

Claims

1. A designed ankyrin repeat domain, wherein said designed ankyrin repeat domain comprises an amino acid sequence selected from the group consisting of SEQ ID NOs: 75
5 to 81, 88 to 94, and 107 to 111, wherein X represents any amino acid.
2. The designed ankyrin repeat domain of claim 1, wherein said designed ankyrin repeat domain comprises (i) an amino acid sequence selected from the group consisting of SEQ ID NOs: 75 to 81 and 107 to 111, wherein X represents any amino acid, and (ii) an amino
10 acid sequence selected from the group consisting of SEQ ID NOs: 88 to 94, wherein X represents any amino acid.
3. The designed ankyrin repeat domain of any of claims 1 to 2, wherein said designed ankyrin repeat domain comprises (i) the amino acid sequence of SEQ ID NO: 78, wherein
15 X represents any amino acid, and (ii) the amino acid sequence of SEQ ID NO: 91, wherein X represents any amino acid.
4. The designed ankyrin repeat domain of any of claims 1 to 3, wherein said designed ankyrin repeat domain comprises an amino acid sequence selected from the group
20 consisting of SEQ ID NOs: 95 to 102, wherein X represents any amino acid.
5. A protein comprising (i) at least one designed ankyrin repeat domain of any of claims 1 to 4, and (ii) at least one moiety for half-life extension.
- 25 6. The protein of claim 5, wherein said moiety for half-life extension is a designed ankyrin repeat domain with binding specificity for serum albumin.
7. The protein of claim 6, wherein said designed ankyrin repeat domain with binding specificity for serum albumin comprises an amino acid sequence with at least 80% amino
30 acid sequence identity with any one of SEQ ID NOs: 4 to 8.
8. The protein of claim 7, further comprising at least one polypeptide linker.
9. The protein of claim 8, wherein said polypeptide linker has the amino acid sequence of
35 SEQ ID NO: 2 or 3.

10. A protein comprising (i) at least two designed ankyrin repeat domains of any of claims 1 to 4, and (ii) at least one designed ankyrin repeat domain with binding specificity for serum albumin, wherein said designed ankyrin repeat domain with binding specificity for serum albumin comprises an amino acid sequence with at least 80% amino acid sequence identity
5 with any one of SEQ ID NOs: 4 to 8.
11. A nucleic acid encoding the designed ankyrin repeat domain of any of claims 1 to 4 or the protein of any of claims 5 to 10.
- 10 12. A pharmaceutical composition comprising the designed ankyrin repeat domain of any of claims 1 to 4, the protein of any of claims 5 to 10, or the nucleic acid of claim 11, and optionally a pharmaceutical acceptable carrier and/or diluent.
- 15 13. A method of treating a medical condition, the method comprising the step of administering, to a patient in need of such treatment, a therapeutically effective amount of the pharmaceutical composition of claim 12.
14. A method for preparing a protein, the method comprising the steps of
(A) preparing a nucleic acid that encodes in one open reading frame
20 (i) at least one designed ankyrin repeat domain of any of claims 1 to 4, and
(ii) at least one designed ankyrin repeat domain with binding specificity for serum albumin, and
(B) transferring said DNA into an expression host.
- 25 15. The method of claim 14, wherein said expression host is *E. coli*.