CLAIMS

1. An isolated, immunogenic polypeptide fragment of a human Arginase protein of SEQ ID NO: 1 (Arginase 1), which fragment is up to 40 amino acids in length and which comprises or consists of a sequence of at least 20 or 30 consecutive amino acids of SEQ ID NO: 52, or a functional analogue thereof comprising at least one amino acid deletion, insertion and/or substitution relative to SEQ ID NO: 1 and/or in which the C-terminal amino acid is replaced by the corresponding amide.

2. A polypeptide fragment according to Claim 1 which is a fragment of human Arginase 1 and which comprises or consists of the amino acid sequence of any one of SEQ ID NOs: 52, 37, 36, 35 or 34.

3. A polypeptide fragment according to Claim 1 or 2 which comprises at least all 20 consecutive amino acids of any one of SEQ ID NOs: 37, 36, 34 or 35, optionally in which the cysteine in SEQ ID NO: 34 is replaced by conservative substitution.

4. A polypeptide fragment according to any preceding claim, in which:

(a) the L at the position corresponding to position 190 of SEQ ID NO: 1 is replaced with I; and/or

(b) the R at the position corresponding to position 205 of SEQ ID NO: 1 is replaced with K; and/or

(c) at least one additional moiety is attached to the N and/or C terminus to improve solubility or manufacturability of the polypeptide, optionally in which the additional moiety is a hydrophilic amino acid such as R or K; and/or

(d) the fragment lacks or has reduced arginase activity relative to the corresponding full length arginase; and/or

(e) the fragment is capable of stimulating T cells which recognize cells expressing the corresponding arginase.

5. A nucleic acid encoding the polypeptide fragment according to any preceding claim.

6. A vector comprising a nucleic acid according to Claim 5.

7. A composition comprising a polypeptide fragment according to any of Claims 1 to 4, or a nucleic acid according to Claim 5, or a vector according to Claim 6, and a pharmaceutically acceptable diluent or carrier, and optionally an adjuvant.

8. A composition according to Claim 7, in which the adjuvant is selected from the group consisting of bacterial DNA based adjuvants, oil/surfactant based adjuvants, viral dsRNA based adjuvants, imidazochinilines, and a Montanide ISA adjuvant.

9. An isolated polypeptide fragment as defined in any of Claims 1 to 4, or a nucleic acid as defined in Claim 5, or a vector as defined in Claim 6, or a composition as defined in Claim 7 or 8, for use as a medicament.

10. An isolated polypeptide fragment as defined in any of Claims 1 to 4, or a nucleic acid as defined in Claim 5, or a vector as defined in Claim 6, or a composition as defined in Claim 7 or 8, for use in a method of treating or preventing a disease characterized at least in part by inappropriate or excessive immune suppressive function of an Arginase, and/or in which the disease is cancer.

11. An isolated polypeptide fragment, nucleic acid, vector, or composition for use according to Claim 10, in which the disease is cancer and optionally in which an additional cancer therapy, such as a cytokine therapy, a T-cell therapy, an NK therapy, an immune system checkpoint inhibitor (e.g. an antibody), chemotherapy, radiotherapy, immunostimulating substances, gene therapy, and dendritic cells is to be simultaneously or sequentially administered to a patient.

12. An isolated polypeptide fragment, nucleic acid, vector, or composition for use according to Claim 11, in which the additional cancer therapy is one or more of Actimide, Azacitidine, Azathioprine, Bleomycin, Carboplatin, Capecitabine, Cisplatin, Chlorambucil, Cyclophosphamide, Cytarabine, Daunorubicin, Docetaxel, Doxifluridine, Doxorubicin, Epirubicin, Etoposide, Fludarabine, Fluorouracil, Gemcitabine, Hydroxyurea, Idarubicin, Irinotecan, Lenalidomide, Leucovorin, Mechlorethamine, Melphalan, Mercaptopurine, Methotrexate, Mitoxantrone, Nivolumab, Oxaliplatin, Paclitaxel, Pembrolizumab, Pemetrexed, Revlimid, Temozolomide, Teniposide, Thioguanine, Valrubicin, Vinblastine, Vincristine, Vindesine and Vinorelbine.

13. Use of an isolated polypeptide fragment as defined in any of Claims 1 to 4, or a nucleic acid as defined in Claim 5, or a vector as defined in Claim 6, or a composition as defined in Claim 7 or 8 in the preparation of a medicament.

14. Use of an isolated polypeptide fragment as defined in any of Claims 1 to 4, or a nucleic acid as defined in Claim 5, or a vector as defined in Claim 6, or a composition as defined in Claim 7 or 8 in the manufacture of a medicament for treating or preventing a disease characterized at least in part by inappropriate or excessive immune suppressive function of an Arginase, and/or in which the disease is cancer.

15. Use according to Claim 14, in which the disease is cancer and optionally in which an additional cancer therapy, such as a cytokine therapy, a T-cell therapy, an NK therapy, an immune system checkpoint inhibitor (e.g. an antibody), chemotherapy, radiotherapy, immunostimulating substances, gene therapy, and dendritic cells is to be simultaneously or sequentially administered to a patient.

16. Use according to Claim 15, in which the additional cancer therapy is one or more of Actimide, Azacitidine, Azathioprine, Bleomycin, Carboplatin, Capecitabine, Cisplatin, Chlorambucil, Cyclophosphamide, Cytarabine, Daunorubicin, Docetaxel, Doxifluridine, Doxorubicin, Epirubicin, Etoposide, Fludarabine, Fluorouracil, Gemcitabine, Hydroxyurea, Idarubicin, Irinotecan, Lenalidomide, Leucovorin, Mechlorethamine, Melphalan, Mercaptopurine, Methotrexate, Mitoxantrone, Nivolumab, Oxaliplatin, Paclitaxel, Pembrolizumab, Pemetrexed, Revlimid, Temozolomide, Teniposide, Thioguanine, Valrubicin, Vinblastine, Vincristine, Vindesine and Vinorelbine.