CLAIMS

1. Peptide molecule capable of being internalized into a cell, wherein the peptide molecule:
   (a) has an amino acid sequence selected from the group consisting of:
   GAAEAAARVYDLGLRRLRQRRRLRRERVRA (SEQ ID NO: 2);
   IREIMEKFGKQPVSLPARRLKLRGRKRRQR (SEQ ID NO: 3);
   YLKVVRKHHRVIAGQFFGHHHTDSFRMLYD (SEQ ID NO: 4); and
   an amino acid sequence having over its total length at least 70%, preferably at least 80% overall sequence identity with any one of SEQ ID NO: 2 to SEQ ID NO: 4; and
   (b) is internalized into a cell with an efficacy being at least 200% of the internalization efficacy of the TAT peptide having the amino acid sequence GRKKRRQRRRPPQ (SEQ ID NO: 1).

2. The peptide of claim 1, wherein at least a part of the peptide forms an alpha-helical secondary structure.

3. The peptide of claim 1 or 2, wherein the peptide is of mammalian, preferably of human origin.

4. Nucleic acid molecule encoding the peptide of any one of claims 1 to 3.

5. Vector comprising the nucleic acid molecule of claim 4.

6. Host cell comprising the vector of claim 5.

7. Method of producing the peptide of any one of claims 1 to 3, comprising:
   (a) culturing the host cell of claim 6 under suitable conditions; and
   (b) isolating the peptide produced.

8. Composition comprising at least one peptide of any one of claims 1 to 3 being attached to any one of the group consisting of one or more nucleic acid molecules, one or more peptides or proteins, one or more small molecules, and one or more nanoparticles, wherein the attachment is accomplished by a linkage selected from the group consisting of a covalent linkage and a non-covalent linkage.

9. The composition of claim 8, wherein the at least one peptide is attached to one or more other peptides.

10. The composition of claim 9, wherein the one or more other peptides form at least in part in an alpha-helical secondary structure.

11. The composition of claim 9 or 10, wherein the one or more other peptides are pro-apoptotic peptides.

12. Method of producing the composition of any one of claims 8 to 11, comprising:
    (a) providing at least one peptide of any one of claims 1 to 3; and
    (b) contacting the at least one peptide with any one of the group consisting of one or more nucleic acid molecules, one or more peptides or proteins, one or more small molecules, and one or more nanoparticles, thus allowing for forming an attachment.

13. *In vitro* method of detecting the internalization behavior of the peptide of any one of claims 1 to 5 or the composition of any one of claims 8 to 11, comprising:
    (a) administering the peptide or the composition to one or more cells; and
    (b) detecting the internalization of the peptide or the composition.

14. Pharmaceutical composition comprising at least one peptide of any one of claims 1 to 3 or the composition of any one of claims 8 to 11, and optionally further comprising one or more pharmaceutically acceptable excipients and/or additives.

15. Use of the peptide of any one of claims 1 to 3 or the composition of any one of claims 8 to 11 for the *in vitro* transformation or transfection of one or more cells.

16. The peptide of any one of claims 1 to 3 or the composition of any one of claims 8 to 11 for use in the prevention and/or treatment of a condition selected from the group consisting of cancer, immune diseases, cardiovascular diseases, neuronal diseases, infections, and inflammatory diseases.

17. Kit-of-parts, comprising at least any one of:

(a) the peptide of any one of claims 1 to 3;

(b) the nucleic acid molecule of claim 4;

(c) the vector of claim 5;

(d) the host cell of claim 6; and

(e) the composition of any of claims 8 to 11.