

The term, "isotopic form" as used herein refers to the compound of formula (I) wherein one or more atoms of compound of formula (I) are substituted by their respective isotopes. For example, isotopes of hydrogen include ^2H (deuterium) and ^3H (tritium).

5 The term, "stereoisomers" as used herein refers to isomers of compound of formula (I) that differ in the arrangement of their atoms in space. Compounds disclosed herein may exist as single stereoisomers, racemates and/or mixtures of enantiomers and/or diastereomers. All such single stereoisomers, racemates and mixtures thereof are intended to be within the scope of the present invention.

10 The term, "pharmaceutically acceptable salt" as used herein refers to salts of the active compound i.e. the compound of formula I, and are prepared by reaction with the appropriate acid or acid derivative, depending on the particular substituents found on the compounds described herein.

WO2015044072A1 patent application discloses indole derivatives as M1
15 PAM compounds. Based on the available *in vitro* data disclosed in the patent, three of the most potent compounds (Example number 30, 76 and 77) were synthesized in our laboratories and tested for its pharmacokinetic and brain penetration properties in Wistar rats. All the three compounds were found to have poor brain penetration. This makes these compounds less ideal for the treatment of CNS disorders. The M1 PAM
20 compounds of the instant invention possess brain penetration and/or free fraction available in the brain which will make them useful compounds to further develop for the treatment of CNS disorders.

Embodiments

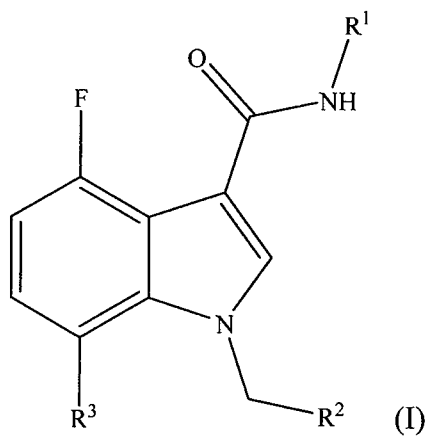
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In one embodiment, the present invention relates to the compound of formula (I), wherein:

30 R^1 is

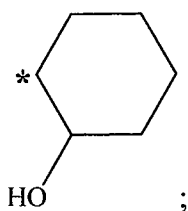
We Claim

1. A fluoroindole compound of formula (I),

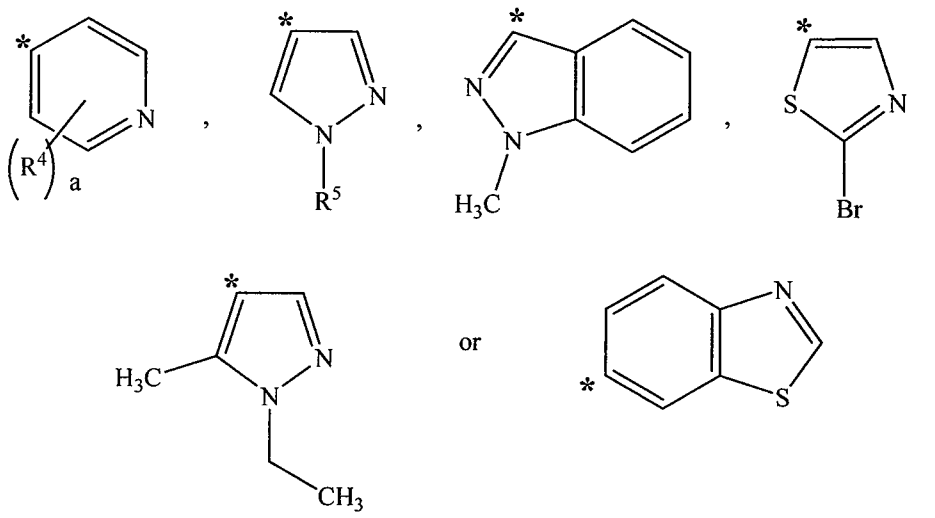


wherein:

