Claims

1. A polypeptide, wherein the polypeptide consists of:

a) the amino acid sequence of SEQ ID NO: 7, wherein the N-terminus of the polypeptide is ILGRSETQE; or

b) an ActRIIa portion consisting of the amino acid sequence of SEQ ID NO: 2, an immunoglobulin Fc domain, and a linker domain positioned between the ActRIIa portion and the Fc domain; and

wherein the polypeptide binds to activin and/or GDF11.

2. The polypeptide of claim 1, wherein the polypeptide binds to activin.

3. The polypeptide of claim 2, wherein the polypeptide binds to activin A.

4. The polypeptide of claim 2, wherein the polypeptide binds to activin B.

5. The polypeptide of claim 2, wherein the polypeptide binds to GDF11.

6. A pharmaceutical preparation comprising the polypeptide of claim 1 and one or more pharmaceutically acceptable excipients.

7. The polypeptide of claim 1, wherein the polypeptide is at least 95% pure, with respect to protein contaminants, as determined by size exclusion chromatography.

8. The pharmaceutical preparation of claim 6, wherein said preparation is substantially pyrogen free.

9. An isolated polynucleotide comprising a coding sequence for the polypeptide of any one of claims 1-5.

10. The isolated polynucleotide of claim 9, wherein the isolated polynucleotide comprises a sequence of SEQ ID NO: 14.

11. A recombinant polynucleotide comprising a promoter sequence operably linked to a polynucleotide of claim 9.

12. A cell transformed with a recombinant polynucleotide of claim 11, wherein the cell is a mammalian cell.

13. The cell of claim 12, wherein the cell is a CHO cell or a human cell.

14. A method of making a polypeptide, comprising: a) culturing a cell under conditions suitable for expression of the polypeptide, wherein said cell is transformed with the recombinant polynucleotide of claim 11; and b) recovering the polypeptide so expressed.