

CLAIMS

1. Use of an isolated antibody that binds to human FcRn in the manufacture of a medicament for the treatment of lupus nephritis, myasthenia gravis, chronic inflammatory demyelinating polyneuropathy (CIDP), systemic lupus, hemolytic anemia, bullous pemphigoid, chronic inflammatory demyelinating polyneuropathy, rheumatoid arthritis, Sjögren's syndrome, and autoimmune haemolytic anaemia (AIHA), the isolated antibody comprising: (1) a light chain comprising the amino acid sequence of SEQ ID NO: 19~~variable region comprising a CDR L1, a CDR L2, and a CDR L3;~~ and (2) a heavy chain comprising the amino acid sequence of SEQ ID NO: 24~~variable region comprising a CDR H1, a CDR H2, and a CDR H3,~~ wherein the isolated antibody is selected from the group consisting of:

~~(a) an antibody wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence GDSERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequence SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence TYAMG (SEQ ID NO: 4), CDR H2 comprise the amino acid sequence SIGSSGAQTRYADS (SEQ ID NO: 7), and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11);~~

~~(b) — an antibody wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence GDSERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequence SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence DYAMG (SEQ ID NO: 5), CDR H2 comprise the amino acid sequence SIGASGSQTRYADS (SEQ ID NO: 8), and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11);~~

~~(c) — an antibody wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence GDSERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequence SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence NYAMG (SEQ ID NO: 6), CDR H2 comprise the amino acid sequence SIGASGAQTRYADS (SEQ ID NO: 9), and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11);~~

~~(d) — an antibody wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence~~

GDSERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequence SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence TYAMG (SEQ ID NO: 4), CDR H2 comprise the amino acid sequence SIGASGGQTRYADS (SEQ ID NO: 10), and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11); and

(e) — an antibody wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence GDSERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequence SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence TYAMG (SEQ ID NO: 4), CDR H2 comprise the amino acid sequence SIGASGSQTRYADS (SEQ ID NO: 8) and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11).

2. The use of claim 1, wherein the sequence of CDR L1 is TGTGSDVGSYNLVS (SEQ ID NO: 1), the sequence of CDR L2 is GDSERPS (SEQ ID NO: 2), the sequence of CDR L3 is SSYAGSGIYV (SEQ ID NO: 3), the sequence of CDR H1 is TYAMG (SEQ ID NO: 4), the sequence of CDR H2 is SIGASGSQTRYADS (SEQ ID NO: 8), and the sequence of CDR H3 is LAIGDSY (SEQ ID NO: 11).

3. The use of claim 1, wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence GDSERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequence SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence TYAMG (SEQ ID NO: 4), CDR H2 comprise the amino acid sequence SIGSSGAQTRYADS (SEQ ID NO: 7), and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11); and the light chain of comprises an amino acid sequence having at least 90% identity to

QSALTQPASVSGSPGQSITISCTGTGSDVGSYNLVSQYQHPGKAPKLMYGDSE
RPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCSSYAGSGIYVFGTGTVTLGQPKA
APSVTLFPSSSEELQANKATLVCLISDFYPGAVTVAWKADSSPVKAGVETTTTPSKQSNN
KYAASSYLSLTPEQWKSHKSYSCQVTHEGSTVEKTVAPTECS (SEQ ID NO: 19).

4. The use of claim 1, wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence

GDSERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequences SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence TYAMG (SEQ ID NO: 4), CDR H2 comprise the amino acid sequence SIGASGSQTRYADS (SEQ ID NO: 8), and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11); and

the heavy chain comprises an amino acid sequence having at least 90% identity to

EVQLLESGGGLVQPGGSLRLSCAASGFTFSTYAMGWVRQAPGKGLEWVSSIGASGSQTRYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARLAIGDSYWGQGMVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYASTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPG (SEQ ID NO: 24).

