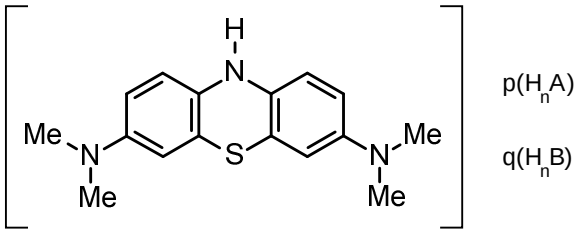
## Claims

1. Non-therapeutic use of a methylthioninium (MT) containing compound to stimulate cognitive function in a healthy subject,

wherein said use comprises orally administering between 2 and 100 mg of MT to the subject per day, optionally split into 2 or more doses,

wherein the MT compound is an LMTX compound of the following formula:




wherein each of $H_nA$ and $H_nB$ (where present) are protic acids which may be the same or different,

and wherein p = 1 or 2; q = 0 or 1; n = 1 or 2; (p + q) × n = 2

or a hydrate or solvate thereof;

wherein the LMTX compound stimulates basal choline levels and synaptophysin in the subject.

***

2. The non-therapeutic use as claimed in claim 1 wherein the stimulation of cognitive function is for the purpose of stimulating alertness, attention, reasoning, concentration, learning, or language processing in the subject.

***

3. The non-therapeutic use as claimed in claim 1 or claim 2 wherein the subject has an MMSE of 30.

4. The non-therapeutic use as claimed in any one of claims 1 to 4 wherein the subject has not previously received, treatment with an acetylcholinesterase inhibitor or an N-methyl-D-aspartate receptor antagonist.

***

5. The non-therapeutic use as claimed in any one of claims 1 to 4 wherein the subject has previously received, treatment with an acetylcholinesterase inhibitor or an N-methyl-D-

aspartate receptor antagonist and has discontinued such treatment prior to administration of the LMTX compound.

6. The non-therapeutic use as claimed in any one of claims 1 to 5 wherein the total daily dose of MT is from 10 - 60 mg.

7. The non-therapeutic use as claimed in any one of claims 1 to 6 wherein the total daily dose of MT is from 20 - 60 mg.

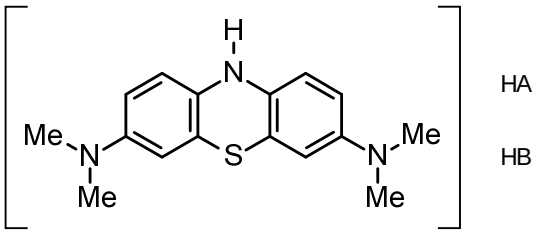
8. The non-therapeutic use as claimed in any one of claims 1 to 6 wherein the total daily dose of MT is from 10 - 40 mg.

9. The non-therapeutic use as claimed in any one of claims 1 to 8 wherein the total daily dose of MT is from 20 - 40 mg.

10. The non-therapeutic use as claimed in any one of claims 1 to 5 wherein the total daily dose of MT is from any of 2, 2.5, 3, 3.5, or 4 mg to any of 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 50 or 60 mg.

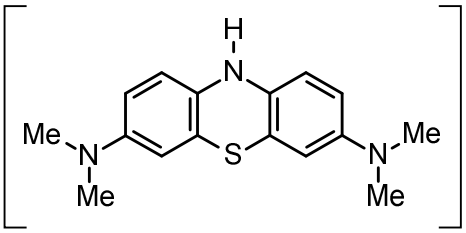
11. The non-therapeutic use as claimed in any one of claims 1 to 10 wherein the total daily dose of the compound is administered as a split dose twice a day or three times a day.

12. The non-therapeutic use as claimed in any one of claims 1 to 11 wherein the compound has the following formula, where HA and HB are different mono-protic acids:




wherein HA and HB are different mono-protic acids:

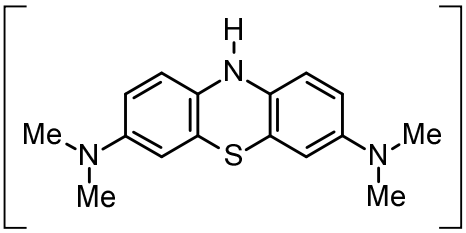
13. The non-therapeutic use as claimed in any one of claims 1 to 11 wherein the compound has the following formula:




$p(H_nX)$

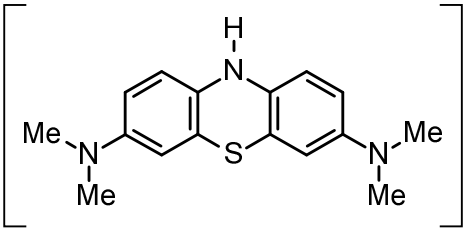
wherein each of $H_nX$ is a protic acid.

14. The non-therapeutic use as claimed in any one of claims 1 to 11 wherein the compound has the following formula and $H_2A$ is a di-protic acid:




$H_2A$

15. The non-therapeutic use as claimed in claim 13 wherein the compound has the following formula and is a bis-monoprotic acid:




2(HA)

16. The non-therapeutic use as claimed in any one of claims 1 to 15 wherein the or each protic acid is an inorganic acid.

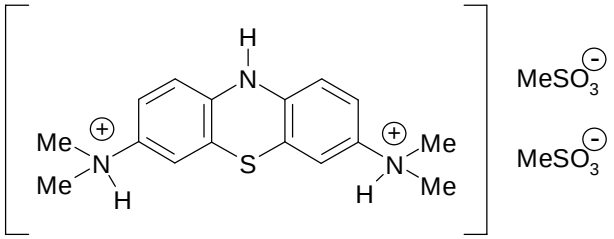
17. The non-therapeutic use as claimed in claim 16 wherein each protic acid is a hydrohalide acid.

