WHAT IS CLAIMED IS:

1. An isolated peptide comprising the amino acid sequence UEQLERALNSS (SEQ ID NO. 282), wherein U is pyroglutamate.

2. An isolated peptide consisting of the amino acid sequence UEQLERALNSS (SEQ ID NO. 282), wherein U is pyroglutamate.

3. The isolated peptide of claim 1, wherein said peptide is modified with an addition of polyethylene glycol.

4. The isolated peptide of claim 1, wherein said peptide does not increase hemoglobin in a recipient.

5. The isolated peptide of any one of claims 1-4 that has tissue protective activity in a responsive cell, tissue, or organ, wherein the tissue protective activity is protecting, maintaining, enhancing or restoring the function and/or viability of said cell, tissue, or organ.

6. The isolated peptide of any one of claims 1-4, wherein said peptide is capable of traversing the endothelial cell barrier.

7. The isolated peptide of any one of claims 1-6, wherein said peptide is produced by chemical synthesis and has less than about 5 % (by dry weight) of chemical precursors or compounds other than the peptide.

8. A pharmaceutical composition comprising a therapeutically effective amount of the isolated peptide of any one of claims 1-7 and a pharmaceutically acceptable carrier.

9. The pharmaceutical composition of claim 8 for use in a method for treatment of a subject suffering from a disease associated with tissue damage.

10. The pharmaceutical composition for use of claim 9, wherein the disease associated with tissue damage is caused by cancer, ischemic, hypoxic, traumatic, toxic, or inflammatory injuries.

11. The pharmaceutical composition for use of claim 9, wherein the disease associated with tissue damage is a cardiovascular disease, cardiopulmonary disease, respiratory disease, kidney disease, disease of the urinary system, disease of the reproductive system, bone

disease, skin disease, gastrointestinal disease, endocrine abnormality, metabolic abnormality, cognitive dysfunction, or a disease or disorder of the central or peripheral nervous system.

12. The pharmaceutical composition of claim 8 for use in a method of preventing, treating, ameliorating, or managing cancer, a neoplastic disorder, inflammation, or toxic agent exposure in a subject in need thereof.

13. The pharmaceutical composition for use of claim 9, wherein the disease associated with tissue damage is a disease or disorder of the central nervous system.

14. The pharmaceutical composition for use of claim 9, wherein the disease associated with tissue damage is a disease or disorder of the peripheral nervous system.

15. The pharmaceutical composition for use of claim 9, wherein the disease associated with tissue damage is cognitive dysfunction.

16. The pharmaceutical composition for use of claim 9, wherein the disease associated with tissue damage is caused by inflammatory injuries.

17. The pharmaceutical composition for use of claim 16, wherein said inflammatory injuries are from sarcoidosis.

18. The pharmaceutical composition for use of claim 16, wherein said inflammatory injuries are from rheumatoid arthritis.

19. The pharmaceutical composition for use of claim 9, wherein the disease associated with tissue damage is caused by ischemic injuries.

20. The pharmaceutical composition for use of claim 9, wherein the disease associated with tissue damage is caused by hypoxic injuries.

21. The pharmaceutical composition for use of claim 9, wherein the disease associated with tissue damage is diabetes mellitus.

22. Use of the isolated peptide of any one of claims 1-7 in the manufacture of a pharmaceutical composition for use in treating a subject suffering from a disease associated with tissue damage.

23. The use of claim 22, wherein the disease associated with tissue damage is caused by cancer, ischemic, hypoxic, traumatic, toxic, or inflammatory injuries.

24. The use of claim 22, wherein the disease associated with tissue damage is a cardiovascular disease, cardiopulmonary disease, respiratory disease, kidney disease, disease of the urinary system, disease of the reproductive system, bone disease, skin disease, gastrointestinal disease, endocrine abnormality, metabolic abnormality, cognitive dysfunction, or a disease or disorder of the central or peripheral nervous system.

25. Use of the isolated peptide of any one of claims 1-7 in the manufacture of a pharmaceutical composition for use in a method for preventing, treating, ameliorating, or managing cancer, a neoplastic disorder, inflammation, or toxic agent exposure in a subject in need thereof.

26. The use of claim 22, wherein the disease associated with tissue damage is a disease or disorder of the central nervous system.

27. The use of claim 22, wherein the disease associated with tissue damage is a disease or disorder of the peripheral nervous system.

28. The use of claim 22, wherein the disease associated with tissue damage is cognitive dysfunction.

29. The use of claim 22, wherein the disease associated with tissue damage is caused by inflammatory injuries.

30. The use of claim 29, wherein said inflammatory injuries are from sarcoidosis.

31. The use of claim 29, wherein said inflammatory injuries are from rheumatoid arthritis.

32. The use of claim 22, wherein the disease associated with tissue damage is caused by ischemic injuries.

33. The use of claim 22, wherein the disease associated with tissue damage is caused by hypoxic injuries.

34. The use of claim 22, wherein the disease associated with tissue damage is diabetes mellitus.

WHAT IS CLAIMED IS:

1. A pharmaceutical composition for treating tissue damage in a subject comprising a purified peptide and a pharmaceutically acceptable carrier, wherein said purified peptide consists of the amino acid sequence UEQLERALNSS (SEQ ID NO. 282).

2. The pharmaceutical composition of claim 1, wherein said purified peptide is produced by chemical synthesis and has less than 5 % (by weight) of chemical precursors or compounds other than said purified peptide.

3. The pharmaceutical composition of claim 1 or 2, wherein said peptide is modified with an addition of polyethylene glycol.

4. The pharmaceutical composition of claim 1 or 2, wherein said peptide has tissue protective activity, wherein said tissue protective activity is protecting, maintaining, enhancing or restoring the function and/or viability of said cell, tissue, or organ.

5. The pharmaceutical composition of claim 1 or 2, wherein said peptide is capable of traversing the endothelial cell barrier.

6. The pharmaceutical composition of claim 1, wherein the tissue damage is caused by cancer, ischemic, hypoxic, traumatic, toxic, or inflammatory injuries.

7. The pharmaceutical composition of claim 1, wherein the tissue damage is associated with a cardiovascular disease, cardiopulmonary disease, respiratory disease, kidney disease, disease of the urinary system, disease of the reproductive system, bone disease, skin disease, gastrointestinal disease, endocrine abnormality, metabolic abnormality, cognitive dysfunction, or a disease or disorder of the central or peripheral nervous system.

8. The pharmaceutical composition of claim 1, wherein the tissue damage is associated with a disease or disorder of the central nervous system.

9. The pharmaceutical composition of claim 1, wherein the tissue damage is associated with a disease or disorder of the peripheral nervous system.

10. The pharmaceutical composition of claim 1, wherein the tissue damage is associated with cognitive dysfunction.

11. The pharmaceutical composition of claim 1, wherein the tissue damage is caused by inflammatory injuries.

12. The pharmaceutical composition of claim 11, wherein said inflammatory injuries are from sarcoidosis.

13. The pharmaceutical composition of claim 11, wherein said inflammatory injuries are from rheumatoid arthritis.

14. The pharmaceutical composition of claim 1, wherein the tissue damage is caused by ischemic injuries.

15. The pharmaceutical composition of claim 1, wherein the tissue damage is caused by hypoxic injuries.

16. The pharmaceutical composition of claim 1 or 2 for the prevention, treatment, amelioration or management of a cancer, a neoplastic disorder, inflammation, or tissue damages resulting from toxic agent exposure in a subject in need thereof.