CLAIMS:

1. Use of a programmable nuclease and a guide RNA or DNA encoding a guide RNA for the manufacture of a medicament for use in a method of treating a bacterial infection in a subject, wherein the bacterial infection is caused by first bacteria of a first species or strain, and the nuclease is programmable to cut a target site comprised by the chromosomes of the first bacteria that have infected the subject, whereby the first species or strain are killed, the treatment method comprising exposing the subject to the nuclease wherein the guide RNA complexes with the nuclease to program the nuclease to cut the target site, whereby chromosomes of the first bacteria comprised by the subject are cut and bacterial infection of the subject is treated

wherein the method comprises maintaining reduction of the infection by at least 100-fold for at least 60 minutes after exposing the subject to the programmed nuclease, and wherein the method comprises reducing the infection at least 100-fold by the first 30 minutes of the treatment,

wherein the nuclease is a Cas Nuclease,

wherein the nuclease and/or a nucleic acid that programs the nuclease to recognise and cut the target site is administered to the subject at a first time (T1) and at a second time (T2) wherein T2 is at least 1 hour after T1, and

wherein the subject is on an immunosuppressant medication.

2. The use of claim 1, wherein the method comprises reducing the infection such that the reduction in infection persists for 30 minutes immediately after the first 30 minutes of the treatment.

3. The use of any preceding claim, wherein

a. the nuclease is administered simultaneously or sequentially with the guide RNA or DNA encoding the guide RNA to the subject; or
b. the subject comprises the nuclease prior to administration of the guide RNA or DNA encoding the guide RNA to the subject.

4. The use of any preceding claim, wherein a plurality of viruses are administered to the subject, wherein each virus comprises a copy of the DNA encoding guide RNA, wherein the viruses infect the first bacteria comprised by the subject to deliver thereto the nucleic acid.

5. The use of claim 4, wherein the ratio of administered viruses : first bacteria comprised by the subject is from 10 to 150.

6. The use according to any preceding claim, wherein the subject is a human or animal, and wherein the subject has undergone surgery, or is suffering from a chronic disease.

7. The use according to any preceding claim, wherein the subject is suffering from a further disease or condition other than the pathogenic bacterial infection and the method comprises administering a therapy to the subject for treating or preventing the further disease or condition, wherein the nuclease treats the infection and the therapy is efficacious in the presence of the programmed nuclease to treat or prevent the disease or condition.

8. The use of claim 7, wherein (i) the subject is a cancer patient and the therapy comprises administration of a haematopoietic stem cell transplant, chemotherapeutic agent, immune checkpoint inhibitor, immune checkpoint agonist or an immune cell enhancer; adoptive cell therapy; radiation or surgery; or (ii) the therapy is a tissue, organ or cell transplant.

9. The use of any preceding claim, wherein the treatment of the infection treats or prevents in the subject a condition selected from vaginosis, meningitis, pneumonia, urinary tract infection, cystitis, nephritis, gastroenteritis, a skin infection, impetigo, erysipelas, cellulitis, septicaemia or sepsis in the subject.

10. The use according to any preceding claim, wherein the infection is reduced by at least 90% for 1 hour or more, optionally by the first 30 minutes, optionally by the first 15 minutes of the treatment.

11. The use according to any preceding claim, wherein the method treats or prevents septicaemia and/or sepsis in the subject, wherein the subject is a human and at the start of the treatment, the subject has a temperature of <36 °C or >38 °C; a heart rate of >90/min, a respiratory rate of >20 breaths/min or $PaCO_2$ <4.3 kPa; and white blood cell count of <4000/mm^3 or >12,000/mm^3.

12. The use of claim 11, wherein at the start of the treatment, the subject has presence of two or more of the following: abnormal body temperature, abnormal heart rate, abnormal respiratory rate, abnormal blood gas and abnormal white blood cell count.

13. The use of any preceding claim, wherein the subject is a human or animal, wherein blood infection of the subject by the bacteria is reduced at least 100- or 1000-fold by the first 30 minutes of the treatment.

20. A plurality of viruses, phage or phagemids for producing phage for use in the manufacture of a medicament according to any preceding claim when the viruses, phage or phagemids are with the nuclease of any preceding claim, wherein each virus, phage or phagemid comprises a copy of a DNA encoding a guide RNA as defined in any one of preceding claims, wherein the viruses or phage are capable of infecting first bacteria comprised by the subject to deliver thereto the DNA.

14. A composition comprising a plurality of DNA encoding one or more guide RNAs for programming the nuclease of any one of the preceding claims for use in the manufacture of a medicament of any preceding claim.

15. A CRISPR/Cas system comprising a nuclease according to any preceding claim for use in the manufacture of a medicament according to any preceding claim, wherein the nuclease is a Cas nuclease and the system comprises one or more guide RNAs or DNA encoding one or more guide RNAs, wherein each guide RNA is capable of programming the Cas nuclease to cut a target site comprised by the genomes of the microbes.

16. A guide RNA or a DNA encoding a guide RNA for use in the system of claim 15 for use in the manufacture of a medicament according to any preceding claim, wherein the infection is an acute bacterial infection in the subject, optionally septicaemia or sepsis wherein the subject is a human or animal.

17. A nucleic acid vector comprising the guide RNA or DNA recited in claim 15 or 16, wherein the vector is for use in the manufacture of aa medicament according to claims 15 or 16.

18. The vector of claim 17 wherein the vector is a phage, phagemid, viriophage, virus, plasmid or transposon.

19. A nuclease, plurality of viruses, phage, phagemids, system, guide RNA, DNA or vector of any one of claims 1 to 18, for use in treating an acute bacterial infection in a subject, wherein the method is as defined by any preceding claim

wherein reduction of the infection is maintained by at least 100-fold for at least 60 minutes after exposing the subject to the programmed nuclease,

wherein the subject is on an immunosuppressant medication.

20. The nuclease, viruses, phage, phagemids, system, guide RNA, DNA, vector, composition, or use of any preceding claim, wherein the first bacteria are *E coli* bacteria, optionally EHEC *E coli*, or *C difficle* bacteria.

21. The nuclease, viruses, phage, phagemids, system, guide RNA, DNA, vector, composition, or use of any preceding claim, wherein the first bacteria are *E coli* bacteria (optionally EHEC *E coli*) *Klebsiella* or *Pseudomonas* bacteria, the subject is a human and the infection is a lung infection.