Claims

1. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use in a method of treating bacterial infections involving biofilm wherein the method comprises administering Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof in combination with at least one further agent or pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof, selected from the group consisting of lipopeptides, glycopeptides and lincosamides to the patient, wherein preferably the lipopeptide is Daptomycin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof, preferably the glycopeptide is Vancomycin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof, and preferably the lincosamide is Clindamycin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof, and wherein the combination of Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof and Daptomycin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof is particularly preferred.

2. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to claim 1, wherein the biofilm contains or consists of *staphylococcus* bacteria.

3. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 2, wherein the *staphylococcus* bacteria are selected from the group consisting of:

    - Staphylococcus aureus, including community-acquired Staphylococcus aureus, and hospital-acquired Staphylococcus aureus
    - Coagulase negative Staphylococci (CoNS), for instance Staphylococcus epidermidis, Staphylococcus haemolyticus, Staphylococcus lugdunensis, Staphylococcus simulans, Staphylococcus hominis, wherein the CoNS is preferably Staphylococcus epidermidis,
    - Methicillin-susceptible or methicillin-resistant Staphylococci wherein the Staphylococcus is preferably Staphylococcus aureus or Staphylococcus epidermidis,
    - Staphylococcus aureus strains, or CoNS strains wherein said strains are resistant to one or more antibiotic and wherein said antibiotic is preferably selected from β-lactams, Cephalosporins, Glycopeptides such as Vancomycin, Linezolid, Lincosamides such as Clindamycin, Rifampicin, Lipopeptides such as Daptomycin, Fluoroquinolones, Trimethoprim/Sulfamethoxazole, Fosfomycin, Fusidic acid, Tigecycline, Tetracyclines, and Dalbavancin, and wherein the CoNS strains is preferably Staphylococcus epidermidis,
    - Multidrug resistant Staphylococcus strains wherein the multidrug resistant staphylococcus strain is preferably selected from the group consisting of Multidrug resistant Staphylococcus aureus strains and Multidrug resistant CoNS strains, and wherein the Multidrug resistant CoNS strains is preferably Staphylococcus epidermidis,

    wherein, preferably the staphylococcus bacterium is Staphylococcus aureus and/or CoNS wherein the CoNs is preferably S. epidermidis.

4. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 3, wherein the bacterial infection is associated with an open wound and/or wet wound and/or a wound with drainage in place, and preferably wherein the bacterial infection is associated with an open wound.

5. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 4, wherein the Afacicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof in combination with the at least one further agent is administered during a perioperative period and is preferably administered pre and/or post operatively.

6. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 5, wherein the bacterial infection involves biofilm that contains staphylococcu*s* bacteria resistant to rifampicin.

7. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 6, wherein the bacterial infection involves biofilm that contains methicillin-resistant *staphylococci*, and preferably wherein the staphylococci is Staphylococcus aureus or a CoNS wherein the CoNS is preferably Staphylococcus epidermidis.

8. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 7, wherein the bacterial infection is selected from the group consisting of:

    - a medical implant associated infection,
    - osteomyelitis,
    - infections in cystic fibrosis patients,
    - pleuropulmonary infections such as pneumoniae, preferably wherein the pleuropulmonary infection is chronic, and more preferably wherein the pleuropulmonary infections is obstructive pulmonary disease,
    - endocarditis and preferably wherein the endocarditis is native valve endocarditis,
    - wound infections, preferably wherein said wound infections are chronic,
    - mastitis,
    - sinusitis, preferably wherein said sinusitis is chronic,
    - otitis media, preferably wherein said otitis media is chronic,
    - urinary tract infections,
    - tonsillitis, preferably wherein said tonsillitis is chronic,
    - laryngitis, preferably wherein said laryngitis is chronic,
    - infection associated with kidney stones
    - biliary tract infections,
    - aerobic vaginitis,
    - septic thrombophlebitis,
    - infections associated with intracellular biofilms, for instance in Kupffer cells or in tonsillar cells, and

- colonization by Staphylococcus aureus that predisposes the patient to infections.

9. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 8, wherein the bacterial infection is a medical implant associated infection and wherein the medical implant is a permanent indwelling device and preferably is a prosthetic joint.

10. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 9, wherein the bacterial infection is a medical implant associated infection and preferably is selected from a catheter-associated infection, an infection associated with endotracheal tubes, an infection associated with voice prostheses, an infection associated with soft tissue fillers wherein said soft tissue fillers can be permanent or semi-permanent.

11. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 10, wherein the method includes a step of debridement in addition to the administration of Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof in combination with the at least one further agent.

12. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to claims 8, 9, 10 or 11, wherein said method includes a step of exchanging the medical implant in addition to the administration of Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof in combination with the at least one further agent.

13. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to claim 12, wherein the step of administering Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof in combination with the at least one further agent is carried out prior to and/or after the step of exchanging the medical implant, and wherein said administration is preferably carried out prior to and after the step of exchanging the medical implant.

14. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 13, wherein Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof is administered intravenously, orally, parenterally and/or topically and/or transdermally.

15. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 14, wherein Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof is administered in a first stage intravenously and in a second stage orally.

16. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 15, wherein the at least one further agent is administered orally, parenterally, transdermally, intravenously and/or topically.

17. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to claim 12 or 13, wherein the method includes a first step of removal of the medical implant, a second step of intravenous administration of Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof in combination with the at least one further agent, a third step of introducing a new medical implant, a fourth step of intravenous administration of Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof in combination with the at least one further agent and a fifth step of oral administration of Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof in combination with the at least one further agent.

18. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to any one of claims 1 to 17, wherein the at least one further agent is selected from the group consisting of Daptomycin, Vancomycin, Surfactin, A54145, Amphomycin, Friulimicin, laspartomycin, WAP-8294A_2, Katanosin, Plusbacin A_3, Oritavancin, Telavancin, Teicoplanin, Dalbavancin, Ramoplanin, Mannopeptimycin, Clindamycin, Lincomycin and Pirlimycin and/or a pharmaceutically acceptable salt, hydrate, solvate or polymorph of any of these agents.

19. Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use according to claim 18, wherein the at least one further agent is Daptomycin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof and/or Vancomycin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof and/or Clindamycin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof.

20. Daptomycin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use in a method of treating bacterial infections involving biofilm that preferably contains *staphylococcus* bacteria, wherein the method is as specified in any of claims 1 to 19.

21. Vancomycin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use in a method of treating bacterial infections involving biofilm that preferably contains *staphylococcus* bacteria, wherein the method is as specified in any of claims 1 to 19.

22. Clindamycin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof for use in a method of treating bacterial infections involving biofilm that preferably contains *staphylococcus* bacteria, wherein the method is as specified in any of claims 1 to 19

23. Method of treating, in a patient in need thereof, bacterial infections involving biofilm that preferably contains Staphylococcus bacteria, wherein the method is as specified in any one of claims 1 to 19.

24. Pharmaceutical composition for use in a method of treating bacterial infections involving biofilm that preferably contains *Staphylococcus* bacteria, the pharmaceutical composition comprising Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof and at least one further agent or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof selected from the group consisting of lipopeptides, glycopeptides and lincosamides,

preferably at least one further agent selected from group consisting of Daptomycin, Vancomycin, Surfactin, A54145, Amphomycin, Friulimicin, laspartomycin, WAP-8294A_2, Katanosin, Plusbacin A_3, Oritavancin, Telavancin, Teicoplanin, Dalbavancin, Ramoplanin, Mannopeptimycin, Clindamycin, Lincomycin and Pirlimycin, more preferably Daptomycin and/or Vancomycin and/or Clindamycin and/or a pharmaceutically acceptable salt, hydrate, solvate or polymorph of any of these agents, and wherein the method is as specified in any of claims 1 to 19.

25. Kit for use in a method of treating bacterial infections involving biofilm that preferably contains Staphylococcus bacteria, wherein the kit contains Afabicin or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof and at least one further agent or a pharmaceutically acceptable salt, hydrate, solvate or polymorph thereof selected from the group consisting of lipopeptides, glycopeptides and lincosamides, preferably at least one further agent selected from group consisting of Daptomycin, Vancomycin, Surfactin, A54145, Amphomycin, Friulimicin, laspartomycin, WAP-8294A_2, Katanosin, Plusbacin A_3, Oritavancin, Telavancin, Teicoplanin, Dalbavancin, Ramoplanin, Mannopeptimycin, Clindamycin, Lincomycin and Pirlimycin, more preferably Daptomycin and/or Vancomycin and/or Clindamycin and/ or a pharmaceutically acceptable salt, hydrate, solvate or polymorph of any of these agents, and wherein the method is as specified in any of claims 1 to 19.