R¹ is



R² is



wherein * represents point of attachment;

R³ is fluorine or hydrogen;

R⁴ is halogen, S-CH₃ or hydrogen;

R⁵ is -CH₃, -CH₂CH₂F or hydrogen;

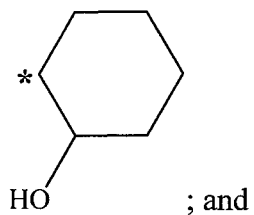
a is 1 or 2; and

b is 1 or 2;

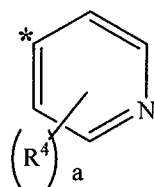
or an isotopic form, a stereoisomer or a pharmaceutically acceptable salt thereof.

2. The compound as claimed in claim 1, wherein:

R¹ is

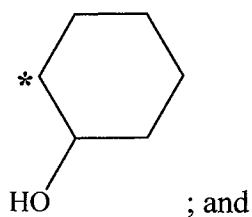


R² is

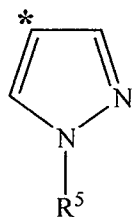


3. The compound as claimed in claim 1, wherein:

R¹ is



R² is



4. The compound as claimed in any one of the claims 1 to 3, wherein the compound is selected from the group consisting of:

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(1-methyl-1*H*-pyrazol-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(2-Chloropyridin-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*R*,2*R*)-2-Hydroxycyclohexyl]-1-(1-methyl-1*H*-pyrazol-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(1-methyl-1*H*-indazol-3-ylmethyl)-4,7-difluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(1-methyl-1*H*-pyrazol-4-ylmethyl)-4,7-difluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(2-Chloropyridin-4-ylmethyl)-4,7-difluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(2-fluoropyridin-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(2-fluoropyridin-4-ylmethyl)-4,7-difluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(3-fluoropyridin-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(5-fluoropyridin-4-ylmethyl)-4,7-difluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(2,5-difluoropyridin-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(2,5-difluoro-pyridin-4-ylmethyl)-4,7-difluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(2,3-difluoropyridin-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(1-pyridin-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(1*H*-pyrazol-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(2-bromothiazol-5-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(1-ethyl-5-methyl-1*H*-pyrazol-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(benzothiazol-6-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl] 1-(1-(2-fluoroethyl)-1*H*-pyrazol-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(2-methylsulfanyl-pyridin-4-ylmethyl)-4,7-difluoro-1*H*-indole-3-carboxamide; and

N-[(1*S*,2*S*)-2-Hydroxycyclohexyl]-1-(2-methylsulfanyl-pyridin-4-ylmethyl)-4-fluoro-1*H*-indole-3-carboxamide;

or a pharmaceutically acceptable salt thereof.

5. A pharmaceutical composition comprising a compound as claimed in any one of the claims 1 to 4, and pharmaceutically acceptable excipients or carriers.

6. The pharmaceutical composition as claimed in claim 5, for use in the treatment of clinical conditions mediated through muscarinic M1 receptor selected from the group consisting of Alzheimer's disease, schizophrenia, cognitive disorders, pain or sleep disorders.

7. Use of the compound as claimed in any one of the claims 1 to 4, in the manufacture of medicament for the treatment of disorder related to Muscarinic M1 receptor.

8. The use of the compound as claimed in the claim 7, wherein the disorder related to muscarinic M1 receptor is selected from the group consisting of Alzheimer's disease, schizophrenia, cognitive disorders, pain or sleep disorders.

9. A compound as claimed in any one of the claims 1 to 4, for use in positive allosteric modulation of muscarinic M1 receptor.

10. The compound as claimed in claim 9, for use in the treatment of a disorder related to muscarinic M1 receptor selected from Alzheimer's disease, schizophrenia, cognitive disorders, pain or sleep disorders.