Claims

1. A method of disrupting microbial quorum sensing of microbes / microorganisms capable of forming biofilm, comprising applying lamellar bodies to the microbes.

2. A composition comprising a therapeutically effective amount of lamellar bodies for use in the treatment of a microbial infection.

3. Use of a composition comprising a therapeutically effective amount of lamellar bodies in the manufacture of a medicament for the treatment of a microbial infection.

4. The use of claim 3, wherein the microbial infection is associated with biofilm production.

5. A composition comprising a therapeutically effective amount of lamellar bodies and at least a first non-lamellar body antimicrobial active agent, for use in the treatment of a microbial infection.

6. Use of a composition comprising a therapeutically effective amount of lamellar bodies and at least a first non-lamellar body antimicrobial active agent in the manufacture of a medicament for the treatment of a microbial infection.

7. The use of claim 6, wherein the antimicrobial agent is an antibiotic.

8. The use of any one of the preceding claims, wherein the microbial infection is an infection of the lung or the eye.

9. The use of any one of the preceding claims, wherein the first non-lamellar body antimicrobial active agent is provided to a site of microbial infection by a different route to that of the lamellar bodies.

10. The use of any one of the preceding claims, wherein the microbial infection is an infection of the lung or airways wherein the first non-lamellar body antimicrobial active agent is provided intravenously and the lamellar bodies are provided intranasally.

11. The use of any one of the preceding claims, wherein the at least first antimicrobial active agent and the lamellar bodies are provided in combination separately, sequentially or simultaneously.

12. The use of claim 3 or claim 4, wherein the microbial infection is a bacterial infection.

13. The use of claim 12, wherein the bacterial infection is selected from the group consisting of *Pseudomonas*, *Burkholderia* and *Staphylococcus* spp

14. The method as claimed in claim 1 to increase a cell density of a population of microorganisms, said method comprising the steps:
    - applying the lamellar bodies by introducing lamellar bodies to a culture medium of microorganisms capable of forming a biofilm,
    - growing the microorganisms in the culture medium including lamellar bodies, wherein the microorganisms when grown in a culture including lamellar bodies grow to a greater cell density than the cell density of a culture medium of otherwise identical microorganisms that does not include the lamellar bodies and is cultured under identical culture conditions.

15. The method as claimed in claim 1 to increase the volumetric productivity of a population of microorganisms, the method comprising:

a) applying the lamellar bodies by introducing lamellar bodies to a culture medium of microorganisms, capable of forming biofilm, and

b) growing the microorganisms;

wherein the volumetric productivity of the microorganisms is greater in the presence of the lamellar bodies with respect to a fermentation product produced by the microorganisms than the volumetric productivity of the fermentation product of the microorganism in the absence of lamellar bodies.

16. A method as claimed in claim 15 to provide a fermentation product, said method comprising:
a) providing genetically modified microorganisms, capable of producing a fermentation product,
b) culturing the modified microorganisms in a culture medium to which lamellar bodies have been applied, wherein the genetically modified micro-organisms have the ability to achieve a higher volumetric productivity for the fermentation product than the volumetric productivity for the same fermentation product when produced in a culture medium which does not include the lamellar bodies.

17. A kit of parts comprising lamellar bodies and an antimicrobial active agent for separate, sequential or simultaneous treatment of microbes to disrupt microbial quorum sensing and microbial biofilm formation.

18. A method, composition, use or a kit as claimed in any preceding claim wherein the lamellar bodies comprise phosphatidylcholine, sphingomyelin, phosphatidyl ethanolamine, phosphatidyl serine, phosphatidyl inositol and cholesterol.

19. A method, composition, use or a kit as claimed in any preceding claim wherein the lamellar bodies comprise in the range 44-70% phosphatidylcholine, in the range 15-23% sphingomyelin, in the range 6-10% phosphatidyl ethanolamine, in the range 2-6% phosphatidyl serine, in the range 2-4% phosphatidyl inositol and in the range 4-12% cholesterol by weight.

20. A method, composition, use or a kit as claimed in any preceding claim wherein the microbial biofilm is formed by a microbe selected from the group comprising bacteria, viruses, fungi, yeasts and protozoa.

21. A method, composition, use or kit as claimed in any preceding claim wherein the microbial infection is an implant-associated and/or a catheter-associated and/or an indwelling medical device-associated infection.

22. A method, composition, use or a kit as claimed in any preceding claim wherein an antimicrobial active agent used in combination with a lamellar body is an antibiotic selected from the group comprising piperacillin, aztreonam, meropenem, gentamycin, tobramycin, erythromycin, tazocin and ciprofloxacin, ceftazidime or combinations thereof.

23. Use of lamellar bodies which act as a quorum sensing antagonist in the manufacture of a medicament for the treatment of a microbial infection associated with biofilm production in a subject wherein the medicament is to be provided to a site of microbial infection.

24. Use of lamellar bodies in the manufacture of a medicament for the prevention or retardation of a process or condition in a subject when the condition is caused by quorum signaling/sensing molecules of microbes and wherein the medicament is to be provided to a site of the microbes.