

CLAIMS

1. A binder polypeptide that binds human MTP-2, comprising
 - (a) a variable heavy (VH) domain comprising heavy chain complementarity determining regions (HCDRs) HCDR1, HCDR2 and HCDR3, wherein HCDR1 comprises an amino acid sequence of SEQ ID NO: 48, HCDR2 comprises an amino acid sequence of SEQ ID NO: 49, and HCDR3 comprises an amino acid sequence of SEQ ID NO: 50, and
 - (b) a variable light (VL) domain comprising light chain complementarity determining regions (LCDRs) LCDR1, LCDR2 and LCDR3, wherein LCDR1 comprises an amino acid sequence of SEQ ID NO: 58, LCDR2 comprises an amino acid sequence of SEQ ID NO: 59, and LCDR3 comprises an amino acid sequence of SEQ ID NO: 60.
2. The binder polypeptide according to claim 1, wherein
 - (a) HCDR1 consists of the amino acid sequence of SEQ ID NO: 48, HCDR2 consists of the amino acid sequence of SEQ ID NO: 49, and HCDR3 consists of the amino acid sequence of SEQ ID NO: 50, and
 - (b) LCDR1 consists of the amino acid sequence of SEQ ID NO: 58, LCDR2 consists of the amino acid sequence of SEQ ID NO: 59, and LCDR3 consists of the amino acid sequence of SEQ ID NO: 60.
3. The binder polypeptide according to claim 1 or 2, wherein
 - (a) the VH domain comprises an amino acid sequence having at least 90% identity to SEQ ID NO: 67, and
 - (b) the VL domain comprises an amino acid sequence having at least 90% identity to SEQ ID NO: 63.
4. The binder polypeptide according to any one of claims 1-3, wherein
 - (a) the VH domain comprises an amino acid sequence comprising SEQ ID NO: 67, and
 - (b) the VL domain comprises an amino acid sequence comprising SEQ ID NO: 63.

5. The binder polypeptide according to any one of claims 1-4, wherein
 - (a) the VH domain consists of an amino acid sequence of SEQ ID NO: 67, and
 - (b) the VL domain consists of an amino acid sequence of SEQ ID NO: 63.
6. The binder polypeptide according to any one of claims 1-5, wherein the binder polypeptide comprises an antibody constant region.
7. The binder polypeptide according to any one of claims 1-6, wherein the binder polypeptide is an IgG antibody.
8. The binder polypeptide according to any one of claims 1-7, wherein the binder polypeptide comprises a human IgG4PE constant region.
9. The binder polypeptide according to any one of claims 1-8, comprising
 - (a) a heavy chain comprising an amino acid sequence of SEQ ID NO: 69, and
 - (b) a light chain comprising an amino acid sequence of SEQ ID NO: 65.
10. The binder polypeptide according to any one of claims 1-9, comprising
 - (a) a heavy chain consisting of an amino acid sequence of SEQ ID NO: 69, and
 - (b) a light chain consisting of an amino acid sequence of SEQ ID NO: 65.
11. A nucleic acid encoding a binder polypeptide according to any one of claims 1-10.
12. A host cell in vitro comprising the nucleic acid according to claim 11.
13. A composition comprising a binder polypeptide according to any one of claims 1-10, formulated with a pharmaceutically acceptable excipient.
14. A composition comprising (i) the binder polypeptide of any one of claims 1-10, and (ii) an antagonist of a TGF β superfamily ligand.

15. The composition according to claim 14, wherein the TGF β superfamily ligand is selected from activin, GDF-11, and bone morphogenic proteins.
16. A composition comprising (i) the binder polypeptide of any one of claims 1-10, and (ii) erythropoietin.
17. Use of a composition according to claim 13 in the manufacture of a medicament for treating in a patient a disease or disorder associated with iron overload selected from beta-thalassaemia, myelodysplastic syndrome, polycythemia vera, haemochromatosis, and refractory anaemia with ring-sideroblasts (RARS), wherein the medicament is to be administered to the patient.
18. Use of a composition according to claim 13 in the manufacture of a medicament for treating anaemia caused by iron overload in a patient, the medicament is to be administered to the patient.
19. The use according to claim 18, wherein the patient has beta-thalassaemia, myelodysplastic syndrome, polycythemia vera, haemochromatosis, or refractory anaemia with ring-sideroblasts (RARS).
20. Use of a composition according to claim 14 or 15 in the manufacture of a medicament for treating in a patient a disease or disorder associated with iron overload selected from beta-thalassaemia, myelodysplastic syndrome, polycythemia vera, haemochromatosis, and refractory anaemia with ring-sideroblasts (RARS), wherein the medicament is to be administered to the patient.
21. Use of a composition according to claim 16 in the manufacture of a medicament for treating anaemia associated with iron overload in a patient, wherein the medicament is to be administered to the patient.