Patent Claims

1. A method for detecting in vitro human EPO receptor comprising the following step

determining in vitro the presence of human EPO receptor in a sample by incubating the sample with an EPO receptor antibody that specifically binds to human EPO receptor fragment LPGPGGSVDIV (SEQ ID NO: 01) and thereby detecting in vitro human EPO receptor,

wherein the EPO receptor antibody that specifically binds to EPO receptor fragment LPGPGGSVDIV (SEQ ID NO: 01) does not specifically bind to a protein obtainable from human endothelial cells that has a molecular weight of ~~about~~ 66kD.

2. An antibody that specifically binds to human EPO receptor, characterized in that the antibody binds to human EPO receptor fragment LPGPGGSVDIV (SEQ ID NO: 01) and does not specifically bind to a protein obtainable from human endothelial cells that has a molecular weight of ~~about~~ 66kD.

3. An antibody that specifically binds to human EPO receptor that can be used in a method according to claim 1.

4. The antibody according to claim 3, characterized in that the antibody binds to EPO receptor fragment LPGPGGSVDIV (SEQ ID NO: 01) and does not specifically bind to a protein obtainable from human endothelial cells that has a molecular weight of ~~about~~ 66kD.

5. Use of an antibody that specifically binds to human EPO receptor *in vitro*, characterized in that the antibody binds to EPO receptor fragment LPGPGGSVDIV (SEQ ID NO: 01) and does not specifically bind to a protein obtainable from human endothelial cells that has a molecular weight of ~~about~~ 66kD for detecting human EPO receptor.

6. A method for predicting or determining the responsiveness of a patient towards a medicament for increasing the number of red blood cells comprising

- determining in vitro the presence of the human EPO receptor on cancer cells of the patient, by incubating in vitro a sample of the patient with the

EPO receptor antibody of claim 2 to 4 and determining in vitro the binding of the antibody of claim 2 to 4 to the sample, and

- associating the presence of the human EPO receptor on the cancer cells of the patient with the responsiveness of the patient towards a medicament for increasing the number of red blood cells.

7. A method for producing an antibody that specifically binds to human EPO receptor comprising the following steps:

- immunizing an animal with a polypeptide comprising the EPO receptor fragment LDKWLLPRNPPSEDLPGPGGSVDIV (SEQ ID NO: 02), and

- selecting an antibody specifically binding to the EPO receptor fragment LPGPGGSVDIV (SEQ ID NO: 01) and thereby producing an antibody that specifically binds to human EPO receptor.

8. The method according to claim 1 or 6 or 7, the antibody according to any one of claims 2 to 4, or the use according to claim 5 characterized in that the antibody does not specifically bind to a protein obtainable from human endothelial cells that has a molecular weight of ~~about~~ 58kD to ~~about~~ 70kD.

9. The method according to any one of claims 1 or 6 to 8, the antibody according to any one of claims 2 to 4 or 8, or the use according to claims 5 or 8 characterized in that the antibody binds to a protein obtainable from human endothelial cells with an affinity of 10^{-3}M or higher.

10. The method according to any one of claims 1or 6 to 9, the antibody according to any one of claims 2 to 4, 8 or 9, or the use according to claims 5 or 8 or 9 in which the antibody is a polyclonal antibody or a monoclonal antibody.

11. The method according to any one of claims 1 or 6 to 10, the antibody according to any one of claims 2 to 4 or 8 to 10, or the use according to any one of claims 5 or 8 to 10 in which the antibody is a human, humanized, or chimeric antibody.

12. The method according to any one of claims 1 or 6 to 11, the antibody according to any one of claims 2 to 4 or 8 to 11, or the use according to any one of claims 5 or 8 to 11 in which the antibody is an antibody fragment that binds human EPO receptor.

13. A pharmaceutical formulation comprising the antibody of any one of claims 2 to 4 and a pharmaceutically acceptable carrier.

14. An isolated nucleic acid encoding the antibody according to of any one of claims 2 to 4.

15. A host cell comprising the nucleic acid of claim 14.

16. A diagnostic kit comprising an antibody according to any one of claims 2 to 4.

17. Use of an antibody according to any one of claims 2 to 4 for analysis of EPO receptor in a human tissue sample or cell sample.

18. The use according to claim 17, characterized in that the sample is a lysate of human tissue or cells, or a section of human tissue, or a section of a fresh human tissue, or frozen human tissue, or a section of frozen human tissue, or formalin-fixed paraffin embedded human tissue, or a section of formalin-fixed paraffin embedded human tissue.

19. The use according to any one of claims 17 or 18, characterized in that the analysis is performed by immunochemistry, immunofluorescence or immunohistochemistry.

20. The use according to any one of claims 17 to 18, characterized in that the analysis is performed by Western Blot.