WHAT IS CLAIMED IS:

1. Use of *Bifidobacterium longum 6-1*, in combination with an immune checkpoint inhibitor in the manufacture of a medicament for treating tumors in a subject.

2. Use of *Bifidobacterium longum 6-1* in the manufacture of a medicament for improving the effect of an immune checkpoint inhibitor in suppressing tumors in a subject.

3. The use of claim 1 or 2, further comprises to be administrated to the subject other bacteria (such as *Bifidobacterium, Lactobacillus, Clostridium, Enterococcus faecium, Prevotella stercorea, or Ruminococcus*).

4. The use of claim 1 or 2, wherein the *Bifidobacterium longum* is in the form of oral administration or injection administration.

5. The use of claim 1 or 2, wherein the *Bifidobacterium longum* is in the form of *Bifidobacterium longum* powder.

6. The use of claim 5, wherein the *Bifidobacterium longum* powder comprises *Bifidobacterium longum* and a first protectant.

7. The use of claim 6, wherein the first protectant comprises 8-50% of skimmed milk powder, 0.01-10% of sodium glutamate, and 8-50% of allolactose, 0.01-5% of Vc-Na, and 4-30% of starch, based on the total weight of the first protectant.

8. The use of claim 4, wherein the *Bifidobacterium longum 6-1* is in the form of oral liquid, tablet, capsule, or lyophilized powder.

9. The use of claim 1 or 2, wherein the *Bifidobacterium longum* is to be administered at a dose range of 104-1013 CFU/person/day in the medicament.

10. The use of claim 1 or 2, wherein the immune checkpoint inhibitor is PD-1 inhibitor, PD-L1 inhibitor or CTLA-4 inhibitor.

11. The use of claim 1 or 2, wherein the immune checkpoint inhibitor is Keytruda, Tecentriq, Nivolumab, Avelumab or Toripalimab.

12. The use of claim 1 or 2, wherein the tumor is selected from colon cancer, lung cancer, gastric cancer, liver cancer, head and neck cancer, cervical cancer, lymphoma, breast cancer, melanoma, kidney cancer or urothelial cancer.

13. The use of claim 1 or 2, wherein the *Bifidobacterium longum 6-1* is to be administrated before the immune checkpoint inhibitor.