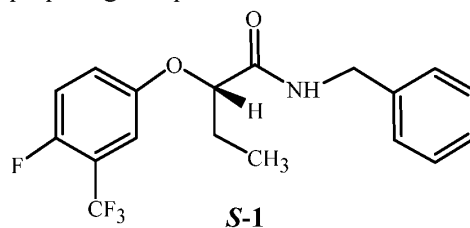


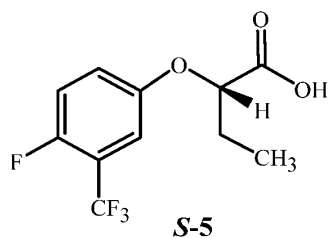
CLAIMS

What is claimed is:

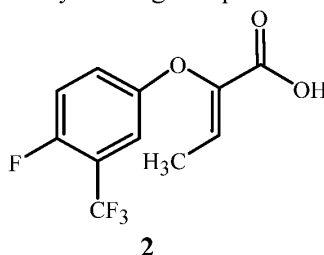
1. A method for preparing compound **S-1**



from compound **S-5**



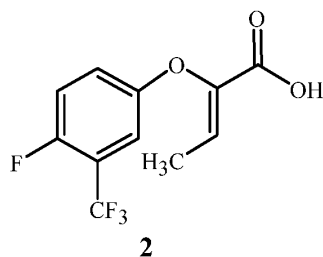
wherein compound **S-5** is prepared by treating compound **2**



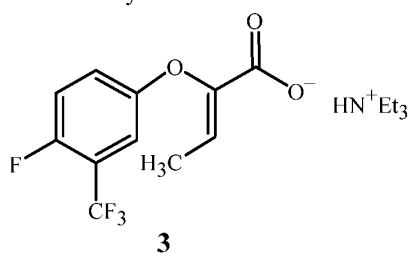
with a tertiary amine and a hydrogen source in the presence of a chiral complex.

2. The method of Claim 1 wherein the chiral complex comprises ruthenium complexed with a chiral bisphosphine.
3. The method of Claim 2 wherein the chiral complex is chloro[(*S*)-(-)-2,2'-bis(diphenylphosphino)-1,1'-binaphthyl](*p*-cymene)ruthenium(II) chloride.
4. The method of Claim 1 wherein the tertiary amine comprises triethylamine.
5. The method of Claim 1 wherein compound **S-5** is prepared by the method comprising treating compound **2**

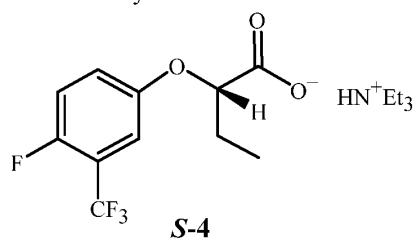
33



with triethylamine to provide the triethylamine salt of Formula **3**

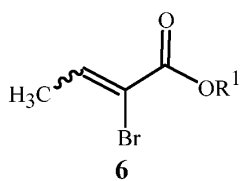


treating the triethylamine salt of Formula **3** with a hydrogen source in the presence of a chiral complex to provide the triethylamine salt of Formula **S-4**

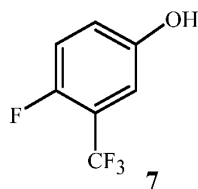


treating the triethylamine salt of Formula **S-4** with acid.

6. The method of Claim 1 wherein compound **2** is prepared by treating a compound of Formula **6**

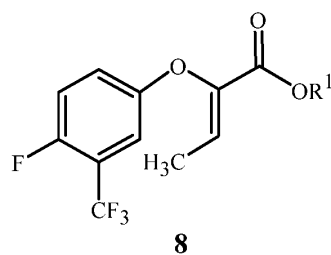


wherein R¹ is C₁–C₆ alkyl;
with compound **7**



in the presence of a base to provide a compound of Formula **8**

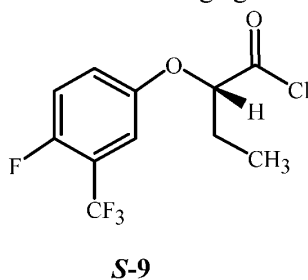
34



wherein R¹ is C₁–C₆ alkyl; and
hydrolyzing the compound of Formula **8**.

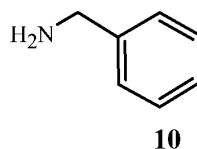
7. The method of Claim 6 wherein R¹ is CH₃.

