CLAIMS

1. A pharmaceutical composition suitable for diagnostic *in vivo* use comprising a pharmaceutically acceptable salt of a ShK polypeptide having the sequence Tyr-AEEA-Arg-Ser-Cys-Ile-Asp-Thr-Ile-Pro-Lys-Ser-Arg-Cys-Thr-Ala-Phe-Gln-Cys-Lys-His-Ser-Met-Lys-Tyr-Arg-Leu-Ser-Phe-Cys-Arg-Lys-Thr-Cys-Gly-Thr-Cys-NH_2 (ShK-198), wherein the Shk polypeptide is attached at the amino terminus to a detectable label comprising either 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetic acid (DOTA)-chelate of Indium-111 (In^{111}) or DOTA-chelate of gadolinium (Gd).

2. The pharmaceutical composition of claim 1 formulated for long-term storage.

3. The pharmaceutical composition of claim 2 wherein the composition is contained in a sterile glass vial and is instructed to be stored at -70°C.

4. A unit of manufacture for pharmaceutical use comprising at least one glass vial prepared under sterile conditions that contains a pharmaceutical composition of claim 2, wherein the pharmaceutical composition within the glass vial is stable for at least six months at -70°C, and further comprising instructions for diluting and preparing the pharmaceutical composition for administration to a human.

5. A unit of manufacture for pharmaceutical use comprising at least one sterile syringe containing a pharmaceutical composition of claim 1, wherein the unit of manufacture further comprises instructions for administering the pharmaceutical composition to a human.

CLAIMS

1. A pharmaceutical composition comprising a pharmaceutically acceptable salt of a ShK polypeptide having the sequence of SEQ ID NO:1 or SEQ ID NO:2, wherein the ShK polypeptide is attached to an organic or inorganic chemical entity that has an anionic charge, and the C-terminus is an acid or an amide, wherein the pH of the pharmaceutical composition is between 5 and 7 and the pharmaceutical composition further comprises a surfactant in an amount effective to dissolve the ShK polypeptide in an aqueous carrier.

2. A pharmaceutical composition according to claim 1 in an aqueous carrier.

3. A pharmaceutical composition according to claim 1 or 2, wherein the ShK polypeptide is present at an amount from 0.01 mg/ml to 500 mg/ml.

4. A pharmaceutical composition according to any one of claims 1 to 3, wherein the surfactant is polysorbate 20.

5. A pharmaceutical composition according to claim 4, wherein the surfactant is polysorbate 20 at 0.05 w/v%.

6. A pharmaceutical composition according to any one of claims 1 to 5, wherein the pH is 6.0.

7. A pharmaceutical composition according to any one of claims 1 to 6, wherein the ShK polypeptide is obtained from a natural source.

8. A pharmaceutical composition according to any one of claims 1 to 6, wherein the ShK polypeptide is synthetic.

9. A pharmaceutical composition according to any one of claims 1 to 8, wherein the chemical entity is attached to the N-terminus of the ShK polypeptide.

10. A pharmaceutical composition according to claim 9, wherein the chemical entity is attached to the N-terminus of the ShK polypeptide through a linking molecule or linking group.

11. A pharmaceutical composition according to claim 10, wherein the chemical entity is attached to the N-terminus of the ShK polypeptide by an aminoethyloxyethyloxy-acetyl linker.

12. A pharmaceutical composition according to any one of claims 1 to 11, wherein the chemical entity is selected from the group consisting of AEEAc-L-Pmp(OH_2); AEEAc-D-Pmp(OH_2); AEEAc-D-Pmp(OH, Et); AEEAc-L-Pmp(Et_2); AEEAc-D-Pmp(Et_2); AEEAc-L-Tyr; AEEAc-L-Tyr(PO_3H_2); AEEAc-L-Phe(p-NH_2); AEEAc-L-Phe(p-CO_2H); AEEAc-L-Aspartate; AEEAc-D-Aspartate; AEEAc-L-Glutamate; and AEEAC-D-Glutamate.

13. A pharmaceutical composition according to any one of claims 1 to 12, wherein the composition is contained in a sterile glass vial and is instructed to be stored at -70°C.

14. A pharmaceutical composition according to any one of claims 1 to 13 formulated for subcutaneous administration.

15. A pharmaceutical composition according to claim 14, wherein the composition is contained in a sterile syringe.

16. A unit of manufacture for pharmaceutical use comprising at least one glass vial prepared under sterile conditions that contains a pharmaceutical composition according to any one of claims 1 to 15, and further comprising instructions for diluting and preparing the pharmaceutical composition for administration to a human.