5. — The use of claim 1, wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence GDSERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequences SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence TYAMG (SEQ ID NO: 4), CDR H2 comprise the amino acid sequence SIGSSGAQTRYADS (SEQ ID NO: 7), and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11); and

the heavy chain comprises an amino acid sequence having at least 90% identity to

EVQLLESGGGLVQPGGSLRLSCAASGFTFSTYAMGWVRQAPGKGLEWVSSIGSSGAQTRYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARLAIGDSYWGQGMVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYASTYRWSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPG (SEQ ID NO: 20).

6. — The use of claim 1, wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence GDSEERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequences SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence DYAMG (SEQ ID NO: 5), CDR H2 comprise the amino acid sequence SIGASGSQTRYADS (SEQ ID NO: 8), and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11); and

the heavy chain comprises an amino acid sequence having at least 90% identity to EVQLLESGGGLVQPGGSLRLSCAASGFTFSDYAMGWVRQAPGKGLEWVSSIGASGSQTRYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARLAIGDSYWGQGTMTVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYASTYRWSVLTIVLHQQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPG (SEQ ID NO: 21).

7. — The use of claim 1, wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence GDSEERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequences SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence NYAMG (SEQ ID NO: 6), CDR H2 comprise the amino acid sequence SIGASGAQTRYADS (SEQ ID NO: 9), and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11); and

the heavy chain comprises an amino acid sequence having at least 90% identity to EVQLLESGGGLVQPGGSLRLSCAASGFTFSNYAMGWVRQAPGKGLEWVSSIGASGAQTRYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARLAIGDSYWGQGTMTVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYASTYRWSVLTIVLHQQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPG (SEQ ID NO: 22).

8. The use of claim 1, wherein CDR L1 comprises the amino acid sequence TGTGSDVGSYNLVS (SEQ ID NO: 1), CDR L2 comprises the amino acid sequence GDSERPS (SEQ ID NO: 2), CDR L3 comprises the amino acid sequences SSYAGSGIYV (SEQ ID NO: 3), CDR H1 comprises the amino acid sequence TYAMG (SEQ ID NO: 4), CDR H2 comprise the amino acid sequence SIGASGGQTRYADS (SEQ ID NO: 10), and CDR H3 comprises the amino acid sequence LAIGDSY (SEQ ID NO: 11); and

the heavy chain comprises an amino acid sequence having at least 90% identity to EVQLLESGGGLVQPGGSLRLSCAASGFTFSTYAMGWVRQAPGKGLEWVSSIGASGGQTRYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARLAIGDSYWGQGTMTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGPPSVFLFPPKPKDTLMISRTPEVTCWVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYASTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSR EEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPG (SEQ ID NO: 23).

9. The use of claim 5, wherein the heavy chain comprises an amino acid sequence having at least 95% identity to

EVQLLESGGGLVQPGGSLRLSCAASGFTFSTYAMGWVRQAPGKGLEWVSSIGSSGAQTRYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARLAIGDSYWGQGTMTVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYASTYRWSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPG (SEQ ID NO: 20).

10. The use of claim 6, wherein the heavy chain comprises an amino acid sequence having at least 95% identity to

EVQLLESGGGLVQPGGSLRLSCAASGFTFSDYAMGWVRQAPGKGLEWVSSIGASGSQT

RYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARLAIGDSYWGQGTMTVSS
ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSS
GLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGG
PSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQY
ASTYRWSVLTIVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRD
ELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKS
RWQQGNVFSCSVMHEALHNHYTQKSLSLSPG (SEQ ID NO: 21).

11. The use of claim 7, wherein the heavy chain comprises an amino acid sequence having at least 95% identity to

EVQLLES GGGGLVQPGGSLRLSCAASGFTFSNYAMGWVRQAPGKGLEWVSSIGASGAQT
RYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARLAIGDSYWGQGTMTVSS
ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSS
GLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGG
PSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQY
ASTYRWSVLTIVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRE
EMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKS
RWQQGNVFSCSVMHEALHNHYTQKSLSLSPG (SEQ ID NO: 22).