8. The method of Claim 1 wherein compound **S-5** is converted to the compound of Formula **S-1** by the method comprising
treating compound **S-5** with a chlorinating agent to prepare compound **S-9**



; and

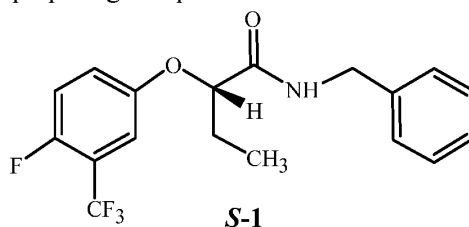
treating compound **S-9** optionally in the presence of an additional base with
compound **10**



9. The method of Claim 8 wherein the chlorinating agent is thionyl chloride.

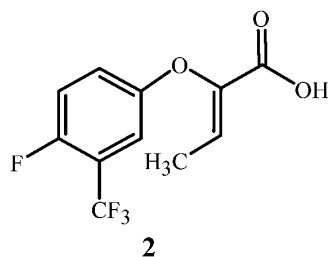
10. The method of Claim 8 wherein the additional base comprises triethylamine.

11. A method for preparing compound **S-1**

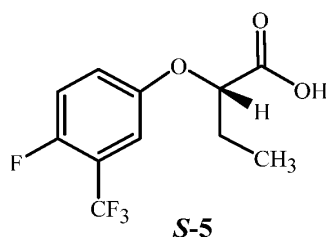


the method comprising:
treating compound **2**

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with a tertiary amine and a hydrogen source in the presence of a chiral complex to prepare compound **S-5**



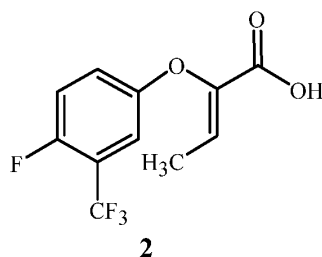
and converting compound **S-5** to compound **S-1**.

12. The method of Claim 11 wherein the chiral complex comprises ruthenium complexed with a chiral bisphosphine.

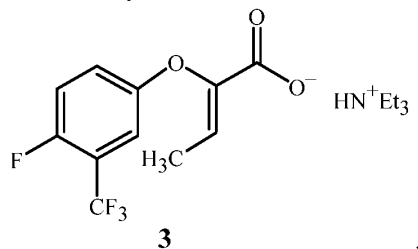
13. The method of Claim 12 wherein the chiral complex is chloro[(*S*)-(-)-2,2'-bis(diphenylphosphino)-1,1'-binaphthyl](*p*-cymene)ruthenium(II) chloride.

14. The method of Claim 11 wherein the tertiary amine comprises triethylamine.

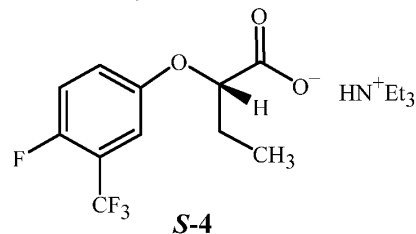
15. The method of Claim 11 wherein compound **S-5** is prepared by the method comprising treating compound **2**



with triethylamine to provide the triethylamine salt of Formula **3**



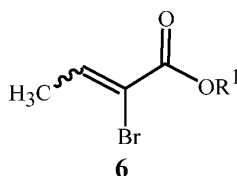
treating the triethylamine salt of Formula **3** with a hydrogen source in the presence of a chiral complex to provide the triethylamine salt of Formula **S-4**



; and

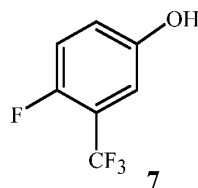
treating the triethylamine salt of Formula **S-4** with acid.

16. The method of Claim 11 wherein compound **2** is prepared by treating a compound of Formula **6**

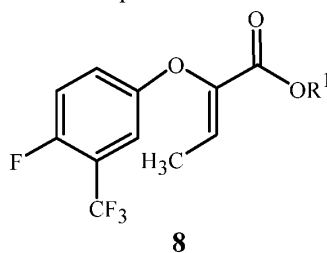


wherein R¹ is C₁–C₆ alkyl;

with compound **7**



in the presence of a base to provide a compound of Formula **8**



wherein R¹ is C₁–C₆ alkyl; and

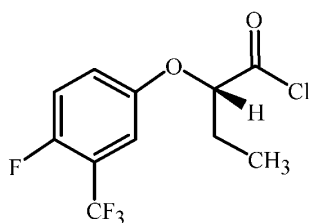
hydrolyzing the compound of Formula **8**.

