What is claimed is:

1. A recombinant muscle-specific regulatory nucleic acid sequence, comprising:

a mammalian desmin promoter, wherein the mammalian desmin promoter comprises a nucleic acid sequence having at least 80% identity to a nucleic acid sequence selected from the group consisting of SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, and SEQ ID NO: 10;

a mammalian desmin enhancer; and

one or more mammalian muscle creatine kinase (MCK) enhancers,

wherein the mammalian desmin promoter, mammalian desmin enhancer, and mammalian MCK enhancer are operably linked.

2. The recombinant muscle-specific regulatory nucleic acid sequence of claim 1, wherein the mammalian desmin promoter comprises a nucleic acid sequence having at least 80% identity to a nucleic acid sequence selected from the group consisting of SEQ ID NO: 8 and SEQ ID NO: 10.

3. The recombinant muscle-specific regulatory nucleic acid sequence of claim 1 or 2, wherein the mammalian desmin enhancer is a human desmin enhancer.

4. The recombinant muscle-specific regulatory nucleic acid sequence of any one of claims 1 to 3, wherein the mammalian desmin enhancer comprises a nucleic acid sequence having at least 80% identity to the nucleic acid sequence of SEQ ID NO: 6.

5. The recombinant muscle-specific regulatory nucleic acid sequence of any one of claims 1 to 4, wherein the mammalian desmin enhancer comprises the nucleic acid sequence of SEQ ID NO: 6.

6. The recombinant muscle-specific regulatory nucleic acid sequence of any one of claims 1 to 5, wherein the one or more mammalian MCK enhancers are each a MCK CK7 enhancer.

7. The recombinant muscle-specific regulatory nucleic acid sequence of any one of claims 1 to 6, wherein the one or more mammalian MCK enhancers each comprise a nucleic acid sequence of SEQ ID NO: 2.

8. The recombinant muscle-specific regulatory nucleic acid sequence of any one of claims 1 to 7, wherein the one or more mammalian MCK enhancers each have a nucleic acid sequence with at least 80% identity to the nucleic acid sequence of SEQ ID NO: 1.

9. A vector comprising

a eukaryotic region sequence comprising a muscle-specific regulatory nucleic acid sequence of any one of the preceding claims.

10. The vector of claim 9, further comprising a spacer region that links the 5’ and 3’ ends of the eukaryotic region sequence and that comprises a bacterial replication origin and a RNA selectable marker.

11. The vector of claim 10, wherein the bacterial replication origin is a R6K bacterial replication origin.
12. The vector of claim 10 or 11, wherein the bacterial replication origin comprises a sequence having at least 80% identity to any one of SEQ ID NOs: 19-23.
13. The vector of any one of claims 10 to 12, wherein the RNA selectable marker comprises a sequence having at least 80% identity to SEQ ID NO: 24 or SEQ ID NO: 26.