WHAT IS CLAIMED IS:

1. An isolated polypeptide of no more than 15 amino acids comprising an amino acid sequence of WEHVNAIQEARRLL (SEQ ID NO: 35), wherein the polypeptide has tissue protective activity.

2. An isolated polypeptide comprising an amino acid sequence consisting of WEHVNAIQEARRLL (SEQ ID NO: 35).

3. An isolated polypeptide comprising an amino acid sequence consisting of WEHVNAIQEARRLL (SEQ ID NO: 35), wherein one amino acid residue of the amino acid sequence is replaced with a conservative or non-conservative substitution, or an amino acid equivalent, and wherein the polypeptide has tissue protective activity.

4. The isolated polypeptide of claim 3, wherein the one replaced amino acid residue of said amino acid sequence is replaced with an amino acid equivalent.

5. The isolated polypeptide of claim 4, wherein said amino acid equivalent is an amino acid having a side chain modification or side chain substitution.

6. The isolated polypeptide of claim 3, wherein the one replaced amino acid residue of said amino acid sequence is replaced with a conservative substitution.

7. The isolated polypeptide of claim 3, wherein the one replaced amino acid residue of said amino acid sequence is replaced with a non-conservative substitution.

8. The isolated polypeptide of any one of claims 1-7, wherein said polypeptide is modified with an addition of polyethylene glycol.

9. The isolated polypeptide of any one of claims 1 and 3-7, wherein said tissue protective activity comprises protecting, maintaining, enhancing or restoring the function and/or viability in a responsive cell, tissue, or organ.

10. The isolated polypeptide of claim 9, wherein said responsive cell, tissue or organ is neuronal.

11. The isolated polypeptide of any one of claims 1 and 3-7, wherein said tissue protective activity is in excitable tissue selected from central nervous system tissue and peripheral nervous system tissue.

12. The isolated polypeptide of any one of claims 1 and 3-7, wherein said polypeptide is capable of traversing an endothelial cell barrier such as the blood-brain barrier, the blood-eye barrier, the blood-testes barrier, the blood-ovary barrier, the blood-nerve barrier, and the blood-spinal cord barrier.

13. A pharmaceutical composition comprising the isolated polypeptide of any one of claims 1-12 and a pharmaceutically acceptable carrier.

14. The pharmaceutical composition of claim 13, wherein said composition is formulated for oral, intranasal, ocular, inhalational, transdermal, rectal, sublingual, or parenteral administration, or wherein said composition is formulated as a perfusate solution.

15. The pharmaceutical composition of claim 13, wherein said composition is used for the prevention, therapeutic treatment or prophylactic treatment of a disease or disorder of the central or peripheral nervous system in a subject in need thereof.

16. The pharmaceutical composition of claim 13, wherein said composition is used as a tissue protective agent in the prevention, therapeutic treatment or prophylactic treatment of a disease associated with tissue damage in a subject in need thereof.

17. The pharmaceutical composition of claim 16, wherein said tissue damage is caused by ischemic, hypoxic, traumatic, or inflammatory injuries.

18. The pharmaceutical composition of claim 16, wherein the subject is a human.

19. An isolated nucleic acid comprising a nucleotide sequence encoding the isolated polypeptide of claim 1 or 2.

20. A vector comprising the nucleic acid of claim 19.

21. The vector of claim 20, wherein said vector is an expression vector.

22. A host cell containing the expression vector of claim 21.

23. A method of recombinantly producing an isolated polypeptide comprising (a) culturing in a medium the host cell of claim 22, under conditions suitable for the expression of said polypeptide, and (b) recovering and isolating said polypeptide from said medium.