17. The method of Claim 16 wherein R¹ is CH₃.

18. The method of Claim 11 wherein compound **S-5** is converted to compound **S-1** by the method comprising

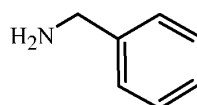
treating compound **S-5** with a chlorinating agent to prepare compound **S-9**

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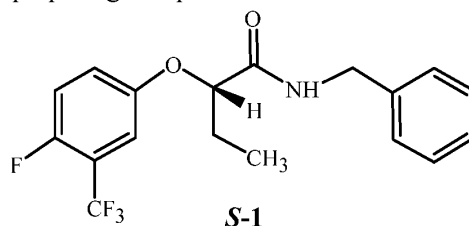
**S-9**

; and

treating compound **S-9** optionally in the presence of an additional base with compound **10**

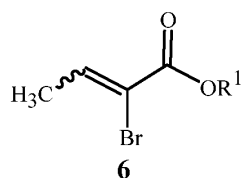
**10**

19. The method of Claim 18 wherein the chlorinating agent is thionyl chloride.
20. The method of Claim 21 wherein the additional base comprises triethylamine.
21. A method for preparing compound **S-1**

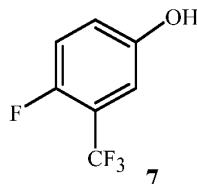
**S-1**

the method comprising:

treating a compound of Formula **6**

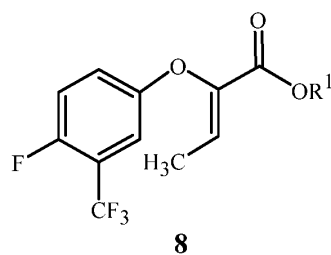
**6**

wherein R^1 is C_1-C_6 alkyl;
with compound **7**

**7**

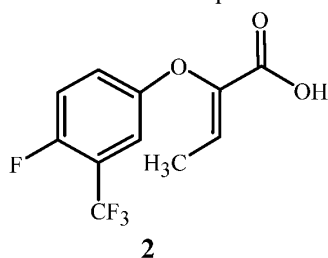
in the presence of a base to provide a compound of Formula **8**

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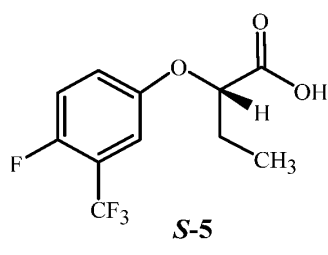


wherein R¹ is C₁–C₆ alkyl;

hydrolyzing the compound of Formula **8** to provide compound **2**



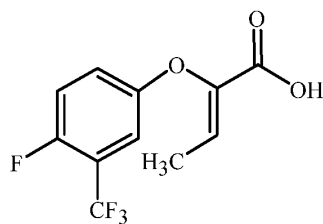
treating compound **2** with a tertiary amine and a hydrogen source in the presence of a chiral complex to prepare compound **S-5**



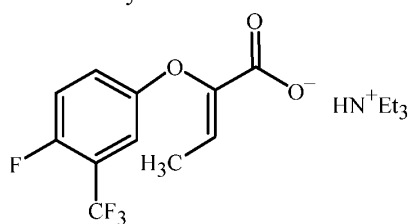
and converting compound **S-5** to compound **S-1**.

22. The method of Claim 21 wherein R¹ is CH₃.
23. The method of Claim 21 wherein the chiral complex comprises ruthenium complexed with a chiral bisphosphine.
24. The method of Claim 23 wherein the chiral complex is chloro[(*S*)-(-)-2,2'-bis(diphenylphosphino)-1,1'-binaphthyl](*p*-cymene)ruthenium(II) chloride.
25. The method of Claim 21 wherein the tertiary amine comprises triethylamine.
26. The method of Claim 21 wherein compound **S-5** is prepared by the method comprising treating compound **2**

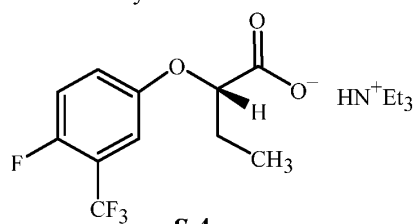
39

**2**

with triethylamine to provide the triethylamine salt of Formula **3**

**3**

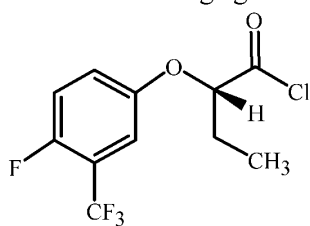
treating the triethylamine salt of Formula **3** with a hydrogen source in the presence of a chiral complex to provide the triethylamine salt of Formula **S-4**

**S-4**

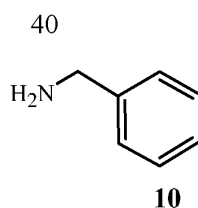
treating the triethylamine salt of Formula **S-4** with acid.

