CLAIMS

1. Use of a 5-HT_6 receptor antagonist or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for the treatment of Alzheimer's disease, the treatment further comprising the use of an acetylcholinesterase inhibitor, wherein the Alzheimer's disease patient carries one or two ApoE4 alleles.

2. The use according to claim 1, wherein the 5-HT_6 receptor antagonist is selected from the group consisting of *N*-(2-(6-fluoro-*1H*-indol-3-yl)-ethyl)-3-(2,2,3,3-tetrafluoropropoxy)-benzylamine, 3-Benzenesulfonyl-5,7-dimethyl-2-methylsulfanyl-pyrazolo[1,5-a]pyrimidine and 3-phenylsulfonyl-8-piperazin-1-yl-quinoline or pharmaceutically acceptable salts thereof.

3. The use according to claim 1, wherein the 5-HT_6 receptor antagonist is a pharmaceutically acceptable salt of *N*-(2-(6-fluoro-*1H*-indol-3-yl)-ethyl)-3-(2,2,3,3-tetrafluoropropoxy)-benzylamine.

4. The use according to claim 1, wherein the 5-HT_6 receptor antagonist is the hydrochloride salt of *N*-(2-(6-fluoro-*1H*-indol-3-yl)-ethyl)-3-(2,2,3,3-tetrafluoropropoxy)-benzylamine.

5. The use according to claim 1, wherein the acetylcholinesterase inhibitor is selected from the group consisting of donepezil, rivastigmine and galantamine or pharmaceutically acceptable salts thereof.

6. The use according to claim 1, wherein the acetylcholinesterase inhibitor is the hydrochloride salt of donepezil.

7. The use according to claim 1, wherein the 5-HT_6 receptor antagonist is the hydrochloride salt of *N*-(2-(6-fluoro-*1H*-indol-3-yl)-ethyl)-3-(2,2,3,3-tetrafluoropropoxy)-benzylamine and the acetylcholinesterase inhibitor is the hydrochloride salt of donepezil.

8. The use according to any of claims 3 to 7, wherein the the 5-HT_6 receptor antagonist is to be administered in a dosing range from 60 mg/day to 120 mg/day.

9. The use according to any of claims 1 to 8, wherein the Alzheimer's disease patient is an APOE4 heterozygote patient.

10. The use according to any of claims 1 to 8, wherein the Alzheimer's disease patient is an APOE4/4 homozygote patient.

11. The use according to any of claims 1 to 8, wherein the Alzheimer's disease patient is an APOE4/4 homozygote patient diagnosed with mild to moderate Alzheimer's disease.

12. The use according to any of claims 1 to 8, wherein the Alzheimer's disease patient is an APOE4 heterozygote patient diagnosed with mild to moderate Alzheimer's disease.

13. A pharmaceutical composition comprising a 5-HT_6 receptor antagonist or a pharmaceutically acceptable salt thereof and an acetylcholinesterase inhibitor or a pharmaceutically acceptable salt thereof.

14. The pharmaceutical composition according to claim 13, wherein the 5-HT_6 receptor antagonist is *N*-(2-(6-fluoro-*1H*-indol-3-yl)-ethyl)-3-(2,2,3,3-tetrafluoropropoxy)-benzylamine or a pharmaceutically acceptable salt thereof, and the acetylcholinesterase inhibitor is donepezil or a pharmaceutically acceptable salt thereof.

15. The pharmaceutical composition according to claim 13, wherein the 5-HT_6 receptor antagonist is the hydrochloride salt of *N*-(2-(6-fluoro-*1H*-indol-3-yl)-ethyl)-3-(2,2,3,3--tetrafluoropropoxy)-benzylamine, and the acetylcholinesterase inhibitor is the hydrochloride salt of donepezil.