

What is claimed is:

1. An isolate peptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1, 15-17, and 18-117.
2. The peptide of claim 1, wherein the amino acid sequence is a fusion peptide.
3. The peptide of claim 2, wherein the amino acid sequence is fused to a cell penetrating peptide or an endosomal release sequence.
4. The peptide of claim 3, wherein the cell penetrating peptide or the endosomal release sequence is selected from the group consisting of SEQ ID NOS: 118-137 or 140-159.
5. The peptide of claim 3, wherein a linker connects the amino acid sequence to the cell penetrating peptide or the endosomal release sequence.
6. The peptide of claim 5, wherein the linker is selected from the group consisting of SEQ ID NOS: 138, 139, 160, and 161.
7. The peptide of claim 2, wherein the cell penetrating peptide or the endosomal release sequence is fused to the amino acid sequence at an N- or a C-terminus.
8. The peptide of claim 7, wherein the fusion peptide is cyclized.
9. The peptide of claim 2, wherein the fusion peptide has an amino acid sequence selected from the group consisting of SEQ ID NOS: 2 and 4-14.
- ~~10. A method for in vivo inhibition of REST activity, the method comprising the step of contacting the peptide of claim 1 with CTDSP1.~~
- ~~104. The use of the peptide of claim 1 for use in the treatment of to treat traumatic brain injury, chronic pain, peripheral nerve injury, epilepsy, diabetes, Alzheimer's disease, Huntington's disease, brain tumors (including glioblastoma multiforme), or pancreatic cancer in an animal.~~
- ~~112. A method for treating alleviating, or ameliorating a disease selected from the group consisting of traumatic brain injury, chronic pain, peripheral nerve injury, epilepsy, diabetes, Alzheimer's disease, Huntington's disease, brain tumors (including glioblastoma multiforme), or pancreatic cancer in an animal in need thereof, the method comprising the step of administering to the animal the peptide of claim 1 effective to treat, alleviate, or ameliorate the disease.~~Use of the peptide of claim 1 in the manufacture of a medicament for the treatment, alleviation, or ameliorating of a disease selected from the group consisting of traumatic brain injury, chronic pain, peripheral nerve injury, epilepsy, diabetes, Alzheimer's disease, Huntington's disease, brain tumors (including glioblastoma multiforme), or pancreatic cancer in an animal in need thereof, wherein the peptide effective to treat, alleviate, or ameliorate the disease is to be administered to the animal.

13~~2~~. The ~~method~~use of claim 12~~1~~, wherein the peptide binds to CTDSP1.

14~~3~~. The ~~use method~~ of claim 12~~1~~, wherein peptide is to be administered intravenously, subcutaneously, orally, or via a mucosal membrane.

15~~4~~. The ~~use method~~ of claim 12~~1~~, wherein the peptide is to be administered in multiple doses over a period of time.

16~~5~~. The ~~use method~~ of claim 15~~4~~, wherein the period of time is less than one month.

16~~7~~. The ~~use method~~ of claim 15~~4~~, wherein the dosage is about 0.01 mg/kg to about 1g/kg.

17~~8~~. A pharmaceutical composition comprising the peptide of claim 1.

18~~9~~. The composition of claim 18~~7~~, wherein the peptide is contained in an oral solution, a caplet, a capsule, an injectable, an infusible, a suppository, a lozenge, a tablet, a cream, a salve, or an inhalant.

20~~19~~. The composition of claim 48~~17~~, further comprising an excipient.

20. The peptide of claim 2, wherein the fusion peptide has an amino acid sequence of SEQ ID NO: 13.