Claims

1. Use of a nucleic acid molecule capable of binding to SDF-1 and blocking interaction between SDF-1 and SDF-1 receptor CXCR7, for the manufacture of a medicament for the treatment and/or prevention of a disease or disorder or for use in a method for the treatment of a subject suffering from a disease or disorder or being at risk of developing a disease or a disorder as an adjunct therapy, whereby the disease or disorder is cancer expressing SDF-1 receptor CXCR7.

2. The use according to claim 1 , whereby the treatment or prevention of the disease or disorder is caused by the nucleic acid molecule inhibiting the interaction between SDF-1 and SDF-1 receptor CXCR7.

3. The use according to claim 1 or 2, whereby the nucleic acid comprises in 5'->3' direction a first terminal stretch of nucleotides, a central stretch of nucleotides, and a second terminal stretch of nucleotides, or a second terminal stretch of nucleotides, a central stretch of nucleotides, and a first terminal stretch of nucleotides,
whereby the nucleic acid molecule is selected from the group comprising an SDF-1 binding nucleic acid molecule of type B, an SDF-1 binding nucleic acid molecule of type C, an SDF-1 binding nucleic acid molecule of type A and an SDF-1 binding nucleic acid molecule of type D;
whereby the central stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type B comprises the following nucleotide sequence:
5' GUGUGAUCUAGAUGUADWGGCUGWUCCUAGUYAGG 3' (SEQ ID NO: 52), and
whereby the first terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type B comprises a nucleotide sequence of 5' X_1X_2SVNS 3' and the second terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type B comprises a nucleotide sequence of 5' BVBSX_3X_4 3', whereby
X_1 is either absent or is A, X_2 is G, X_3 is C and X_4 is either absent or is U;

or

X_1 is absent, X_2 is either absent or is G, X_3 is either absent or is C and X_4 is absent;

whereby the central stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises the following nucleotide sequence: GGUYAGGGCUHRX$_A$AGUCGG (SEQ.ID.No. 108),

whereby X_A is either absent or is A, and

whereby the first terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence of 5' RKSBUSNVGR 3' (SEQ ID NO: 138) and the second stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence of 5' YYNRCASSMY 3' (SEQ ID NO: 139),

or

whereby the first terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence of 5' X$_S$SSSV 3' and the second terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence of 5' BSSSX$_S$ 3', whereby X_S is either absent or is S,

or

whereby the first terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence of 5' CGUGCGCUUGAGAUAGG 3 '(SEQ ID NO: 220) and the second terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence of 5' CUGAUUCUCACG 3' (SEQ ID NO: 221);

or

the first terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence of 5' UGAGAUAGG 3' and the second terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence of 5' CUGAUUCUCA 3' (SEQ ID NO: 222);

or

the first terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence of 5' GAGAUAGG 3' and the second terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence of 5' CUGAUUCUC 3';

whereby the central stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type A comprises a nucleotide sequence of 5' AAAGYRACAHGUMAAX$_A$UGAAAGGUARC 3' (SEQ ID NO: 74),
whereby X_A is either absent or is A, and
whereby the first terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type A comprises a nucleotide sequence of 5' X_1X_2NNBV 3' and the second terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type A comprises a nucleotide sequence of 5' BNBNX_3X_4 3',
whereby X_1 is either absent or R, X_2 is S, X_3 is S and X_4 is either absent or Y,
or
X_1 is absent, X_2 is either absent or S, X_3 is either absent or S and X_4 is absent; and
whereby the SDF-1 binding nucleic acid molecule of type D comprises a nucleotide sequence according to any one of SEQ ID NO: 142 to SEQ ID NO: 144.

4. The use according to claim 3, whereby the SDF-1 binding nucleic acid molecule of type B comprises a central stretch of nucleotides comprising the following nucleotide sequence: 5' GUGUGAUCUAGAUGUADUGGCUGAUCCUAGUCAGG 3' (SEQ ID NO: 53).

5. The use according to claim 3 or 4, whereby the SDF-1 binding nucleic acid molecule of type B comprises a first terminal stretch of nucleotides comprising a nucleotide sequence of 5' X_1X_2SSBS 3' and a second terminal stretch of nucleotides comprising a nucleotide sequence of 5' BVSSX_3X_4 3',
whereby X_1 is absent, X_2 is either absent or G, X_3 is either absent or C, and X_4 is absent, preferably the first terminal stretch of nucleotides comprises a nucleotide sequence of 5' GCGUG 3' and the second terminal stretch of nucleotides comprises a nucleotide sequence of 5' UACGC 3'.

6. The use according to any one of claims 3 to 5, whereby the SDF-1 binding nucleic acid molecule of type B comprises a nucleotide sequence according to any one of SEQ ID NO: 5 to SEQ ID NO: 20 and SEQ ID NO: 22 to SEQ ID NO: 28,
preferably any one of SEQ ID NO: 5 to SEQ ID NO: 7, SEQ ID NO: 16, SEQ ID NO: 22 and SEQ ID NO: 28, and

more preferably SEQ ID NO: 22 or SEQ ID NO: 28.

7. The use according to claim 3, whereby the SDF-1 binding nucleic acid molecule of type C comprises a central stretch of nucleotides comprising a nucleotide sequence of 5' GGUYAGGGCUHRAAGUCGG 3' (SEQ ID NO: 109), 5' GGUYAGGGCUHRAGUCGG 3' (SEQ ID NO: 110) or 5' GGUUAGGGCUHGAAGUCGG 3' (SEQ ID NO: 111), preferably 5' GGUUAGGGCUHGAAGUCGG 3' (SEQ ID NO: 111).

