

**CLAIMS**

1. An isolated single-domain antibody (sdAb) directed against protein S (PS) enhancing the APC-cofactor activity of PS.
2. The isolated single-domain antibody according to claim 1, wherein said sdAb  
5 comprises a CDR1 having a sequence set forth as SEQ ID NO: 1, a CDR2 having a sequence set forth as SEQ ID NO: 2 and a CDR3 having a sequence set forth as SEQ ID NO: 3.
3. The isolated single-domain antibody according to claim 1 or 2 having at least 70% identity with a sequence set forth as SEQ ID NO:4
4. The isolated single-domain antibody according to claims 1 to 3 which comprises  
10 a sequence set forth as SEQ ID NO:4.
5. A cross-competing single-domain antibody which cross-competes for binding PS with the single domain antibody according to claims 1.
6. A polypeptide comprising at least one single-domain antibody according to claim 1.
7. The polypeptide according to claim 6 which comprises at least two single-domain antibodies according to claim 1.
8. The polypeptide according to claim 6, comprising two single-domain antibodies according to claim 1.
9. The polypeptide according to claim 7 which comprises a sequence set forth as  
20 SEQ ID NO:5.
10. A nucleic acid molecule encoding the single-domain antibody of claim 1 and/or a polypeptide of claim 6.
11. A vector that comprises the nucleic acid of claim 10.
12. A host cell which has been transfected, infected or transformed by the nucleic  
25 acid of claim 10 and/or the vector of claim 11.

13. A method for preventing or treating thrombotic disorders in a subject in need thereof, comprising administering to said subject an effective amount of the single-domain antibodies of claim 1 and/or the polypeptide of claim 6.

14. A method for preventing or treating vaso-occlusive crisis in a subject in need thereof, comprising administering to said subject an effective amount of the single-domain antibodies of claim 1 and/or the polypeptide of claim 6.

15. The method of claim 13, wherein the thrombotic disorders is sepsis, sickle-cell anemia; embolism (pulmonary and cerebral), stroke or cardiovascular disease.

16. A pharmaceutical composition comprising the single-domain antibody of claim 1 and/or the polypeptide of claim 6.