

Claims

1. An antigen recognizing construct comprising a first domain and a second domain, each domain comprising three complementarity determining regions (CDRs), wherein the first domain comprises the amino acid sequences according to SEQ ID NOs: 6 (CDRa2) and 7 (CDRa3), and the second domain comprises the amino acid sequences according to SEQ ID NOs: 14 (CDRb2) and 15 (CDRb3), wherein:
 - a) the CDRa1 of the first domain is as set forth in SEQ ID NO: 5 and the CDRb1 of the second domain is selected from any one of the amino acid sequences according to SEQ ID NOs: 37 to 44, or
 - b) the CDRa1 of the first domain is as set forth in SEQ ID NO: 26 and the CDRb1 of the second domain is selected from any one of the amino acid sequences according to SEQ ID NOs: 13 and 37 to 49,
 wherein the antigen recognizing construct is a T cell receptor (TCR) or fragment thereof, and wherein said TCR or fragment thereof is capable of specifically and/or selectively binding to a COL6A3 antigenic peptide comprising the amino acid sequence according to SEQ ID NO: 1, in particular in the context with MHC.
2. The antigen recognizing construct according to claim 1, wherein said first domain is part of a TCR α or γ chain; and/or wherein said second domain is part of a TCR β or δ chain.
3. The antigen recognizing construct according to claim 1 or 2, wherein the antigen recognizing construct is a single chain antigen recognizing construct, preferably wherein the single chain antigen recognizing construct is a single chain TCR.
4. The antigen recognizing construct according to any one of claims 1 to 3, wherein the antigen recognizing construct is a soluble TCR.
5. A T cell receptor (TCR), comprising:
 - (i) a TCR alpha chain comprising a CDRa1 according to SEQ ID NO: 26 or SEQ ID NO: 5, a CDRa2 according to SEQ ID NO: 6, and a CDRa3 according to SEQ ID NO: 7; and
 - (ii) a TCR beta chain comprising the CDRb1 according to SEQ ID NO: 40, the CDRb2 according to SEQ ID NO: 14, and the CDRb3 according to SEQ ID NO: 15;

wherein said TCR is capable of specifically and/or selectively binding to a COL6A3 antigenic peptide according to SEQ ID NO: 1, in particular in the context with MHC.

6. The TCR according to claim 5, wherein:
 - (a) said TCR alpha chain comprises a TCR alpha variable domain as comprised in SEQ ID NO: 63; and said TCR beta chain comprises a TCR beta variable domain as comprised in SEQ ID NO: 62; or
 - (b) said TCR alpha chain comprises a TCR alpha variable domain as comprised in SEQ ID NO: 2; and said TCR beta chain comprises a TCR beta variable domain as comprised in SEQ ID NO: 62.
7. The TCR according to claim 5 or 6, wherein said TCR comprises:
 - (a) the TCR alpha chain as comprised in SEQ ID NO: 63, and the TCR beta chain as comprised in SEQ ID NO: 62; or
 - (b) the TCR alpha chain as comprised in SEQ ID NO: 2; and the TCR beta chain as comprised in SEQ ID NO: 62.
8. A nucleic acid or nucleic acids encoding (i) an antigen recognizing construct according to any one of claims 1 to 4; (ii) a TCR according to any one of claims 5 to 7; or (iii) a polypeptide having an amino acid sequence according to SEQ ID NO: 63 or 2, and a polypeptide having an amino acid sequence according to SEQ ID NO: 62.
9. A vector or vectors comprising the nucleic acid(s) of claim 8.
10. A recombinant T cell or population thereof (i) comprising the antigen recognizing construct according to any one of claims 1 to 4, the TCR according to any one of claims 5 to 7, the nucleic acid(s) according to claim 8, or the vector(s) according to claim 9; or (ii) expressing an antigen recognizing construct according to any one of claims 1 to 4 or the TCR according to any one of claims 5 to 7; wherein preferably said T cell is a CD4-positive T cell or CD8-positive T cell.
11. A method of producing the COL6A3-specific antigen recognizing construct according to any one of claims 1 to 4 or the TCR according to any one of claims 5 to 7, comprising
 - a. providing a suitable host cell,

- b. providing a genetic construct comprising a coding sequence encoding the antigen recognizing construct according to any of claims 1 to 4 or the TCR according to any one of claims 5 to 7,
 - c. introducing said genetic construct into said suitable host cell, and
 - d. expressing said genetic construct by said suitable host cell.
- 12. A pharmaceutical composition comprising the antigen recognizing construct according to any one of claims 1 to 4, the TCR according to any one of claims 5 to 7, the nucleic acid(s) according to claim 8, the vector(s) according to claim 9, or the recombinant T cell or population thereof according to claim 10, and a pharmaceutically acceptable carrier, diluent stabilizer and/or excipient.
- 13. The antigen recognizing construct according to any one of claims 1 to 4, the TCR according to any one of claims 5 to 7, the nucleic acid(s) according to claim 8, the vector(s) according to claim 9, the recombinant T cell or population thereof according to claim 10 , or the pharmaceutical composition according to claim 12, for use as a medicament.
- 14. Use of the antigen recognizing construct according to any one of claims 1 to 4, the TCR according to any one of claims 5 to 7, the nucleic acid(s) according to claim 8, the vector(s) according to claim 9, the recombinant T cell or population thereof according to claim 10, or the pharmaceutical composition according to claim 12, for the manufacture of a medicament for the treatment of cancer, wherein said cancer is selected from a cancer where COL6A3 is overexpressed, mutated, and/or a COL6A3-derived tumor-associated antigen is presented.
- 15. The use according to claim 14, wherein the cancer is selected from: acute lymphocytic cancer, acute myeloid leukemia, alveolar rhabdomyosarcoma, bone cancer, brain cancer, breast cancer, cervical cancer, chronic lymphocytic leukemia, chronic myeloid cancer, colon cancer, esophageal cancer, gastrointestinal cancer, gastrointestinal carcinoid tumor, gastric cancer, glioma, Hodgkin lymphoma, non-Hodgkin lymphoma, hypopharynx cancer, kidney cancer, larynx cancer, liver cancer, lung cancer, malignant mesothelioma, melanoma, multiple myeloma, ovarian cancer, pancreatic cancer, prostate cancer, rectal cancer, renal cancer, skin cancer, small intestine cancer, soft tissue cancer, stomach cancer, testicular cancer, thyroid cancer, ureter cancer, urinary bladder cancer, cancer of the anus, anal canal, or anorectum, cancer of the eye, cancer of the intrahepatic bile duct, cancer of the joints, cancer of the neck, gallbladder, or pleura, cancer of the nose, nasal cavity, or middle ear,

cancer of the oral cavity, cancer of the vagina, cancer of the vulva, cancer of the oropharynx, cancer of the penis, cancer of the peritoneum, omentum, and mesentery, and cancer of the uterus.

16. An in vitro method for detecting cancer in a biological sample, comprising:
 - a) contacting the biological sample with the antigen recognizing construct according to any one of claims 1 to 4;
 - b) detecting binding of the antigen recognizing construct to the biological sample, wherein said cancer is selected from a cancer where COL6A3 is overexpressed, mutated, and/or a COL6A3-derived tumor-associated antigen is presented.