;

wherein the first stereoisomer is present in an enantiomeric excess of at least 80% relative to said at least one additional stereoisomer.

12. A combination comprising the compound of claim **1**, or a pharmaceutically acceptable salt thereof, together with at least one other therapeutically active agent.

13. A pharmaceutical formulation comprising:

a) the compound of claim **1**, or a pharmaceutically acceptable salt thereof; and

b) a pharmaceutically acceptable excipient.

14. A method of inhibiting an enzyme, comprising: contacting the enzyme with the compound of claim **1**, thereby inhibiting the enzyme.

15. A method of killing and/or preventing the growth of a microorganism, comprising: contacting the microorganism with an effective amount

of the compound of claim **1**, thereby killing and/or preventing the growth of the microorganism.

16. A method of treating and/or preventing a disease in an animal, comprising: administering to the animal a therapeutically effective amount of the compound of claim **1**, or a pharmaceutically-acceptable salt thereof, thereby treating and/or preventing the disease.

17. The method of claim **16**, wherein the disease is tuberculosis.

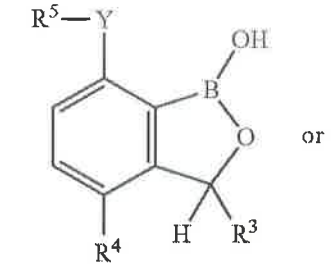
18. The method of claim **16**, wherein the animal is a human.

19. A method of inhibiting the editing domain of a t-RNA synthetase, comprising: contacting the synthetase with an effective amount of a compound of claim **1**, or a pharmaceutically-acceptable salt thereof, thereby inhibiting the synthetase.

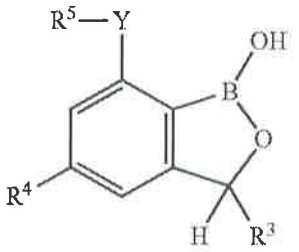
20. The use of a compound of claim **1** or a combination of claim **12** or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for the treatment and/or prophylaxis of bacterial infection

What is claimed is:

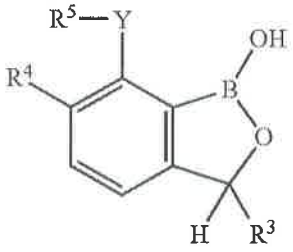
1. A compound having a structure which is:



or



or



wherein R^3 is substituted or unsubstituted nitroalkyl or substituted or unsubstituted aminoalkyl;

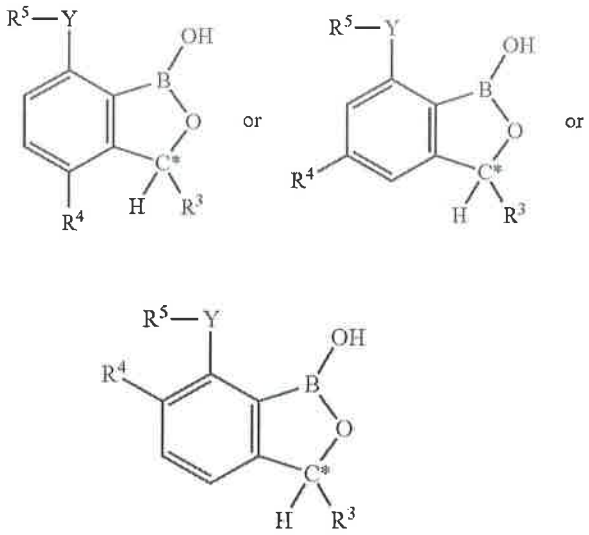
R^4 is selected from the group consisting of halogen, unsubstituted alkoxy, and unsubstituted phenyl;

Y is O or S; and

R^5 is selected from the group consisting of substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

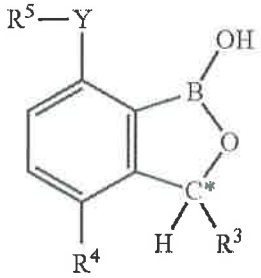
or a salt, hydrate or solvate thereof.

