

CLAIMS:

1. A method of reducing an inflammatory response due to a viral infection in a subject, comprising administering to the subject an effective amount of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$).
- 5 2. The method of claim 1, wherein the viral infection is a coronavirus infection.
3. The method of claim 2, wherein the coronavirus is SARS-CoV-2.
4. The method of claim 1, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered orally.
5. The method of claim 1, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium
10 meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered at a dose in the range of from 2mg per day to 20 mg per day.
6. A method of treating or preventing an inflammatory condition due to a viral infection in a subject, comprising administering to the subject an effective amount of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$).
- 15 7. The method of claim 6, wherein the viral infection is a coronavirus infection.
8. The method of claim 7, wherein the coronavirus infection is caused by SARS-CoV-2.
9. The method of claim 6, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered orally.
10. The method of claim 6, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium
20 meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered at a dose in the range of from 2mg per day to 20 mg per day.
11. A method of treating or preventing hypercytokinemia due to a viral infection in a subject, comprising administering to the subject an effective amount of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$).
- 25 12. The method of claim 11, wherein the viral infection is infection by a coronavirus.
13. The method of claim 12, wherein the coronavirus is SARS-CoV-2.
14. A method of treating a viral infection in a subject, comprising administering to the subject an effective amount of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$).

15. The method of claim 14, wherein the viral infection is due to an infection by a coronavirus.
16. The method of claim 15, wherein the coronavirus is SARS-CoV-2.
17. The method of claim 14, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered orally.
18. The method of claim 14, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered at a dose in the range of from 2mg per day to 20 mg per day.
19. A method of treating a coronavirus infection in a subject, comprising administering to the subject an effective amount of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$).
20. The method of claim 19, wherein the coronavirus infection is caused by SARS-CoV-2.
21. The method of claim 19, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered orally.
22. The method of claim 19, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered at a dose in the range of from 2mg per day to 20 mg per day.
23. A method of reducing $\text{TNF-}\alpha$, $\text{IL-1}\beta$, and/or IL-6 levels in a subject suffering from an inflammatory condition due to a viral infection, comprising administering to the subject an effective amount of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$).
24. The method of claim 23, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered orally.
25. The method of claim 23, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered at a dose in the range of from 2mg per day to 20 mg per day.
26. The method of any one of claims 1 to 25, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered in a composition comprising:
- (a) a solid core comprising sodium meta-arsenite or potassium meta-arsenite, and one or more pharmaceutically acceptable excipients, wherein the one or more

pharmaceutically acceptable excipients are selected such that oxidation of meta-arsenite to meta-arsenate is minimised;

and

(b) an enteric coating comprising an enteric polymer;

5 wherein the weight percentage of the enteric coating is from about 6% w/w to about 20% w/w with respect to the total weight of the pharmaceutical composition, and wherein the coating thickness is from about 6.5% to about 15% of the thickness of the pharmaceutical composition.

27. The method of any one of claims 1 to 25, wherein the sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) is administered in a composition
10 comprising:

(a) a solid core comprising sodium meta-arsenite or potassium meta-arsenite, and the following pharmaceutically acceptable excipients:

- 15 (i) a filler or diluent in a range of from about 5 to 95% w/w,
(ii) a disintegrant in a range of from about 10 to 90% w/w,
(iii) a glidant in a range of from about 0.1 to 5% w/w,
(iv) a lubricant in a range of from about 0.1 to 5% w/w, and
(v) optionally a binder in a range of from 0 to about 30% w/w;
and

(b) an enteric coating comprising an enteric polymer;

20 wherein the pharmaceutically acceptable excipients are selected such that oxidation of meta-arsenite to meta-arsenate is minimised,

wherein the weight percentage of the enteric coating is from about 6% w/w to about 20% w/w with respect to the total weight of the pharmaceutical composition, and

25 wherein the coating thickness is from about 6.5% to about 15% of the thickness of the pharmaceutical composition.

28. A pharmaceutical composition when used for reducing an inflammatory response due to a viral infection, and/or treating or preventing an inflammatory condition due to a viral infection, by oral administration, the composition comprising:

30 (a) a solid core comprising sodium meta-arsenite or potassium meta-arsenite, and one or more pharmaceutically acceptable excipients, wherein the one or more pharmaceutically acceptable excipients are selected such that oxidation of meta-arsenite to meta-arsenate is minimised;

and

(b) an enteric coating comprising an enteric polymer;

wherein the weight percentage of the enteric coating is from about 6% w/w to about 20% w/w with respect to the total weight of the pharmaceutical composition, and wherein the coating thickness is from about 6.5% to about 15% of the thickness of the pharmaceutical composition.

- 5 29. A pharmaceutical composition when used for reducing an inflammatory response due to a viral infection, and/or treating or preventing an inflammatory condition due to a viral infection, by oral administration, the composition comprising:
- (a) a solid core comprising sodium meta-arsenite or potassium meta-arsenite, and the following pharmaceutically acceptable excipients:
 - 10 (i) a filler or diluent in a range of from about 5 to 95% w/w,
 - (ii) a disintegrant in a range of from about 10 to 90% w/w,
 - (iii) a glidant in a range of from about 0.1 to 5% w/w,
 - (iv) a lubricant in a range of from about 0.1 to 5% w/w, and
 - (v) optionally a binder in a range of from 0 to about 30% w/w;
 - 15 and
 - (b) an enteric coating comprising an enteric polymer;
- wherein the pharmaceutically acceptable excipients are selected such that oxidation of meta-arsenite to meta-arsenate is minimised,
- wherein the weight percentage of the enteric coating is from about 6% w/w to about 20% w/w with respect to the total weight of the pharmaceutical composition, and
- wherein the coating thickness is from about 6.5% to about 15% of the thickness of the pharmaceutical composition.
- 20 30. Use of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) in the manufacture of a medicament for reducing an inflammatory response due to a viral infection in a subject.
- 25 31. Use of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) in the manufacture of a medicament for treating or preventing an inflammatory condition due to a viral infection in a subject.
32. Use of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) in the manufacture of a medicament for treating or preventing hypercytokinemia due to a viral infection in a subject.
- 30 33. Use of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) in the manufacture of a medicament for treating a viral infection in a subject.

