F is a dimeric immunoglobulin Fc region, and

the - symbols represent covalent linkages between X and L and between L and F, respectively,

wherein in the long-acting conjugate, one end of L is covalently linked to only one polypeptide chain of the dimeric Fc region and X is covalently linked to the other end of L.

In the composition according to any one of the previous embodiments, the long-acting conjugate may include as a part thereof an interleukin-2 analog having an altered binding affinity for the interleukin-2 alpha receptor, and an increased binding affinity for the interleukin-2 beta receptor compared with the native interleukin-2 or aldesleukin.

In the composition according to any one of the previous embodiments, the interleukin-2 analog may have an increased binding affinity for the interleukin-2 beta receptor compared with aldesleukin.

In the composition according to any one of the previous embodiments, the interleukin-2 analog may include any one sequence selected from the group consisting of amino acid sequences of SEQ ID NOS: 10, 13-15, 17, 20-22, 32, 35, 36, 42, 53, 54, 56, 58-60, 62, 71, 72, 74-78, 85, 87, 89, 91-94, 97-106.

In the composition according to any one of the previous embodiments, the interleukin-2 analog may include any one sequence selected from the group consisting of amino acid sequences of SEQ ID NOS: 17, 22, 42, 53, 56, 58-60, 62, 71, 72, 74-77, 87, 89, 91-93, 98-101, and 103-106.

In the composition according to any one of the previous embodiments, the interleukin-2 analog may include any one sequence selected from the group consisting of amino acid sequences of SEQ ID NOS: 22, 42, 53, 87, 105, and 106.

In the composition according to any one of the previous embodiments, the interleukin-2 analog may further include at least one amino acid at the C-terminus.

In the composition according to any one of the previous embodiments, the immune checkpoint inhibitor is a PD-1 antagonist.

In the composition according to any one of the previous embodiments, the

amino acid sequences of SEQ ID NOS: 10, 13-15, 17, 20-22, 32, 35, 36, 42, 53, 54, 56, 58-60, 62, 71, 72, 74-78, 85, 87, 89, 91-94, 97-106, but is not limited thereto.

In another specific embodiment, the interleukin-2 analog may include, consist essentially of, or consist of any one sequence selected from the group consisting of amino acid sequences of SEQ ID NOS: 17, 22, 42, 53, 56, 58-60, 62, 71, 72, 74-77, 87, 89, 91-93, 98-101, and 103-106, but is not limited thereto. In another specific embodiment, the interleukin-2 analog may include, consist essentially of, or consist of any one sequence selected from the group consisting of amino acid sequences of SEQ ID NOS: 10, 13, 14, 15, 16, 17, 20, 21, 22, 32, 35, 36, 42, 53, 54, 56, 58, 59, 60, 62, 71, 72, 74, 75, 76, 77, 78, 85, 87, 89, 91, 92, 93, 94, 95, 98, 99, 100, 101, 103, 104, 105, and 106, but is not limited thereto.

In another specific embodiment, the interleukin-2 analog may include, consist essentially of, or consist of any one sequence selected from the group consisting of amino acid sequences of SEQ ID NOS: 10, 13, 14, 16, 17, 20, 21, 22, 32, 35, 36, 42, 53, 54, 87, 89, 91, 92, 93, 94, 98, 99, 100, 101, 103, 104, and 105, but is not limited thereto.

In another specific embodiment, the interleukin-2 analog may include, consist essentially of, or consist of any one sequence selected from the group consisting of amino acid sequences of SEQ ID NOS: 22, 42, 53, 87, 105, and 106, but is not limited thereto.

In addition, the interleukin-2 analog may further include at least one amino acid at the C-terminus, but is not limited thereto.

Although stated as “interleukin-2 analog consisting of a specific sequence number” herein, this terminology does not exclude the addition of nonsense sequences upstream or downstream of the amino acid sequence of the corresponding sequence number or naturally-occurring mutations, or silent mutations thereof, as long as the analog has the equivalent or corresponding activity to the interleukin-2 analog consisting of amino acid sequence of the corresponding sequence number, and it is apparent that an analog having such sequence addition