CLAIMS

1. Use of a bismuth-thiol(BT) composition in the manufacture of a medicament for eliminating, reducing, or inhibiting formation of a biofilm based on a bacterial infection in an open wound, a chronic wound, or an acute wound that has or that is at risk for having a bacterial infection that is susceptible to formation of the biofilm, wherein the BT composition comprises a monodisperse suspension of solid microparticles of bismuth-ethanedithiol (BisEDT) that have a volumetric mean diameter of from 0.4 μm to 5 μm.

2. The use of claim 1, wherein the open wound, chronic wound or acute wound is an open wound.

3. The use of claim 2, wherein the open wound comprises an open fracture.

4. The use of claim 1, wherein the open wound, chronic wound or acute wound is a chronic wound.

5. The use of claim 1, wherein the open wound, chronic wound or acute wound is an acute wound.

6. The use of any one of claims 1-5, wherein the open wound, chronic wound or acute wound comprises either (i) a natural surface, or (ii) a natural surface and an artificial surface.

7. The use of claim 1 or 3, wherein the medicament comprises a bone cement.

8. The use of claim 7, wherein the composition is a hydrogel.

9. The use of claim 8, wherein the hydrogel comprises polymethylmethacrylate.

10. The use of claim 1, wherein the bacterial infection comprises at least one of:

(i) one or more gram-negative bacteria;

(ii) one or more gram-positive bacteria;

(iii) one or more antibiotic-sensitive bacteria;

(iv) one or more antibiotic-resistant bacteria; and

(v) a bacterial pathogen that is selected from the group consisting of *Staphylococcus aureus (S. aureus), MRSA (methicillin-resistant S. aureus), Staphylococcus epidermidis , MRSE (methicillin-resistant S. epidermidis), Mycobacterium tuberculosis, Mycobacterium avium, Pseudomonas aeruginosa, drug-resistant P. aeruginosa, Escherichia coli, enterotoxigenic E. coli, enterohemorrhagic E. coli, Klebsiella pneumoniae, Clostridium difficile, Heliobacter pylori, Legionella pneumophila, Enterococcus faecalis, methicillin-susceptible Enterococcus faecalis, Enterobacter cloacae, Salmonella typhimurium, Proteus vulgaris, Yersinia enterocolitica, Vibrio cholera, Shigella flexneri, vancomycin-resistant Enterococcus (VRE), ; Francisella tularensis, Bacillus anthracis, Yersinia pestis, Pseudomonas aeruginosa, Streptococcus pneumonia, penicillin-resistant Streptococcus pneumonia, Burkholderia cepacia, Bukholderia multivorans, Mycobacterium smegmatis and Acinetobacter baumannii.*

11. Use of a bismuth-thiol (BT) composition in the manufacture of a medicament for protecting an article of manufacture against a bacterial pathogen,

wherein the medicament is for use in contacting a surface of the article of manufacture with or incorporating into the article of manufacture an effective amount of the bismuth-thiol (BT) composition under conditions and for a time sufficient for one or more of:

(i) prevention of infection of the article of manufacture by the bacterial pathogen,

(ii) inhibition of cell viability or cell growth of substantially all planktonic cells of the bacterial pathogen,

(iii) inhibition of biofilm formation by the bacterial pathogen, and

(iv) inhibition of biofilm viability or biofilm growth of substantially all biofilm-form cells of the bacterial pathogen,

wherein the BT composition comprises a monodisperse suspension of solid microparticles of bismuth-ethanedithiol (BisEDT) that have a volumetric mean diameter of from 0.4 μm to 5 μm, and contacting the surface of the article of manufacture with the medicament or incorporating the medicament into the article of manufacture is carried out ex vivo, wherein the surface of the article of manufacture is present (i) on a medical device or medical implant, or (ii) on a dental device or dental implant.

12. The use of claim 11, wherein the medical device or medical implant is a bone or joint prosthesis, a catheter, a stent, a feeding tube or a gastrostomy tube.

13. The use of any one of claims 11, wherein the article of manufacture comprises one or more of a cement surface, a concrete surface, a rubber surface, a silicone surface, a plastic surface, a painted surface, or a coated surface.

14. The use of claim 11, wherein

the article of manufacture is protected against a bacterial pathogen,

the article of manufacture comprises a bone or joint prosthesis, and

wherein the BT composition further comprises a bone cement.

15. The use of claim 14, wherein the composition is a hydrogel.

16. The use of clam 15, wherein the hydrogel comprises polymethylmethacrylate.

17. The use of any one of claims 1-16, wherein the microparticles have not been milled, or subjected to supercritical fluid processing.