34. Use of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) in the manufacture of a medicament for reducing $\text{TNF-}\alpha$, $\text{IL-1}\beta$, and/or IL-6 levels in a subject suffering from an inflammatory condition due to a viral infection.
35. The use of any one of claims 30 to 34, wherein the viral infection is a coronavirus infection.
36. Use of sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$) in the manufacture of a medicament for treating a coronavirus infection in a subject.
37. The use of claim 35 or 36, wherein the coronavirus infection is caused by SARS-CoV-2.
38. The use of any one of claims 30 to 37, wherein the medicament is formulated for oral administration.
39. The use of any one of claims 30 to 38, wherein the medicament comprises a pharmaceutical composition comprising:
- (a) a solid core comprising sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$), and one or more pharmaceutically acceptable excipients, wherein the one or more pharmaceutically acceptable excipients are selected such that oxidation of meta-arsenite to meta-arsenate is minimised; and
 - (b) an enteric coating comprising an enteric polymer;
- wherein the weight percentage of the enteric coating is from about 6% w/w to about 20% w/w with respect to the total weight of the pharmaceutical composition, and wherein the coating thickness is from about 6.5% to about 15% of the thickness of the pharmaceutical composition.
40. The use of any one of claims 30 to 38, wherein the medicament comprises a pharmaceutical composition comprising:
- (a) a solid core comprising sodium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{Na}^+$) or potassium meta-arsenite ($\text{O}=\text{As}-\text{O}^- \text{K}^+$), and the following pharmaceutically acceptable excipients:
 - (i) a filler or diluent in a range of from about 5 to 95% w/w,
 - (ii) a disintegrant in a range of from about 10 to 90% w/w,
 - (iii) a glidant in a range of from about 0.1 to 5% w/w,
 - (iv) a lubricant in a range of from about 0.1 to 5% w/w, and
 - (v) optionally a binder in a range of from 0 to about 30% w/w;and

(b) an enteric coating comprising an enteric polymer;

wherein the pharmaceutically acceptable excipients are selected such that oxidation of meta-arsenite to meta-arsenate is minimised,

wherein the weight percentage of the enteric coating is from about 6% w/w to about 20% w/w with respect to the total weight of the pharmaceutical composition, and

wherein the coating thickness is from about 6.5% to about 15% of the thickness of the pharmaceutical composition.

41. A pharmaceutical composition for oral administration comprising:

(a) a solid core comprising sodium meta-arsenite or potassium meta-arsenite, and one or more pharmaceutically acceptable excipients, wherein the one or more pharmaceutically acceptable excipients are selected such that oxidation of meta-arsenite to meta-arsenate is minimised;

and

(b) an enteric coating comprising an enteric polymer;

wherein the weight percentage of the enteric coating is from about 6% w/w to about 20% w/w with respect to the total weight of the pharmaceutical composition, and wherein the coating thickness is from about 6.5% to about 15% of the thickness of the pharmaceutical composition;

for use in reducing an inflammatory response due to a viral infection in a subject;

for use in treating or preventing an inflammatory condition due to a viral infection in a subject;

for use in treating or preventing hypercytokinemia due to a viral infection in a subject;

for use in treating a viral infection in a subject;

for use in reducing TNF- α , IL-1 β , and/or IL-6 levels in a subject suffering from an inflammatory condition due to a viral infection; or

for use in treating a coronavirus infection in a subject.

42. A pharmaceutical composition for oral administration comprising:

(a) a solid core comprising sodium meta-arsenite or potassium meta-arsenite, and the following pharmaceutically acceptable excipients:

- (i) a filler or diluent in a range of from about 5 to 95% w/w,
- (ii) a disintegrant in a range of from about 10 to 90% w/w,
- (iii) a glidant in a range of from about 0.1 to 5% w/w,
- (iv) a lubricant in a range of from about 0.1 to 5% w/w, and

(v) optionally a binder in a range of from 0 to about 30% w/w;

and

(b) an enteric coating comprising an enteric polymer;

5 wherein the pharmaceutically acceptable excipients are selected such that oxidation of meta-arsenite to meta-arsenate is minimised,

wherein the weight percentage of the enteric coating is from about 6% w/w to about 20% w/w with respect to the total weight of the pharmaceutical composition, and

wherein the coating thickness is from about 6.5% to about 15% of the thickness of the pharmaceutical composition;

10 for use in reducing an inflammatory response due to a viral infection in a subject;

for use in treating or preventing an inflammatory condition due to a viral infection in a subject;

for use in treating or preventing hypercytokinemia due to a viral infection in a subject;

for use in treating a viral infection in a subject;

15 for use in reducing TNF- α , IL-1 β , and/or IL-6 levels in a subject suffering from an inflammatory condition due to a viral infection; or

for use in treating a coronavirus infection in a subject.