Claims:

1. An antibacterial composition for use in the treatment of wounds, wherein the composition comprises ligand-modified copper oxo-hydroxide nanoparticles and a pharmaceutically acceptable carrier, wherein the copper oxo-hydroxide nanoparticles have a structure in which the one or more ligands are non-stoichiometrically substituted for the oxo or hydroxy groups, wherein the one or more ligands comprise a carboxylic acid ligand, or an ionised form thereof and the copper is present in pharmaceutical formulation as free copper ions (Cu^{2+}).

2. An antibacterial composition for use in the treatment or prevention of a microbial infection, wherein the composition comprises ligand-modified copper oxo-hydroxide nanoparticles and a pharmaceutically acceptable carrier, wherein the copper oxo-hydroxide nanoparticles have a structure in which the one or more ligands are non-stoichiometrically substituted for the oxo or hydroxy groups, wherein the one or more ligands comprise a carboxylic acid ligand, or an ionised form thereof and the copper is present in pharmaceutical formulation as free copper ions (Cu^{2+}).

3. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to claim 1 or claim 2, wherein the composition is for treating a human or animal subject.

4. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to claim 2 or claim 3, wherein the microbial infection is a bacterial infection or a fungal infection.

5. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of claims 2 to 4, wherein the infection is caused by a gram-negative or a gram-positive bacterium.

6. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of claims 2 to 5, wherein the bacterial infection is caused by an *Escherichia sp., such as E. coli*, a *Staphylococcus sp., such as S. epidermis, S. aureus* or meticillin-resistant staphylococcus aureus ("MRSA"), a *Bacillus sp.*, such as *B. subtilis*, a *Pseudomonas sp., such as P. aeruginosa*, a *Vibrio sp.*, such as *V. fisheri*, a *Streptococcus sp., such as S. pyrogenes* and *S. pneumoniae*, a *Klebsiella sp.*, a *Micrococcus sp., such as M. luteus*, a *Clostridium sp.* such as *C. difficile*, an *Acinetobacter sp.* such as *A. baumannii*, a *Mycobacterium sp.*, such as *M. tuberculosis* or a *Salmonella sp.* a *Chlamydia sp.* or a fungal species such as a *Candida sp., such as C. albicans*.

7. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of claims 1 to 6, wherein the composition is for veterinary administration.

8. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of claims 1 to 7, wherein the treatment of prevention comprises coating or treating an article with an antibacterial composition.

9. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to claim 8, wherein the article is an implantable medical device or a coated substrate, such as a non-woven fabric substrate.

10. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of claims 1 to 7, wherein the composition is formulated for topical administration.

11. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of claims 1 to 9, wherein the composition is for the treatment of a skin disorder or a disorder of mucous membranes.

12. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of the preceding claims, wherein the material has a polymeric structure in which the ligands are distributed within the solid phase structure of the copper oxo-hydroxide.

13. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of the preceding claims, wherein the ligand-modified copper oxo-hydroxide nanoparticles have one or more reproducible physicochemical properties,wherein the one or more reproducible physicochemical properties are selected from dissolution profile, release of soluble copper as a percentage of total copper present in the composition and/or antibacterial activity as determined in a growth inhibition assay.

14. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of the preceding claims, wherein the carboxylic acid ligand is a linear or cyclic mono or dicarboxylic acid ligand, optionally wherein the carboxylic acid ligand or the ionised form thereof is tartaric acid or tartarate, gluconic acid or gluconate, adipic acid or adipate, succinic acid or succinate, malic acid or malinate, glutaric acid

or glutarate, pimelic acid or pimelate and/or glutathione, or wherein the carboxylic acid ligand is an amino acid or a sugar acid.

15. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of the preceding claims, wherein:

(a) the carboxylic acid ligand or the ionised form thereof is tartaric acid or tartarate or gluconic acid or gluconate or glutathione; or

(b) the carboxylic acid ligand or the ionised form thereof is tartaric acid or tartarate in combination with adipic acid or adipate.

16. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of the preceding claims, wherein:

(a) the nanoparticles in the composition have demonstrable M-L bonding as determined using infrared spectroscopy; and/or

(b) the nanoparticles in the composition are substantially amorphous as determined by XRD.

17. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of the preceding claims, wherein the nanoparticles have a mean diameter between 1 and 100 nm, and optionally wherein the nanoparticles have a mean diameter between 1 and 10 nm.

18. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of the preceding claims, wherein the composition is formulated at a pH between 6.0 and 8.0.

19. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of the preceding claims, wherein the composition further comprises a matrix in which the nanoparticles are formulated.

20. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to claim 19, wherein the matrix comprises hydroxyethylcellulose or PEG.

21. The antibacterial composition comprising copper oxo-hydroxide nanoparticles for use in the treatment or prevention according to any one of the preceding claims, wherein the

composition is for topical delivery, vaginal delivery, nasal delivery, rectal delivery or oral delivery.

22. A process for producing a copper oxo-hydroxide nanoparticle pharmaceutical composition according to any one of claims 1 to 21, the process comprising:

(a) mixing the solution comprising Cu^{2+} and a carboxylic acid ligand, and optionally one or more further ligands or reaction components, in a reaction medium at a first pH(A) at which the components are soluble;

(b) changing the pH(A) to a second pH(B) to cause a solid precipitate or a colloid of the copper oxo-hydroxide nanoparticle composition to be formed;

(c) separating, and optionally drying and/or formulating, the copper oxo-hydroxide nanoparticle composition produced in step (b).