CLAIMS

1. Use of i) a first Pioneer Translation Product (PTP) consisting of a peptide having 7 to 50 amino acids which is expressed via a noncanonical translation mechanism from a nucleic acid sequence consisting of an intron or a LncRNA (Long non coding RNA) ii) a microvesicle, and iii) a pharmaceutically acceptable carrier or excipient in preparing a cancer vaccine composition for treating cancer in a human subject, wherein the first PTP is a tumor-associated Pioneer Translation Product (TA-PTP), the TA-PTP and microvesicle have been both obtained from the sarcoma or melanoma tumor of the subject to be vaccinated, and the TA-PTP has been obtained from the nuclear compartment of a sarcoma or melanoma cell of the subject.

2. The use according to claim 1, wherein the composition further comprises the full-length protein corresponding to the first PTP.

3. The use according to claim 1 or 2, wherein the microvesicles express both the first PTP and a second distinct TA-PTP obtained from the nuclear compartment of a tumor cell of the subject.

4. The use according to claim 1, wherein the tumor is a melanoma and the microvesicle is a melanosome.

5. The use according to claim 1, wherein the tumor is a sarcoma and the microvesicle is a sarcoma tumor-derived microvesicle.

6. The use according to anyone of claims 1 to 5, wherein the subject is a mammal, preferably a human being, and the composition comprises from 0.1 to 10 mg per kg of body weight of PTPs.

7. The use according to claim 6, wherein the composition in addition comprises 0.1 to 5 mg per kg of body weight of microvesicles.

8. A cancer vaccine composition as described in anyone of claims 1 to 7 for use in therapy in a human being.