18. The non-therapeutic use as claimed in claim 16 wherein the or each protic acid is selected from HCl; HBr; $HNO_3$; $H_2SO_4$.

19. The non-therapeutic use as claimed in any one of claims 1 to 15 wherein the or each protic acid is an organic acid.

20. The non-therapeutic use as claimed in claim 19 wherein the or each protic acid is selected from $H_2CO_3$; $CH_3COOH$; methanesulfonic acid, 1,2-ethanedisulfonic acid, ethanesulfonic acid, naphthalenedisulfonic acid, p-toluenesulfonic acid.

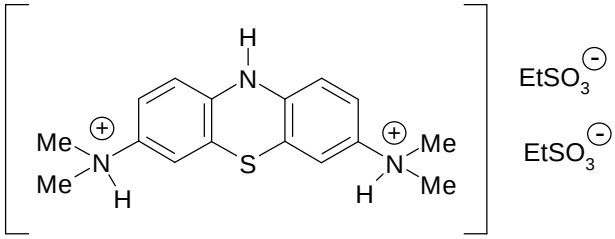
21. The non-therapeutic use as claimed in claim 20 wherein the compound is LMTM:

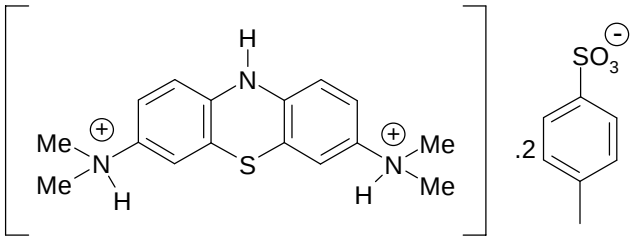


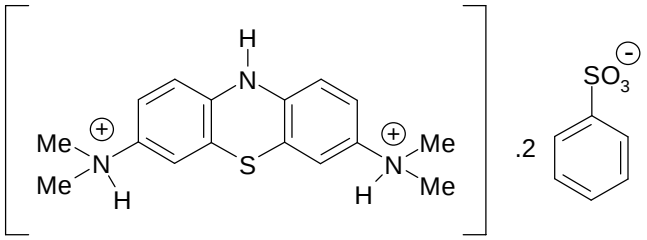
22. The non-therapeutic use as claimed in claim 21 wherein the total daily dose of LMTM is 3.4 to 100mg/day, more preferably 34 to 100 mg/day of LMTM total.

23. The non-therapeutic use as claimed in claim 22 wherein the dose of LMTM is around 34 mg/once per day; 15 mg b.i.d.; 8.7 mg t.i.d.

24. The non-therapeutic use as claimed in claim 20 wherein the compound is selected from the list consisting of:

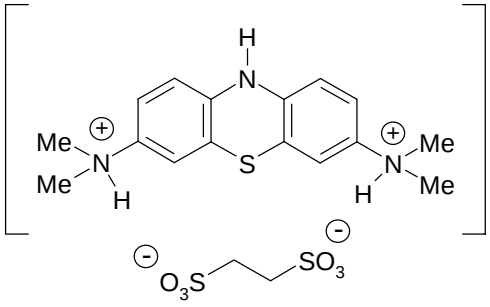


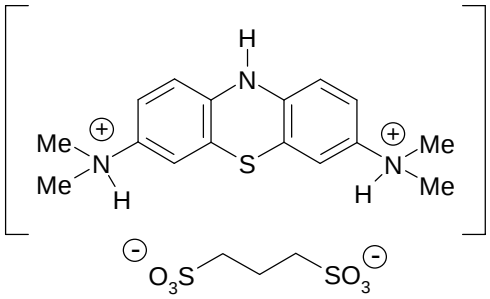


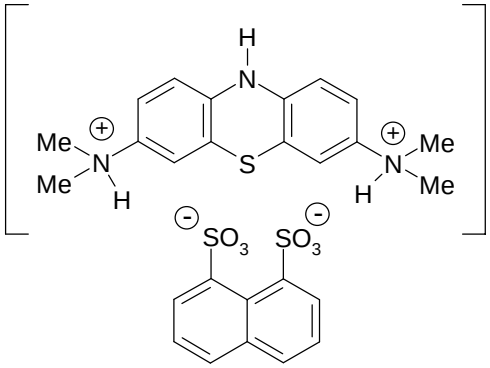


.2









***

25. The non-therapeutic use as claimed in any one of claims 1 to 24 wherein the MT compound is provided as a nootropic composition comprising the MT compound and a pharmaceutically acceptable carrier or diluent, optionally in the form of a dosage unit, which is optionally a tablet or capsule.

26. The non-therapeutic use as claimed in claim 25 wherein the amount of MT in the unit is 4, 5, 6, 7, 8, 9, 10, 20, or 30 to 40, 50 or 60 mg.

***

27. The non-therapeutic use as claimed in any one of claims 1 to 26 wherein the MT compound is provided as a nootropic composition comprising the MT compound and a further nootropic agent, optionally in the form of a dosage unit.

***

28. A non-therapeutic method of treating a healthy human subject to stimulate their cognitive function,

the treatment comprising orally administering to the subject a nootropically effective amount of methylthioninium (MT) containing LTMX compound according to the use defined in any one of claims 1 to 27.