Claims

1. A DNA construct for immunomodulation that consists of a partially single-stranded, dumbbell-shaped, covalently closed chain of DNA residues comprising twice the partially hybridized DNA sequence of SEQ ID NO:1.

2. The DNA construct according to claim 1, wherein at least one nucleotide is modified with a functional group selected from the group comprising carboxyl, amine, amide, aldimine, ketal, acetal, ester, ether, disulfide, thiol and aldehyde groups.

3. The DNA construct according to claim 2, wherein the modified nucleotide is linked to a compound selected from the group comprising peptides, proteins, carbohydrates, antibodies, lipids, micelles, vesicles, synthetic molecules, polymers, micro projectiles, metal particles, nanoparticles, or a solid phase.

4. A pharmaceutical composition comprising the DNA construct according to any of claims 1 to 3.

5. The pharmaceutical composition according to claim 4, comprising additionally a chemotherapeutic.

6. A vaccine comprising the DNA construct according to any of claims 1 to 3.

7. The vaccine according to claim 6, wherein the DNA construct is comprised as adjuvant.

8. The DNA construct according to any of claims 1 to 3, the pharmaceutical composition according to claim 4 or 5 or the vaccine according to claim 6 or 7 for use in the treatment of cancer or autoimmune diseases.

9. The DNA construct according to any of claims 1 to 3, the pharmaceutical composition according to claim 4 or 5 or the vaccine according to claim 6 or 7 for use in the modulation of the immune system.