2. The compound of claim 1, having a structure which is:



wherein C* is a carbon atom stereocenter which has a configuration which is (R) or (S).

3. The compound of claim 1, having a structure which is



wherein the C* is a carbon atom stereocenter which has a configuration which is (R) or (S).

4. The compound of claim 2, wherein the C* stereocenter is in a (S) configuration.

5. The compound of claim 1, wherein R^3 is $-CH_2NH_2$.

6. The compound of claim 1, wherein R^4 is selected from the group consisting of fluorine, chlorine, bromine, and iodine.

7. The compound of claim 1, wherein Y is O.

8. The compound of claim 1, wherein R^5 is selected from the group consisting of methyl,

ethyl, propyl, isopropyl, butyl, isobutyl, t-butyl, and sec-butyl.

9. The compound of claim 1, wherein R^3 is $-CH_2NH_2$; and R^4 is halogen.

10. The compound of claim 1, wherein R^3 is $-CH_2NH_2$; R^4 is chlorine; Y is O; and R^5 is substituted or unsubstituted alkyl.

11. A composition comprising:

a) a first stereoisomer of the compound of claim 2;

b) at least one additional stereoisomer of the first stereoisomer;

wherein the first stereoisomer is present in an enantiomeric excess of at least 80% relative to said at least one additional stereoisomer.

12. A combination comprising the compound of claim 1, or a pharmaceutically acceptable salt thereof, together with at least one other therapeutically active agent.

13. A pharmaceutical formulation comprising:

a) the compound of claim 1, or a pharmaceutically acceptable salt thereof; and

b) a pharmaceutically acceptable excipient.

14. The compound of claim 1, wherein R^4 is chlorine or bromine.

15. The compound of claim 1, wherein R^4 is chlorine.

16. The compound of claim 1, wherein R^4 is selected from the group consisting of methoxy, ethoxy, propoxy, isopropoxy, butoxy, isobutoxy, and sec-butoxy.

17. The compound of claim 1, wherein R^4 is methoxy or ethoxy.

18. The compound of claim 4, wherein Y is O.

19. The compound of claim 1, wherein R^5 is unsubstituted alkyl.

20. The compound of claim 2, wherein

R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is methyl; or

R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is ethyl; or

R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is propyl; or

R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is isopropyl; or

R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_4 alkyl; or

R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_5 alkyl; or

R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_6 alkyl.

21. The compound of claim 2, wherein

R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is methyl; or

R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is ethyl; or

R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is propyl.

22. The compound of claim 2, wherein R^4 is halogen, R^3 is $-CH_2NH_2$; Y is O; and R^5 is ethyl.

23. The compound of claim 2, wherein

R^4 is fluorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is methyl; or

R^4 is chlorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is methyl; or

R^4 is bromine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is methyl; or

R^4 is fluorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is ethyl; or

R^4 is chlorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is ethyl; or

R^4 is bromine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is ethyl; or

R^4 is fluorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is propyl;

R^4 is chlorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is propyl;

R^4 is bromine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is propyl;

R^4 is fluorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is isopropyl;

R^4 is chlorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is isopropyl; or

R^4 is bromine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is isopropyl; or

R^4 is fluorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_4 alkyl; or

R^4 is chlorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_4 alkyl; or

R^4 is bromine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_4 alkyl;

R^4 is fluorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_5 alkyl; or

R^4 is chlorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_5 alkyl; or

R^4 is bromine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_5 alkyl; or

R^4 is fluorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_6 alkyl; or

R^4 is chlorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_6 alkyl; or

R^4 is bromine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is unsubstituted C_6 alkyl.

