

CLAIMS

What is claimed is:

1. A method of treating or preventing tissue adhesions in a subject that is undergoing a surgical procedure, the method comprising administering to the subject during the surgical procedure a therapeutically effective amount of a glutamine source topically to a tissue that is subject to adhesion formation, wherein a first dose of the glutamine source is administered within about 120 minutes after an initial surgical incision during the surgical procedure.
2. The method of claim 1, wherein the first dose of the glutamine source is administered within about 90 minutes after the initial surgical incision.
3. The method of claim 1, wherein the first dose of the glutamine source is administered within from about 30 minutes to about 120 minutes after the initial surgical incision.
4. The method of claim 3, wherein the first dose of the glutamine source is administered within from about 30 minutes to about 90 minutes after the initial surgical incision.
5. The method of claim 4, wherein the first dose of the glutamine source is administered within about 60 minutes after the initial surgical incision.
6. The method of claim 1, wherein one or more additional doses of the glutamine source is administered to the subject at specified periods of time after the first dose, at fixed intervals of time after the first dose, and/or just prior to closure of all surgical incisions.
7. The method of claim 1, wherein the surgical procedure affects the abdominal cavity of the subject.
8. The method of claim 1, wherein the surgical procedure affects the thoracic cavity of the subject.

9. The method of claim 1, wherein the surgical procedure affects the head, neck, or spine of the subject.
10. The method of claim 1, wherein the surgical procedure affects one or more limbs of the subject.
11. The method of claim 1, wherein the glutamine source is selected from the group consisting of glutamine, alanyl-glutamine dipeptide, glutamyl-glutamine dipeptide, glycyl-glutamine dipeptide, dichloroacetylglutamine, acetylglutamine, butyrylglutamine, pyruvylglutamine, glutamine linked to a small molecule containing a carboxylic or amino function that can form a peptide bond with a carboxylic or an amino functions of glutamine, and glutamine conjugated to any other suitable organic acid via an amino ester bond.
12. The method of claim 11, wherein the glutamine in the glutamine source is L-glutamine.
13. A method of treating or preventing hypoxia-associated tissue damage in a subject that is undergoing a surgical procedure, the method comprising administering to the subject during the surgical procedure a therapeutically effective amount of a glutamine source topically to a tissue subject to hypoxia-associated tissue damage, wherein a first dose of the glutamine source is administered within about 120 minutes after an initial surgical incision during the surgical procedure.
14. The method of claim 13, wherein the first dose of the glutamine source is administered within about 90 minutes after the initial surgical incision.
15. The method of claim 13, wherein the first dose of the glutamine source is administered within from about 30 minutes to about 120 minutes after the initial surgical incision.
16. The method of claim 15, wherein the first dose of the glutamine source is administered within from about 30 minutes to about 90 minutes after the initial surgical incision.

17. The method of claim 16, wherein the first dose of the glutamine source is administered within about 60 minutes after the initial surgical incision.
18. The method of claim 13, wherein one or more additional doses of the glutamine source is administered to the subject at specified periods of time after the first dose, at fixed intervals of time after the first dose, and/or just prior to closure of all surgical incisions.
19. The method of claim 13, wherein the surgical procedure affects the abdominal cavity of the subject.
20. The method of claim 13, wherein the surgical procedure affects the thoracic cavity of the subject.
21. The method of claim 13, wherein the surgical procedure affects the head, neck, or spine of the subject.
22. The method of claim 13, wherein the surgical procedure affects one or more limbs of the subject.
23. The method of claim 13, wherein the glutamine source is selected from the group consisting of glutamine, alanyl-glutamine dipeptide, glutamyl-glutamine dipeptide, glycyl-glutamine dipeptide, dichloroacetylglutamine, acetylglutamine, butyrylglutamine, pyruvylglutamine, glutamine linked to a small molecule containing a carboxylic or amino function that can form a peptide bond with a carboxylic or an amino functions of glutamine, and glutamine conjugated to any other suitable organic acid via an amino ester bond.
24. The method of claim 23, wherein the glutamine in the glutamine source is L-glutamine.
25. A method for reducing HIF-1 α in hypoxia-associated damaged tissue in a subject that is undergoing a surgical procedure, the method comprising administering to the subject

during the surgical procedure a therapeutically effective amount of a glutamine source topically to the damaged tissue, wherein a first dose of the glutamine source is administered within about 120 minutes after an initial surgical incision during the surgical procedure.