

CLAIMS

1. A pharmaceutical composition comprising a bispecific single chain antibody construct, binding to a target cell surface antigen via a first binding domain and to the T cell surface antigen CD3 via a second binding domain, a β -cyclodextrin and a buffer, wherein the composition is stable.
2. The composition according to claim 1, wherein the β -cyclodextrin is selected from the group consisting of β -cyclodextrin, methyl- β -cyclodextrin, hydroxyethyl- β -cyclodextrin, hydroxypropyl- β -cyclodextrin, ethyl- β -cyclodextrin, butyl- β -cyclodextrin Succinyl-(2-hydroxypropyl)- β -cyclodextrin, heptakis(2,3,6-tri-O-methyl)- β -cyclodextrin, heptakis(2,3,6-tri-O-benzoyl)- β -cyclodextrin, β -cyclodextrin phosphate sodium salt, β -cyclodextrin sulphate sodium salt, triacetyl- β -cyclodextrin, heptakis(6-O-sulfo)- β -cyclodextrin heptasodium salt, carboxymethyl- β -cyclodextrin sodium salt, sulfobutylether- β -cyclodextrin sodium salt, 6-O-p-toluenesulfonyl- β -cyclodextrin
3. The composition according to claim 1 or 2, wherein the β -cyclodextrin is present in a concentration in the range of 0.1% to 20% (w/v), preferably of 0.5% to 2% (w/v) and more preferably of 0.8% to 1.5% (w/v).
4. The composition according to any one of the preceding claims, wherein the β -cyclodextrin is selected from the group consisting of sulfobutylether- β -cyclodextrin sodium salt, hydroxypropyl- β -cyclodextrin.
5. The composition according to any one of the preceding claims, wherein the bispecific single chain antibody construct is present in a concentration range of 0.1-5mg/ml, preferably of 0.2-2.5 mg/ml, more preferably of 0.25-1.0 mg/ml.
6. The composition according to any one of the preceding claims, wherein the buffer is selected from the group consisting of potassium phosphate, acetic acid/sodium acetate, citric acid/sodium citrate, succinic acid/sodium succinate, tartaric acid/sodium tartrate, histidine/histidine HCl, glycine, Tris, glutamate, acetate and mixtures thereof.
7. The composition according to claim 6, wherein the buffer is selected from the group consisting of potassium phosphate, citric acid/sodium citrate, succinic acid, histidine, glutamate, acetate and combinations thereof.

8. The composition according to any of the preceding claims, wherein the pH of the composition is in the range of 4-7.5.
9. The composition according to any one of the preceding claims, further comprising one or more excipients selected from the group consisting of sucrose, trehalose, mannitol, sorbitol, arginine, lysine, polysorbate 20, polysorbate 80, poloxamer 188, pluronic and combinations thereof.
10. The composition according to any of the preceding claims, which comprises one or more preservatives.
11. The composition according to claim 10, wherein the one or more preservative is selected from the group consisting of benzyl alcohol, chlorobutanol, phenol, meta-cresol, methylparaben, phenoxyethanol, propylparaben and thiomerosal.
12. The composition according to any of claims 1 to 10, wherein the first binding domain of the bispecific single chain antibody construct binds to CD19, CD33, MSLN, FLT3 or BCMA.
13. The composition according to claim 12, wherein the amino acid sequence of the first binding domain of the bispecific single chain construct is selected from the group consisting of SEQ ID 99, 109, 119, 128, 137, 146, 155, 164, 173, 183, 185 and 187 and the amino acid sequence of the second binding domain of the bispecific single chain construct is selected from the group consisting of SEQ ID NO: 9, 18, 27, 36, 45, 54, 63, 72, 81, 179 and 90.
14. The composition according to claim 13, wherein the formulation is free of preservatives, the amino acid sequence of the bispecific single chain antibody construct is SEQ ID NO 100 or 110 and the construct is in a concentration of about 0.5 mg/ml, the cyclodextrin is sulfobutylether- β -cyclodextrin sodium salt in a concentration of about 1% (w/v), the buffer is potassium phosphate in concentration of about 10 mM and the formulation further comprises sucrose in concentration of about 8% (w/v) of and polysorbate 80 in concentration of about 0.01% (w/v) at a pH of about 6.0.
15. The composition according to claim 12, wherein the amino acid sequence of the first binding domain of the bispecific single chain construct is SEQ ID NO 174.

16. The composition according to claim 12, wherein the cyclodextrin is sulfobutylether- β -cyclodextrin sodium salt in a concentration of about 1% (w/v), the buffer is potassium phosphate in concentration of about 10 mM and the formulation further comprises mannitol in a concentration of about 2%, sucrose in concentration of about 2% (w/v) of and polysorbate 80 in concentration of about 0.01% (w/v) at a pH of about 6.0.