

WHAT IS CLAIMED IS:

1. Use of an effective amount of CTLA4 molecule or pharmaceutical composition thereof in the manufacture of a medicament for achieving drug free remission in subjects with early rheumatoid arthritis (RA),
5 wherein the CTLA4 molecule binds CD80 and/or CD86 and comprises an extracellular domain of CTLA4 as shown in SEQ ID NO:2 beginning with alanine at position 26 or methionine at position 27 and ending with aspartic acid at position 150,
10 wherein said medicament is to be administered to the subject until Disease Activity Score Calculator for Rheumatoid Arthritis (DAS)-defined remission is achieved, and once said remission is achieved all RA therapy is withdrawn.
2. The use of claim 1 wherein said medicament further comprises an amino acid sequence which alters the solubility or affinity of the CTLA4 molecule.
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3. The use of claim 2, wherein the amino acid sequence which alters the solubility or affinity comprises an immunoglobulin.
4. The use of claim 3, wherein the immunoglobulin is an immunoglobulin
20 constant region or portion thereof.
5. The use of claim 4, wherein the immunoglobulin constant region or portion thereof is mutated to reduce effect or function.
- 25 6. The use of claim 4, wherein the immunoglobulin constant region or portion thereof comprises a hinge, CH2 and CH3 regions of a human or monkey immunoglobulin molecule.
7. The use of claim 5, wherein the immunoglobulin constant region or
30 portion thereof comprises a hinge, CH2 and CH3 regions of a human or monkey immunoglobulin molecule.

8. Use of an effective amount of CTLA4 molecule or pharmaceutical composition thereof, which comprises an amino acid sequence beginning with methionine at position 27 or alanine at position 26 and ending with lysine at position 383 of SEQ ID NO:2, in the manufacture of a medicament for achieving drug free remission
5 in subjects with early rheumatoid arthritis, wherein said medicament is to be administered to the subject until DAS-defined remission is achieved, and once said remission is achieved all RA therapy is withdrawn.

9. The use of claim 1 or 8, wherein DAS-defined remission is characterized
10 as DAS28 (C-reactive protein[CRP]) less than 2.6 after 12 months of treatment.

10. The use of claim 1 or 8, wherein the CTLA4 pharmaceutical composition is a subcutaneous formulation administered at 125mg/week subcutaneously.

15 11. The use of claim 1 or 8, wherein early RA is characterized as having active clinical synovitis of ≥ 2 joints for ≥ 8 weeks, DAS28 (CRP) ≥ 3.2 and anti-citrullinated peptide (CCP)-2 antibody positivity.

20 12. A method of identifying subjects with early RA who are likely to achieve drug-free remission after treatment with CTLA4 molecules or pharmaceutical compositions thereof comprising selecting subjects with active clinical synovitis of ≥ 2 joints for ≥ 8 weeks, DAS28 (CRP) ≥ 3.2 and anti-citrullinated peptide (CCP)-2 antibody positivity.

25 13. Use of an effective amount of CTLA4 molecule or pharmaceutical composition thereof in the manufacture of a medicament for inhibiting structural damage in subjects with early RA,

wherein the CTLA4 molecule binds CD80 and/or CD86 and comprises an extracellular domain of CTLA4 as shown in SEQ ID NO:2 beginning with alanine at
30 position 26 or methionine at position 27 and ending with aspartic acid at position 150,
wherein said medicament is to be administered to the subject until DAS-defined remission is achieved and once said remission is achieved all RA therapy is withdrawn.

14. The use of claim 13 wherein structural damage is assessed by erosion, osteitis and /or synovitis scoring of the wrist and hand.