WHAT CLAIMED IS:

1. A modified dengue virus, comprising

a recoded prM protein, a recoded envelope (E) protein, or both,

wherein the recoded prM protein has a reduced codon pair bias compared to its parent prM protein encoding sequence, or has at least 5 codons substituted with synonymous codons less frequently used, or has an increased number of CpG or UpA di-nucleotides compared its parent prM protein encoding sequence, and

wherein the recoded E protein has a reduced codon pair bias compared to its parent E protein encoding sequence, or has at least 5 codons substituted with synonymous codons less frequently, or has an increased number of CpG or UpA di-nucleotides compared its parent E protein encoding sequence.

2. The modified dengue virus of claim 1, wherein expression of the prM protein or E protein or both are reduced compared to its parent dengue virus.

3. The modified dengue virus of claim 1, wherein the recoded prM protein has a reduced codon pair bias compared to its parent prM protein encoding sequence.

4. The modified dengue virus of claim 1, wherein the recoded prM protein has at least 5 codons substituted with synonymous codons less frequently used.

5. The modified dengue virus of claim 1, wherein the recoded prM protein has an increased number of CpG or UpA di-nucleotides compared its parent prM protein encoding sequence.

6. The modified dengue virus of claim 1, wherein the recoded E protein has a reduced codon pair bias compared to its parent E protein encoding sequence.

7. The modified dengue virus of claim 1, wherein the recoded E protein has at least 5 codons substituted with synonymous codons less frequently used.

8. The modified dengue virus of claim 1, wherein the recoded E protein has an increased number of CpG or UpA di-nucleotides compared its parent E protein encoding sequence.

9. The modified dengue virus of claim 1, wherein each of the recoded prM or E protein-encoding sequence has a codon pair bias of less than -0.05.

10. The modified dengue virus of claim 1, wherein the codon pair bias of each of the recoded prM or E protein-encoding sequence is reduced by at least 0.05.

11. The modified dengue virus of claim 1, wherein the modified dengue virus is selected from type 1, type 2, type 3, type 4 or a combination thereof.

12. The modified dengue virus of claim 1, where the modified dengue virus is a modified tetravalent dengue virus.

13. A dengue vaccine composition for inducing a protective immune response in a subject, comprising a modified dengue virus of any one of claims 1-12, and a pharmaceutically acceptable excipient or carrier.

14. A method of eliciting an immune response in a subject, comprising: administering to the subject an effective dose of a composition comprising a modified dengue virus of any of claims 1-12.

15. The method of claim 14, wherein the immune response is a protective immune response, and a prophylactically effective or therapeutically effective dose of a vaccine composition of claims is administered.

16. The method of claim 14, further comprising administering to the subject at least one adjuvant.

17. The method of claim 14, wherein the immune response is cross-protective against a heterologous dengue virus.

18. A method of eliciting an immune response in a subject in need thereof, comprising:

administering a prime dose of (i) an attenuated dengue virus produced by a method other than codon-pair deoptimization or codon deoptimization, or increasing of CpG or UpA di-nucleotides, or (ii) a modified dengue virus comprising a recoded prM protein, a recoded envelope (E) protein, or both, wherein the recoded prM protein has a reduced codon pair bias compared to its parent prM protein encoding sequence, or has at least 5 codons substituted with synonymous codons less frequently used, or has an increased number of CpG or UpA di-nucleotides compared its parent prM protein encoding sequence, and wherein the recoded E protein has a reduced codon pair bias compared to its parent E protein encoding sequence, or has at least 5 codons substituted with synonymous codons less frequently, or has an increased number of CpG or UpA di-nucleotides compared its parent E protein encoding sequence; and

administering one or more boost dose of (i) the attenuated dengue virus produced by methods other than codon-pair deoptimization or codon deoptimization, or increasing of CpG or UpA di-nucleotides, or (ii) the modified dengue virus to the subject in need thereof, wherein at least the prime dose or the one or more boost dose is the modified dengue virus.

19. The method of claim 18, wherein a first of the one or more boost dose is administered about 2 weeks after the prime dose.

20. The method of claim 18, wherein expression of the prM protein or E protein or both are reduced compared to its parent dengue virus.

21. The method of claim 18, wherein the recoded prM protein has a reduced codon pair bias compared to its parent prM protein encoding sequence.

22. The method of claim 18, wherein the recoded prM protein has at least 5 codons substituted with synonymous codons less frequently used.

23. The method of claim 18, wherein the recoded prM protein has an increased number of CpG or UpA di-nucleotides compared its parent prM protein encoding sequence.

24. The method of claim 18, wherein the recoded E protein has a reduced codon pair bias compared to its parent E protein encoding sequence.

25. The method of claim 18, wherein the recoded E protein has at least 5 codons substituted with synonymous codons less frequently used.

26. The method of claim 18, wherein the recoded E protein has an increased number of CpG or UpA di-nucleotides compared its parent E protein encoding sequence.

27. The method of claim 18, wherein each of the recoded prM or E protein-encoding sequence has a codon pair bias of less than -0.05.

28. The method of claim 18, wherein the codon pair bias of each of the recoded prM or E protein-encoding sequence is reduced by at least 0.05.

29. The method of claim 18, wherein the modified dengue virus is selected from type 1, type 2, type 3, type 4 or a combination thereof.

30. The method of claim 18, where the modified dengue virus is a modified tetravalent dengue virus.

31. A method of making a modified dengue virus genome comprising:

obtaining a nucleotide sequence encoding the envelope protein of a dengue virus;

recoding the envelope encoding nucleotide sequence to reduce protein expression, and

substituting a nucleic acid having the recoded envelope-encoding nucleotide sequence into a parent dengue virus genome to make a modified dengue virus genome; whereby expression of the recoded envelope-encoding nucleotide sequence is reduced compared to the parent virus.