CLAIMS

1. A peptide comprising an amino acid sequence having substantial identity to the amino acid sequence of one or more domains of Lon protease or a functional fragment or variant thereof.

2. The peptide of claim 1, wherein the Lon protease domain is

    a. the N-terminal domain,

    b. the AAA+ domain, or

    c. the C-terminal proteolytic domain.

3. The peptide of claim 2, wherein the N-terminal domain comprises part or all of the alpha helices region, or wherein the N-terminal domain omits part or all of the alpha helices region.

4. The peptide of any preceding claim, wherein

    a. the peptide comprises an amino acid sequence having substantial identity to the amino acid sequence of a first Lon protease domain and an amino acid sequence having substantial identity to the amino acid sequence of a second Lon protease domain, and/or

    b. the peptide comprises an amino acid sequence having substantial identity to only one domain, or only two domains of Lon protease, and/or

    c. the peptide comprises an amino acid sequence having substantial identity to the amino acid sequence of the N-terminal domain of Lon protease and an amino acid sequence having substantial identity to the amino acid sequence of another domain, and/or

    d. the peptide comprises an amino acid sequence having substantial identity to the amino acid sequence of the C-terminal proteolytic of Lon protease and an amino acid sequence having substantial identity to the amino acid sequence of another domain.

5. The peptide of any preceding claim, wherein the peptide does not comprise the amino acid sequence of whole wild-type Lon protease, and/or wherein the Lon protease is of bacterial origin.

6. The peptide of any preceding claim, wherein the peptide is less than about 780 amino acids in length, and/or wherein the peptide is more than about 110 amino acids in length.

7. The peptide of any preceding claim, comprising

   a. an amino acid sequence having substantial identity to the amino acid sequence of SEQ ID NO. 2 or 3 or a fragment or variant thereof, or

   b. an amino acid sequence having substantial identity to the amino acid sequence of SEQ ID NO. 4 or a fragment or variant thereof, or

   c. an amino acid sequence having substantial identity to the amino acid sequence of SEQ ID NO. 5 or a fragment or variant thereof.

8. The peptide of any preceding claim, wherein the peptide is isolated, substantially isolated, purified or substantially purified, optionally wherein the peptide is present in a form that comprises less than 10%, less than 5%, less than 2% or less than 1% of other components.

9. A polynucleotide encoding a peptide according to any preceding claim.

10. A vector comprising the polynucleotide of claim 9.

11. A host cell comprising the polynucleotide of claim 9 or the vector of claim 10.

12. A pharmaceutical composition comprising a peptide according to any of claims 1 to 8, or a polynucleotide according to claim 9 or a vector according to claim 10, and a pharmaceutically acceptable carrier.

13. Use of the peptide according to any of claims 1 to 8, the polynucleotide according to claim 9, or the vector according to claim 10in the preparation of a pharmaceutical composition for therapy.

14. Use of the peptide according to any of claims 1 to 8, the polynucleotide according to claim 9, or the vector according to claim 10 in the preparation of a pharmaceutical composition for the treatment or prevention of infections, especially bacterial infections, or the treatment of cancer or for use in the treatment of a disease modulated by L-MYC, N-MYC or C-MYC, or for use in regulating L-MYC, N-MYC or C-MYC.

15. A peptide comprising an amino acid sequence having the amino acid sequence of Lon Protease or a functional variant or fragment thereof for use in the treatment of a disease, such as an infection or cancer, wherein the disease is modulated by L-MYC or N-MYC.