8. The use according to any one of claims 3 and 7, whereby the SDF-1 binding nucleic acid molecule of type C comprises a first terminal stretch of nucleotides comprising a nucleotide sequence of 5' RKSBUGSVGR 3 '(SEQ ID NO: 140) and a second terminal stretch of nucleotides comprising a nucleotide sequence of 5' YCNRCASSMY 3' (SEQ ID NO: 141).

9. The use according to any one of claims 3 and 7, whereby the SDF-1 binding nucleic acid molecule of type C comprises a first terminal stretch of nucleotides comprising a nucleotide sequence of 5' SGGSR 3' and a second terminal stretch of nucleotides comprising a nucleotide sequence of 5' YSCCS 3'.

10. The use according to any of claims 3 and 7 to 9, whereby the SDF-1 binding nucleic acid molecule of type C comprises a nucleotide sequence according to any one of SEQ ID NO: 95 to SEQ ID NO: 107, SEQ ID NO: 112 to SEQ ID NO: 137, SEQ ID NO: 223 and SEQ ID NO: 224, and
preferably any one of SEQ ID NO: 120, SEQ ID NO: 128, SEQ ID NO: 129, SEQ ID NO: 134, SEQ ID NO: 135, SEQ ID NO: 223 and SEQ ID NO: 224.

11. The use according to claim 3, whereby the SDF-1 binding nucleic acid molecule of type A comprises a central stretch of nucleotides comprising a nucleotide sequence of
5'AAAGYRACAHGUMAAUGAAAGGUARC 3' (SEQ ID NO: 75), or
5' AAAGYRACAHGUMAAAUGAAAGGUARC 3' (SEQ ID NO: 76), or
5' AAAGYAACAHGUCAAUGAAAGGUARC 3'(SEQ ID NO: 77), preferably the central stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type A comprises a nucleotide sequence of 5' AAAGYAACAHGUCAAUGAAAGGUARC 3' (SEQ ID NO: 77).

12. The use according to any one of claims 3 and 11, whereby the SDF-1 binding nucleic acid molecule of type A comprises a first terminal stretch of nucleotides comprising a nucleotide sequence of 5' X_2BBBS 3' and a second terminal stretch of nucleotides o comprising a nucleotide sequence of 5' SBBVX_3 3',
whereby X_2 is either absent or is S and X_3 is either absent or is S;
preferably the first terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type A comprises a nucleotide sequence of 5' CUGUG 3' and the second terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type A comprises a nucleotide sequence of 5' CGCAG 3';
or the first terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type A comprises a nucleotide sequence of 5' GCGUG 3' and the second terminal stretch of nucleotides of the SDF-1 binding nucleic acid molecule of type A comprises a nucleotide sequence of 5' CGCGC 3'.

13. The use according to any one of claims 3 and 11 to 12, whereby the SDF-1 binding nucleic acid molecule of type A comprises a nucleotide sequence according to any one of SEQ ID NO: 60 to SEQ ID NO: 73, SEQ ID NO: 78 to SEQ ID NO: 82, SEQ ID NO: 84 to SEQ ID NO: 87, SEQ ID NO: 89 to SEQ ID NO: 94, and SEQ ID NO: 145,
preferably any one of SEQ ID NO: 60, SEQ ID NO: 63, SEQ ID NO: 66, SEQ ID NO: 78, SEQ ID NO: 84, and SEQ ID NO: 146, and
more preferably any one of SEQ ID NO: 84 and SEQ ID NO: 146.

14. The use according to any one of claims 1 to 13, whereby the nucleic acid molecule comprises a modification, whereby the modification is preferably a high molecular weight moiety and/or whereby the modification preferably allows to modify the characteristics of the nucleic acid molecule in terms of residence time in an animal or human body, preferably a human body.

15. The use according to any one of claims 1 to 14, whereby the nucleic acid molecule is an L-nucleic acid molecule.

16. The use according to any one of claims 1 to 15, whereby the adjunct therapy sensitizes the subject, whereby the sensitized subject is more responsive to a therapy for the treatment and/or prevention of the disease or disorder.

17. The use according to claim 16, whereby the therapy for the treatment and/or prevention of the disease or disorder comprises the administration of a further pharmaceutically active agent and/or irradiating the subject and/or surgery and/or cellular therapy.

18. The use according to any one of claims 1 to 17, whereby the medicament is used in combination with a further pharmaceutically active agent, whereby the further pharmaceutically active agent is selected from the group comprising an antibody, an alkylating agent, an anti-metabolite, a plant alkaloid, preferably vincristine, a plant terpenoid, a topoisomerase inhibitor, Leucovorin, Methotrexate, Tamoxifen, Sorafenib, Lenalidomide, Bortezomib, Dexamethasone, Fluorouracil, and Prednisone.

19. Use according to any one of claims 1 to 18, whereby the cancer is a cancer selected from the group of hematological cancer and solid tumors, whereby preferably the hematological cancer is selected from the group comprising leukemia and myeloma and the solid tumors are selected from the group comprising glioblastoma, colorectal cancer, breast cancer, lymphoma, prostate cancer, pancreatic cancer, renal cancer, ovarian cancer and lung cancer.