Claims

1. An IGF-1 encoding DNA construct, comprising:

a first polynucleotide that has the sequence of (SEQ ID NO: 1) or a degenerate thereof;

a second polynucleotide that is the sequence of SEQ ID NO: 6 or SEQ ID NO: 7;

a third polynucleotide that has the sequence of (SEQ ID NO: 3) or a degenerate thereof;

a fourth polynucleotide that has the sequence of (SEQ ID NO: 4) or a fragment thereof; and

a fifth polynucleotide that has the sequence of (SEQ ID NO: 5) or a degenerate thereof,

wherein the first polynucleotide, the second polynucleotide, the third polynucleotide, the fourth polynucleotide and the fifth polynucleotide are linked in sequential 5' to 3' order.

2. The IGF-1 encoding DNA construct of claim **1**, wherein the fourth polynucleotide is a polynucleotide of SEQ ID NO: 8.

3. The IGF-1 encoding DNA construct of claim **1**, further comprising a plasmid vector.

4. The IGF-1 encoding DNA construct of claim **3**, wherein the plasmid vector is pCK.

5. The IGF-1 encoding DNA construct of claim **4**, wherein the construct is pCK-IGF-1X6 or pCK-IGF-1X10.

6. The IGF-1 encoding DNA construct of claim **3**, wherein the plasmid vector is pTx.

7. The IGF-1 encoding DNA construct of claim **6**, wherein the construct is pTx-IGF-1X10.

8. The IGF-1 encoding DNA construct of claim **6**, wherein the construct is pTx plasmid containing IGF-1X6 having the sequence of SEQ ID NO: 9.

9. A pharmaceutical composition comprising the IGF-encoding DNA construct of claim **8**.

10. A pharmaceutical composition comprising the IGF-1 encoding DNA construct of claim **1**.

11. The pharmaceutical composition of claim **10**, wherein the IGF-1 encoding DNA construct is pCK-IGF-1X6, pCK-IGF-1X10 or pTx-IGF-1X10.

12. An IGF-1 encoding DNA construct, comprising:

a first polynucleotide that has the sequence of SEQ ID NO: 1 or a degenerate thereof;

a second polynucleotide that has the sequence of SEQ ID NO: 2 or a fragment thereof;

a third polynucleotide that has the sequence of SEQ ID NO: 3 or a degenerate thereof;

a fourth polynucleotide that is the sequence of SEQ ID NO: 8; and

a fifth polynucleotide that has the sequence of SEQ ID NO: 5 or a degenerate thereof,

wherein the first polynucleotide, the second polynucleotide, the third polynucleotide, the fourth polynucleotide and the fifth polynucleotide are linked in sequential 5' to 3' order.

13. The IGF-1 encoding DNA construct of claim **12**, wherein the second polynucleotide has the sequence of SEQ ID NO: 6 or SEQ ID NO: 7.

14. The IGF-1 encoding DNA construct of claim **12**, further comprising a plasmid vector.

15. A pharmaceutical composition comprising the IGF-1 encoding DNA construct of claim **12**.