12. The use of claim 8, wherein the heavy chain comprises an amino acid sequence having at least 95% identity to

EVQLLES GGGGLVQPGGSLRLSCAASGFTFSTYAMGWVRQAPGKGLEWVSSIGASGGQT
RYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARLAIGDSYWGQGTMTVSS
ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSS
GLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGG
PSVFLFPPKPKDTLMISRTPEVTCWVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQY
ASTYRVVSVLTIVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSR
EEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDK
SRWQQGNVFSCSVMHEALHNHYTQKSLSLSPG (SEQ ID NO: 23).

~~13.~~ The use of claim 4, wherein the heavy chain comprises an amino acid sequence having at least 95% identity to

~~EVQLLES~~GGGLVQPGGSLRLSCAASGFTFSTYAMGWVRQAPGKGLEWVSSIGAS
GSQTRYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCARLAIGDSYWGQGM
VTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPA
VLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAP
ELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKP
REEQYASTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVY
TLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSK
LTVDKSRWQQGNVFCFSVMHEALHNHYTQKSLSLSPG (SEQ ID NO: 24).

~~142.~~ The use of claim 1, wherein the disorder is myasthenia gravis.

~~153.~~ The use of claim 1, the disorder is autoimmune haemolytic anaemia.

~~164.~~ The use of claim 1, wherein the antibody is administered at about 1 mg/kg to about 50 mg/kg.

~~175.~~ The use of claim 1, wherein the isolated antibody is formulated for delivery by a method selected from the group consisting of intravenous administration, parenteral administration, subcutaneous administration, intramuscular administration, intra-arterial administration, intrathecal administration, and intraperitoneal administration.

~~186.~~ The use of claim ~~175~~, wherein the delivery method is intravenous.

~~197.~~ The use of claim ~~175~~, wherein the delivery method is subcutaneous.

~~208.~~ The use of claim 1, wherein the isolated antibody is administered daily, weekly, monthly, biannually, or annually.

~~219.~~ The use of claim 1, wherein the disorder is lupus nephritis.

~~2210.~~ The use of claim 1, wherein the disorder is autoimmune haemolytic anaemia (AIHA).

~~2311.~~ The use of claim 1, wherein the disorder is chronic inflammatory demyelinating polyneuropathy (CIDP).

~~2412.~~ The use of claim 1, wherein the disorder is systemic lupus.

~~2513.~~ The use of claim 1, wherein the disorder is bullous pemphigoid.

~~2614.~~ The use of claim 1, wherein the disorder is chronic inflammatory demyelinating polyneuropathy.

~~2715.~~ The use of claim 1, wherein the disorder is rheumatoid arthritis.

~~2816.~~ The use of claim 1, wherein the disorder is Sjögren's syndrome.

~~2917.~~ The method of claim 1, wherein the isolated antibody that binds to human FeRn, comprises a light chain comprising variable region of the amino acid sequence of SEQ ID NO: 19; and a heavy chain comprising variable region of the amino acid sequence of SEQ ID NO: 24

~~3018.~~ The method of claim 1, wherein the isolated antibody that binds to human FeRn, comprises a light chain comprising variable region of the amino acid sequence of SEQ ID NO: 19; and a heavy chain comprising variable region of the amino acid sequence of SEQ ID NO: 20.

~~3119.~~ The method of claim 1, wherein the isolated antibody that binds to human FeRn, comprises a light chain comprising variable region of the amino acid sequence of SEQ ID NO: 19; and a heavy chain comprising variable region of the amino acid sequence of SEQ ID NO: 21.

~~3220.~~ The method of claim 1, wherein the isolated antibody that binds to human FeRn, comprises a light chain comprising variable region of the amino acid sequence of SEQ ID NO: 19; and a heavy chain comprising variable region of the amino acid sequence of SEQ ID NO: 22.

~~3321.~~ The method of claim 1, wherein the isolated antibody that binds to human FeRn, comprises a light chain comprising variable region of the amino acid sequence of SEQ ID NO: 19; and a heavy chain comprising variable region of the amino acid sequence of SEQ ID NO: 23.