

binding protein according to the present disclosure, the polynucleotide according to present disclosure, the vector according to present disclosure or the host cell according to present disclosure, and (ii) a pharmaceutically acceptable carrier.

[0017] In another embodiment is provided a process for the production of a single chain variable fragment CD3 binding protein according to the present disclosure, said process comprising culturing a host transformed or transfected with a vector comprising a nucleic acid sequence encoding single chain variable fragment CD3 binding protein according to the present disclosure under conditions allowing the expression of the single chain variable fragment CD3 binding protein and recovering and purifying the produced protein from the culture.

[0018] In another embodiment is provided a method for the treatment or amelioration of a proliferative disease, a tumorous disease, an inflammatory disease, an immunological disorder, an autoimmune disease, an infectious disease, a viral disease, an allergic reaction, a parasitic reaction, a graft-versus-host disease or a host-versus-graft disease comprising the administration of the single chain variable fragment CD3 binding protein according to the present disclosure, to a subject in need thereof. In some embodiments, the subject is human. In some embodiments, the method further comprises administration of an agent in combination with the single chain variable fragment CD3 binding protein according to the present disclosure.

[0018a] Provided herein in another embodiment is a single chain variable fragment CD3 binding protein as described herein for use in therapy.

[0018b] Provided herein in another embodiment is a use of the single chain variable fragment CD3 binding protein as described herein in the manufacture of a medicament for the treatment or amelioration of a proliferative disease, a tumorous disease, an inflammatory disease, an immunological disorder, an autoimmune disease, an infectious disease, a viral disease, an allergic reaction, a parasitic reaction, a graft-versus-host disease or a host-versus-graft disease, wherein the medicament is to be administered to a subject in need thereof.

[0019] Provided herein in one embodiment is a multispecific binding protein comprising the single chain variable fragment CD3 binding protein according to the present disclosure. One embodiment describes an antibody comprising the single chain variable fragment CD3 binding protein according to the present disclosure. A further embodiment provides a multispecific antibody, a bispecific antibody, a single domain antibody, a variable heavy domain, a peptide, or a ligand, comprising the single chain variable fragment CD3 binding protein according to the present disclosure. Described herein in one embodiment is an

antibody comprising the single chain variable fragment CD3 binding protein according to the present disclosure, wherein said antibody is a scFv antibody. Another embodiment described a multispecific binding protein or antibody comprising the single chain variable fragment CD3 binding protein according to the present disclosure and a serum albumin binding domain.

[0020] The novel features of the invention are set forth with particularity in the appended claims. A better understanding of the features and advantages of the present invention will be obtained by reference to the following detailed description that sets forth illustrative

affinity towards CD3 of a protein which has the sequence as set forth in wt anti-CD3 (SEQ ID NO. 22)..

220. The single chain variable fragment CD3 binding protein of any one of claims 162-183, wherein amino acid position 31 is mutated to glutamic acid, amino acid position 65 is mutated to aspartic acid, amino acid position 108 is mutated to glycine, amino acid position 171 is mutated to valine, and amino acid position 194 is mutated to glutamic acid, and wherein the hKd and the cKd are between about 100 nM and about 120 nM.

221. The single chain variable fragment CD3 binding protein of any one of the preceding claims, wherein said protein does not bind to mouse CD3.

222. A polynucleotide encoding a single chain variable fragment CD3 binding protein according to any one of claims 1-221.

223. A vector comprising the polynucleotide of claim 222.

224. A host cell transformed with the vector according to claim 223.

225. A pharmaceutical composition comprising (i) a single chain variable fragment CD3 binding protein according to any one of claims 1-221, the polynucleotide according to claim 232, the vector according to claim 223 or the host cell according to claim 224, and (ii) a pharmaceutically acceptable carrier.

226. A process for the production of a single chain variable fragment CD3 binding protein according to any one of claims 1-221, said process comprising culturing a host transformed or transfected with a vector comprising a nucleic acid sequence encoding single chain variable fragment CD3 binding protein according to any one of claims 1-221 under conditions allowing the expression of the single chain variable fragment CD3 binding protein and recovering and purifying the produced protein from the culture.

227. The single chain variable fragment CD3 binding protein according to any one of claims 1-221 for use in therapy.

228. Use of the single chain variable fragment CD3 binding protein according to any one of claims 1-221 in the manufacture of a medicament for the treatment or amelioration of a proliferative disease, a tumorous disease, an inflammatory disease, an immunological

disorder, an autoimmune disease, an infectious disease, a viral disease, an allergic reaction, a parasitic reaction, a graft-versus-host disease or a host-versus-graft disease, wherein the medicament is to be administered to a subject in need thereof.

229. The use of claim 228, wherein the subject is human.

230. The use of claim 229, wherein the medicament is to be administered in combination with an agent.

231. A multispecific binding protein comprising the single chain variable fragment CD3 binding protein according to claim 1, claim 68, or claim 162.

232. An antibody comprising the single chain variable fragment CD3 binding protein according to claim 1, claim 68, or claim 162.

233. A multispecific antibody, a bispecific antibody, a single domain antibody, a variable heavy domain, a peptide, or a ligand, comprising the single chain variable fragment CD3 binding protein according to claim 1, claim 68, or claim 162.

234. An antibody comprising the single chain variable fragment CD3 binding protein according to claim 1, claim 68, or claim 162, wherein said antibody is a scFv antibody.

235. A multispecific binding protein or antibody comprising the single chain variable fragment CD3 binding protein according to claim 1, claim 68, or claim 162 and a serum albumin binding domain.

236. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO. 8.

237. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO. 9.

238. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO. 14.

239. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO. 19.

240. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 94.
241. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 10.
242. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 11.
243. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 12.
244. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 13.
245. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 15.
246. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 16.
247. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 17.
248. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 18.
249. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 20.
250. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 21.
251. The single chain variable fragment CD3 binding protein of any one of claims 1-221, wherein said protein has the amino acid sequence set forth as SEQ ID NO: 95.