CLAIMS

1. A CRISPR-Cas system chimeric RNA (chiRNA) comprising: (a) a guide sequence capable of hybridizing to a target sequence, (b) a tracr mate sequence capable of hybridizing to a tracr sequence and (c) a tracr sequence, in which the chiRNA is capable of forming a CRISPR-Cas complex with a *Staphylococcus aureus* Cas9 (SaCas9) protein and directing sequence-specific binding of the CRISPR-Cas complex to a target sequence adjacent to a protospacer adjacent motif (PAM) in a eukaryotic cell.

2. A CRISPR-Cas system chiRNA according to Claim 1, in which the PAM comprises NNGRR.

3. A CRISPR-Cas system chiRNA according to Claim 1 or 2, in which the tracr sequence is at least 30 nucleotides in length.

4. A CRISPR-Cas system chiRNA according to Claim 1, 2 or 3, in which the tracr sequence is at least 40 nucleotides in length.

5. A CRISPR-Cas system chiRNA according to any preceding claim, in which the tracr sequence is at least 50 nucleotides in length.

6. A CRISPR-Cas system chiRNA according to any preceding claim, in which the guide sequence is 10-30 nucleotides in length.

7. A CRISPR-Cas system chiRNA according to any preceding claim, in which the guide sequence is at least 20 nucleotides in length.

8. A CRISPR-Cas system chiRNA according to any preceding claim, in which the guide sequence is 20, 21, 22, 23 or 24 nucleotides in length.

9. A CRISPR-Cas system chiRNA according to Claim 1, in which the chiRNA comprises the following sequence:
NNNNNNNNNNNNNNNNNNNNGUUUUAGUACUCUGGAAACAGAAUCUACUAAA
ACAAGGCAAAAUGCCGUGUUUAUCUCGUCAACUUGUUGGCGAGAUUUUUUU.

10. A vector comprising a polynucleotide sequence encoding a CRISPR-Cas system chiRNA according to any preceding claim.

11. A vector according to Claim 10, in which the vector encodes two or more CRISPR-Cas system chiRNAs.

12. A vector according to Claim 10 or 11, further comprising a polynucleotide sequence encoding a SaCas9 protein which is codon-optimized for expression in a eukaryotic cell.

13. A vector according to Claim 10, 11 or 12, which is a viral vector.

14. A vector according to Claim 13, which is an adeno-associated virus (AAV) vector.

15. A composition comprising the CRISPR-Cas system chiRNA according to any of Claims 1 to 9 and a SaCas9 protein.

16. A composition comprising A CRISPR-Cas system chiRNA according to any of Claims 1 to 9 and an mRNA encoding a SaCas9 protein.

17. A composition according to Claim 15 or 16, in which the CRISPR-Cas system chiRNA and the SaCas9 protein or mRNA is comprised in a nanoparticle, liposome, exosome or microvesicle.

18. A eukaryotic cell comprising a CRISPR-Cas system chiRNA according to any of Claims 1 to 9, a vector according to any of Claims 10 to 14 or a composition according to Claim 15, 16 or 17.

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2. A CRISPR-Cas system chiRNA according to Claim 1, in which the PAM comprises NNGRR.

3. A CRISPR-Cas system chiRNA according to Claim 1 or 2, in which the tracr sequence is at least 30 nucleotides in length.

4. A CRISPR-Cas system chiRNA according to Claim 1, 2 or 3, in which the tracr sequence is at least 40 nucleotides in length.

5. A CRISPR-Cas system chiRNA according to any preceding claim, in which the tracr sequence is at least 50 nucleotides in length.

6. A CRISPR-Cas system chiRNA according to any preceding claim, in which the guide sequence is 10-30 nucleotides in length.

7. A CRISPR-Cas system chiRNA according to any preceding claim, in which the guide sequence is at least 20 nucleotides in length.

8. A CRISPR-Cas system chiRNA according to any preceding claim, in which the guide sequence is 20, 21, 22, 23 or 24 nucleotides in length.

9. A CRISPR-Cas system chiRNA according to Claim 1, in which the chiRNA comprises the following sequence:
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ACAAGGCAAAAUGCCGUGUUUAUCUCGUCAACUUGUUGGCGAGAUUUUUUU.

10. A vector comprising a polynucleotide sequence encoding a CRISPR-Cas system chiRNA according to any preceding claim.

11. A vector according to Claim 10, in which the vector encodes two or more CRISPR-Cas system chiRNAs.

12. A vector according to Claim 10 or 11, further comprising a polynucleotide sequence encoding a SaCas9 protein which is codon-optimized for expression in a eukaryotic cell.

13. A vector according to Claim 10, 11 or 12, which is a viral vector.

14. A vector according to Claim 13, which is an adeno-associated virus (AAV) vector.

15. A composition comprising a CRISPR-Cas system chiRNA according to any of Claims 1 to 9 and a SaCas9 protein.

16. A composition comprising a CRISPR-Cas system chiRNA according to any of Claims 1 to 9 and an mRNA encoding a SaCas9 protein.

17. A composition according to Claim 15 or 16, in which the CRISPR-Cas system chiRNA and the SaCas9 protein or mRNA is comprised in a nanoparticle, liposome, exosome or microvesicle.

18. A eukaryotic cell comprising a CRISPR-Cas system chiRNA according to any of Claims 1 to 9, a vector according to any of Claims 10 to 14 or a composition according to Claim 15, 16 or 17.