Claims

1. A soluble polypeptide comprising a modified glycoprotein V (GPV) lacking a functional transmembrane domain for use in the treatment and/or prevention of a thrombotic disease in a subject, said treatment or prevention comprising administering to the subject an effective amount of said soluble polypeptide.

2. The soluble polypeptide for use according to claim 1, wherein the thrombotic disease is selected from the group consisting of thrombo-inflammatory conditions, venous thrombosis, arterial thrombosis, capillary thrombosis, portal vein thrombosis, renal vein thrombosis, jugular vein thrombosis, cerebral venous sinus thrombosis, thrombus formation during or after contacting blood with an artificial surface, in particular extracorporeal membrane oxygenation (ECMO), atherosclerosis, arthritis, coagulopathy, deep venous thrombosis (DVT), disseminated intravascular coagulopathy (DIC), a chronic or acute thromboembolism, pulmonary thromboembolism, Budd-Chiari syndrome, Paget-Schroetter diseases, stroke and myocardial infraction.

3. The soluble polypeptide for use according to any one of the preceding claims, wherein said modified GPV is a truncated GPV.

4. The soluble polypeptide for use according to any one of the preceding claims, wherein said modified GPV consists of a fragment of the extracellular domain of a native GPV, wherein said fragment lacks the transmembrane domain of said native GPV.

5. The soluble polypeptide for use according to claim 4, wherein said native GPV consists of the amino acid sequence as shown in SEQ ID NO:3.

6. The soluble polypeptide for use according to any one of the preceding claims, wherein said soluble polypeptide is a non-naturally occurring polypeptide.

7. The soluble polypeptide for use according to claim 6, further comprising a half-life-extending moiety.

8. The soluble polypeptide for use according to claim 7, wherein said half-life-extending moiety is conjugated to said modified GPV.

9. The soluble polypeptide for use according to claim 8, wherein said half-life-extending moiety is selected from the group consisting of hydroxyethyl starch (HES), polyethylene glycol (PEG), polysialic acids (PSAs) and albumin binding ligands, e.g. fatty acid chains.

10. The soluble polypeptide for use according to claim 7, wherein said half-life-extending moiety is a heterologous amino acid sequence fused to said modified GPV, either directly or via a linker.

11. The soluble polypeptide for use according to claim 10, wherein the half-life extending heterologous amino acid sequence comprises or consists of a polypeptide selected from the group consisting of albumin and a fragment thereof having a length of at least 100 amino acids, immunoglobulin constant regions and fragments thereof, in particular the Fc fragment, transferrin and fragments thereof, the C-terminal peptide of human chorionic gonadotropin, solvated random chains with large hydrodynamic volume (XTEN), homo-amino acid repeats (HAP), proline-alanine-serine repeats (PAS), afamin, alpha-fetoprotein, Vitamin D binding protein, polypeptides capable of binding under physiological conditions to albumin or immunoglobulin constant regions, and combinations thereof.

12. The soluble polypeptide for use according to any one of the preceding claims, wherein said soluble polypeptide is obtainable by recombinant expression in mammalian cells.

13. The soluble polypeptide for use according to any one of the preceding claims, wherein said treatment and/or prevention further comprises administering to said subject an anti-platelet or an anti-coagulant drug.

14. A pharmaceutical composition comprising a soluble polypeptide as defined in any one of claims 1 to 12, and a pharmaceutically acceptable excipient.

15. The pharmaceutical composition of claim 14, wherein said soluble polypeptide does not consist of the amino acid sequence as shown in SEQ ID NO:10.

16. A method of treating a thrombotic disease in a subject, comprising administering to the subject an effective amount of a soluble polypeptide as defined in any one of claims 1 to 12, or the pharmaceutical composition of claim 14 or 15.

17. A method of preparing the soluble polypeptide of any one of claims 1 to 12, comprising expressing a nucleic acid encoding the soluble polypeptide as defined in any one of claims 1 to 12 in a mammalian cell, and recovering the soluble polypeptide from the culture medium.

18. A non-naturally occurring soluble GPV as defined in any one of claims 5 to 12.

19. A soluble GPV lacking a functional transmembrane domain which does not consist of the amino acid sequence as shown in SEQ ID NO:10.

20. A pharmaceutical kit comprising (i) a soluble polypeptide according to any one of claims 1 to 12, and (ii) an anti-platelet or an anti-coagulant drug other than said soluble polypeptide.

Claims

1. A method of preparing a soluble polypeptide to be used for the treatment or prevention of post-ischemic organ damage and/or ischemic stroke, wherein the soluble polypeptide:
(i) comprises a modified glycoprotein V (GPV) lacking a functional transmembrane domain;
(ii) is incapable of being integrated into a cell membrane via transmembrane domain; and
(iii) wherein the GPV has a sequence identity of at least **70%** to the amino acid sequence set forth in SEQ ID NO: 3**,** wherein the method comprises expressing a nucleic acid encoding the soluble polypeptide **i**n a mammalian cell, and recovering the soluble polypeptide from the culture medium.

2. Use of a soluble polypeptide in the manufacture of a medicament for treating or preventing post-ischemic organ damage and/or ischemic stroke in a subject, wherein the soluble polypeptide comprises:
(i) a modified glycoprotein V (GPV) lacking a functional transmembrane domain;
(ii) is incapable of being integrated into a cell membrane via transmembrane domain; and
(iii) wherein the GPV has a sequence identity of at least 70% to the amino acid sequence set forth in SEQ ID NO: 3**.**

3. Use of a soluble GPV in the manufacture of a medicament for treating or preventing post-ischemic organ damage and/or ischemic stroke, wherein the soluble **GPC** lacks a functional transmembrane domain.