## CLAIMS

1. A pharmaceutical formulation suitable for injection, comprising:

a salt of a dimethyltryptamine compound optionally substituted with deuterium and optionally substituted at position 4 or 5 with acetoxy or methoxy or position 4 with monohydrogen phosphate;

a buffer which is separate to the salt; and

water,

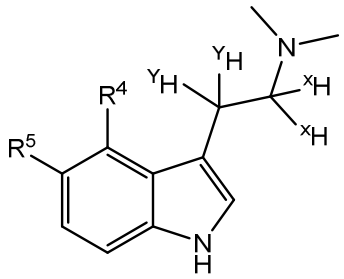
wherein the formulation has a pH of 3.75 ± 5% to 6.5 ± 5% and an osmolality of 250 mOsm/Kg ± 5% to 350 mOsm/Kg ± 5%.

2. The formulation of claim 1, wherein the pH is from 3.75 ± 5% to 5.75 ± 5%.

3. The formulation of claim 1, wherein the pH is from 3.75 ± 5% to 4.25 ± 5%.

4. The formulation of claim 1, wherein the formulation has an osmolality of 275 ± 5% to 325 mOsm/Kg ± 5%.

5. The formulation of claim 1, wherein the salt of the dimethyltryptamine compound comprises a Brønsted acid having a pKa of from 3 ± 5% to 5 ± 5% and a compound of Formula I:




Formula I

wherein:

$R^4$ and $R^5$ are both H and each $^{x}H$ and each $^{Y}H$ is independently selected from H and D, or

one of $R^4$ and $R^5$ is H and the other is acetoxy or methoxy, each $^{Y}H$ is H and each $^{x}H$ is independently selected from H and D, or

the salt comprises a compound of Formula I wherein $R^4$ is monohydrogen phosphate, $R^5$ is H and each $^{Y}H$ and each $^{x}H$ is H.

6. The formulation of claim 5, wherein

(i) $R^4$ and $R^5$ are both H; or

(ii) $R^4$ is acetoxy and $R^5$ is H; or

(iii) $R^4$ is H and $R^5$ is methoxy.

7. The formulation of claim 1, wherein the optionally substituted dimethyltryptamine compound is dimethyltryptamine.

8. The formulation of claim 1, wherein the salt is of an optionally substituted dimethyltryptamine compound and an acid selected from the group consisting of fumaric acid, tartaric acid, citric acid, acetic acid, lactic acid and gluconic acid.

9. The formulation of claim 1, wherein the salt is of an optionally substituted dimethyltryptamine compound and wherein the acid is fumaric acid.

10. The formulation of claim 1, wherein the salt of the dimethyltryptamine compound has a purity of greater than or equal to 99% when measured by HPLC.

11. The formulation of claim 1, wherein the concentration of the optionally substituted dimethyltryptamine is 2.5 mg/mL ± 5%.

12. The formulation of claim 1, wherein the buffer comprises sodium acetate and acetic acid, or potassium acetate and acetic acid.

13. The formulation of claim 1, further comprising a tonicity agent.

14. The formulation of claim 13, wherein the tonicity agent is sodium chloride at a concentration of 120 mM ± 5% to 140 mM ± 5%.

15. The formulation of claim 1, wherein the formulation consists essentially of the salt, the buffer, water, and optionally a tonicity agent.

16. The formulation of claim 1, wherein the formulation has an oxygen content of less than 2ppm.

17. The pharmaceutical formulation suitable for injection of claim 1, comprising:
a salt of dimethyltryptamine optionally substituted with deuterium;
a buffer which is separate to the salt; and
water,
wherein the formulation has a pH of 3.75 ± 5% to 6.5 ± 5% and an osmolality of 250 mOsm/Kg ± 5% to 350 mOsm/Kg ± 5%.

18. The pharmaceutical formulation suitable for injection of claim 1, comprising:
a salt of dimethyltryptamine compound with deuterium;
a buffer which is separate to the salt; and
water,
wherein the formulation has a pH of 3.75 ± 5% to 6.5 ± 5% and an osmolality of 250 mOsm/Kg ± 5% to 350 mOsm/Kg ± 5%.

19. The formulation of claim 1, wherein the pH is from 4.0 ± 5% to 6.5 ± 5%.

20. The formulation of claim 5, wherein the pH is from 4.0 ± 5% to 6.5 ± 5%.