27. The method of Claim 21 wherein compound **S-5** is converted to compound **S-1** by the method comprising

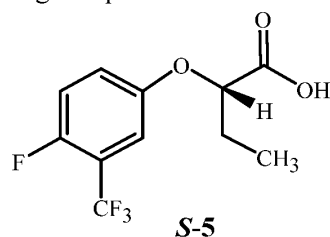
treating compound **S-5** with a chlorinating agent to prepare compound **S-9**

**S-9**

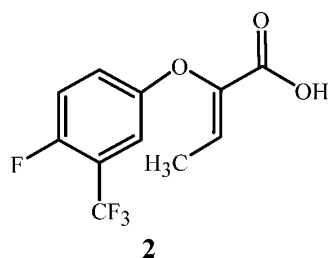
treating compound **S-9** optionally in the presence of an additional base with compound **10**



28. The method of Claim 27 wherein the chlorinating agent is thionyl chloride.
29. The method of Claim 27 wherein the additional base comprises triethylamine.
30. A method for preparing compound **S-5**

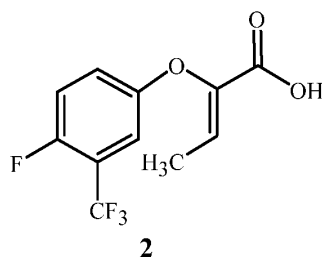


the method comprising:
treating compound **2**



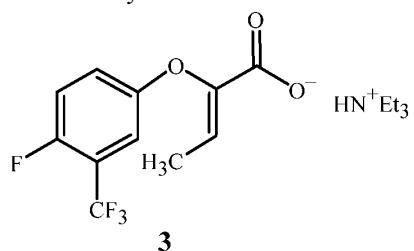
with a tertiary amine and a hydrogen source in the presence of a chiral complex.

31. The method of Claim 30 wherein the chiral complex comprises ruthenium complexed with a chiral bisphosphine.
32. The method of Claim 31 wherein the chiral complex is chloro[(*S*)-(-)-2,2'-bis(diphenylphosphino)-1,1'-binaphthyl](*p*-cymene)ruthenium(II) chloride.
33. The method of Claim 30 wherein the tertiary amine comprises triethylamine.
34. The method of Claim 30 wherein compound **S-5** is prepared by the method comprising treating compound **2**

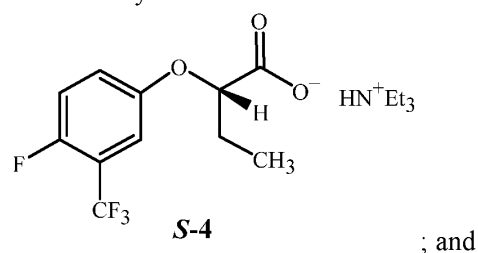


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with triethylamine to provide the triethylamine salt of Formula **3**

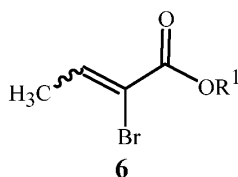


treating the triethylamine salt of Formula **3** with a hydrogen source in the presence of a chiral complex to provide the triethylamine salt of Formula **S-4**

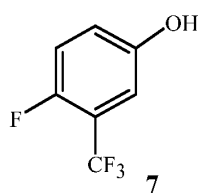


treating the triethylamine salt of Formula **S-4** with acid.

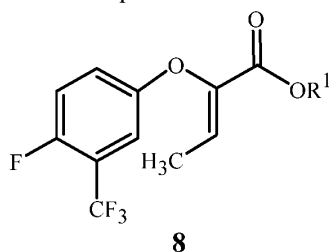
35. The method of Claim 30 wherein compound **2** is prepared by treating a compound of Formula **6**



wherein R¹ is C₁–C₆ alkyl;
with compound **7**



in the presence of a base to provide a compound of Formula **8**

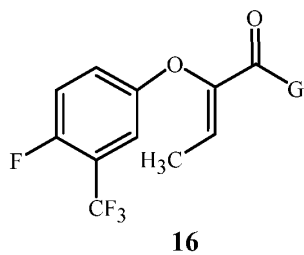


wherein R¹ is C₁–C₆ alkyl; and

hydrolyzing the compound of Formula **8**.

36. The method of Claim 35 wherein R^1 is CH_3 .

37. A compound of Formula **16**



wherein G is OH, C_1 – C_6 alkoxy or O^-M^+ ;

and M^+ is an alkali metal cation or a tertiary ammonium cation.

38. The compound of Claim 37 wherein G is OH or OCH_3 .

39. The compound of Claim 37 wherein G is $O^- (ethyl)_3NH^+$.