24. The compound of claim 2, wherein

R^4 is fluorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is ethyl; or

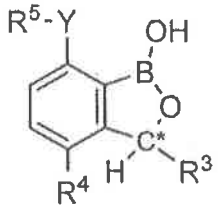
R^4 is chlorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is ethyl; or

R^4 is bromine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is ethyl.

25. The compound of claim 2, wherein

R^4 is chlorine, R^3 is $-CH_2NH_2$; Y is O; and R^5 is ethyl.

26. A compound having a structure which is:



wherein R^3 is substituted or unsubstituted nitroalkyl or substituted or unsubstituted aminoalkyl;

R^4 is halogen;

Y is O or S; and

R^5 is selected from the group consisting of substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

C* is a carbon atom stereocenter which has a configuration which is (R) or (S) or a salt, hydrate or solvate thereof.

27. The compound of claim 26, wherein the C* stereocenter is in a (S) configuration.

28. The compound of claim 26, wherein R^3 is substituted or unsubstituted aminoalkyl.

29. The compound of claim 26, wherein R^3 is $—CH_2NH_2$.

30. The compound of claim 26, wherein R^4 is fluorine, chlorine, bromine, or iodine.

31. The compound of claim 26, wherein Y is O.

32. The compound of claim 26, wherein R^5 is selected from the group consisting of methyl, ethyl, propyl, isopropyl, butyl, isobutyl, t-butyl, and sec-butyl.

33. The compound of claim 26, wherein R^5 is methyl or ethyl.

34. The compound of claim 27, wherein R^3 is—CH_2NH_2 and R^4 is fluorine, chlorine, or bromine.

35. The compound of claim 27, wherein R^3 is—CH_2NH_2; R^4 is fluorine, chlorine, or bromine; Y is O; and R^5 is substituted or unsubstituted alkyl.

36. The compound of claim 27, wherein R^3 is—CH_2NH_2; and R^5 is methyl or ethyl.

37. The compound of claim 27, wherein R^3 is—CH_2NH_2; R^4 is chlorine; Y is O; and R^5 is methyl.

38. The compound of claim 27, wherein R^3 is—CH_2NH_2; R^4 is bromine; Y is O; and R^5 is methyl.

39. The compound of claim 27, wherein R^3 is—CH_2NH_2; R^4 is chlorine; Y is O; and R^5 is ethyl.

40. The compound of claim 27, wherein R^3 is—CH_2NH_2; R^4 is bromine; Y is O; and R^5 is ethyl.

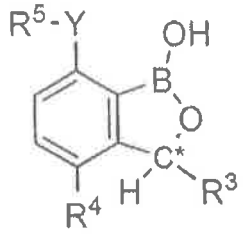
41. A composition comprising:

a) a first stereoisomer of the compound of claim 27;

b) at least one additional stereoisomer of the first stereoisomer;

wherein the first stereoisomer is present in an enantiomeric excess of at least 80% relative to said at least one additional stereoisomer.

42. The composition of claim 41, wherein the compound has a structure which is:



wherein R^3 is—CH_2NH_2;

R^4 is bromine;

Y is O; and R^5 is methyl;

C* is a carbon atom stereocenter which has a configuration which is (S) or a salt, hydrate or solvate thereof;

b) at least one additional stereoisomer of the first stereoisomer;

wherein the first stereoisomer is present in an enantiomeric excess of at least 80% relative to said at least one additional stereoisomer.

43. A combination comprising the compound of claim 26, or a pharmaceutically acceptable salt thereof, together with at least one other therapeutically active agent.

44. A combination comprising the compound of claim 38, or a pharmaceutically acceptable salt thereof, together with at least one other therapeutically active agent.

45. A pharmaceutical formulation comprising:

a) the compound of claim 26, or a pharmaceutically acceptable salt thereof; and

b) a pharmaceutically acceptable excipient.

46. A pharmaceutical formulation comprising:

a) the compound of claim 38, or a pharmaceutically acceptable salt thereof; and

b) a pharmaceutically acceptable excipient.