

CLAIMS

1. An antibody comprising a TNF α -binding domain and an FcRn-binding site, having a
5 high affinity to human FcRn at pH 6, said high affinity being characterized by a dissociation
equilibrium constant (K_D) of less than 100 nM, and further having no affinity or a low affinity to
human FcRn at pH 7.4, said low affinity being characterized by a K_D of greater than 10 μ M,
wherein the amino acid sequence of the antibody comprises the amino acids 311R (EU
numbering), 428E (EU numbering) and 434W (EU numbering), and wherein the antibody
10 comprises (i) a V_L domain comprising a CDR1 region having the amino acid sequence as
shown in SEQ ID NO:3, a CDR2 region having the amino acid sequence as shown in SEQ ID
NO:4, and a CDR3 region having the amino acid sequence as shown in SEQ ID NO:5, and (ii)
a V_H domain comprising a CDR1 region having the amino acid sequence as shown in SEQ
ID NO:6, a CDR2 region having the amino acid sequence as shown in SEQ ID NO:7, and a
15 CDR3 region having the amino acid sequence as shown in SEQ ID NO:8.
2. The antibody of claim 1, having an affinity to human FcRn at pH 6 that is greater than
that of infliximab.
3. The antibody of any one of the preceding claims, wherein said high affinity to human
FcRn at pH 6 is characterized by a dissociation constant K_D of less than 10 nM.
- 20 4. The antibody of any one of the preceding claims, which binds to human TNF α with a
 K_D of less than 100 pM.
5. The antibody of any one of the preceding claims, which is transported across a
polarized cell monolayer from the apical side to the basolateral side and
6. wherein the amount of antibody transported across the polarized cell monolayer is
25 greater than twice the amount of infliximab transported across the polarized cell monolayer.
The antibody of any one of the preceding claims, wherein a greater percentage of the antibody
than that of infliximab is transported across a polarized cell monolayer from the apical side to
the basolateral side in the presence of a tenfold excess of competing immunoglobulins,
wherein the percentage refers to the total mass of immunoglobulins transported across the
30 polarized cell monolayer.

7. The antibody of claim 6, wherein the percentage of the antibody transported across the polarized cell monolayer is greater than three times the percentage of infliximab transported across the polarized cell monolayer.
8. The antibody of any one of the preceding claims, which is a non-fucosylated antibody
5 or an antibody having reduced fucosylation.
9. Use of the antibody as defined in any one of the preceding claims for the manufacturing of a medicament for the treatment of an inflammatory condition.
10. Use of the antibody according to claim 9, wherein the inflammatory condition is an inflammatory disorder of the gastrointestinal tract.
- 10 11. Use of the antibody according to claim 9 or 10, wherein said treatment comprises orally administering an effective amount of said antibody.
12. Use of the antibody according to claim 9 or 10, wherein said antibody is applied topically.
13. A pharmaceutical composition comprising the antibody of any one of claims 1 to 8.
- 15 14. A method for improving the transcytosis of an antibody directed against TNF α as defined in any one of claims 1 to 8, comprising introducing the substitutions Q311R (EU numbering), M428E (EU numbering) and N434W (EU numbering) in the amino acid sequence of the antibody.
- 20 15. A method for extending the plasma half-life of an antibody directed against TNF α as defined in any one of claims 1 to 8, comprising introducing the substitutions Q311R (EU numbering), M428E (EU numbering) and N434W (EU numbering) in the amino acid sequence of the antibody.