

CLAIMS

1. A method for treating non-inflammatory pain (NIP) in a subject in need thereof with rheumatoid arthritis, comprising administering to the subject a therapeutically effective dose of an antibody that specifically binds IL-6 receptor, wherein the antibody comprises a heavy chain variable region comprising complementarity determining regions HCDR1, HCDR2, and HCDR3 and a light chain variable region comprising complementary determining regions LCDR1, LCDR2, and LCDR3, wherein:
- 5 (a) HCDR1 comprises the amino acid sequence of SEQ ID NO: 3;
(b) HCDR2 comprises the amino acid sequence of SEQ ID NO: 4;
10 (c) HCDR3 comprises the amino acid sequence of SEQ ID NO: 5;
(d) LCDR1 comprises the amino acid sequence of SEQ ID NO: 6;
(e) LCDR2 comprises the amino acid sequence of SEQ ID NO: 7; and
(f) LCDR3 comprises the amino acid sequence of SEQ ID NO: 8.
2. The method of claim 1, wherein the antibody that specifically binds to the IL-6 receptor
15 comprises a heavy chain variable region sequence SEQ ID NO: 1 and a light chain variable region sequence of SEQ ID NO: 2.
3. The method of claim 1, wherein the subject has a tender joint count of at least 21 and the tender joint count differs from a swollen joint count by at least 5.
4. The method of any one of claims 1-3, wherein the antibody is administered
20 subcutaneously.
5. The method of any one of claims 1-4, wherein the subject is administered a dose of about 150 mg or about 200 mg of the antibody.
6. The method of any one of claims 1-5, wherein the antibody is administered to the subject at least once every two weeks.
- 25 7. The method of any one claims 1-6, wherein the subject has moderately to severely active rheumatoid arthritis.
8. The method of any one of claims 1-7, wherein the subject is not administered any other DMARD in course of administration with the antibody.

9. The method of any one of claims 1-7, wherein the subject is also administered one or more additional DMARDs with the antibody.
10. The method of claim 9, wherein the one or more additional DMARDs comprise methotrexate.
- 5 11. The method of claim 9, wherein the one or more additional DMARDs comprise a tumor necrosis factor (TNF) antagonist.
12. The method of claim 11, wherein the TNF antagonist is selected from the group consisting of etanercept, infliximab, adalimumab, golimumab and certolizumab pegol.
13. The method of any one of claims 1-12, wherein the subject was previously ineffectively
10 treated for rheumatoid arthritis by administering at least one DMARD distinct from the antibody.
14. The method of claim 13, wherein the DMARD is methotrexate.
15. The method of claim 13, wherein the DMARD is a TNF antagonist.
16. The method of claim 15, wherein the TNF antagonist is selected from the group
15 consisting of etanercept, infliximab, adalimumab, golimumab and certolizumab pegol.
17. The method of any one of claims 1-16, wherein the subject is intolerant of one or more DMARDs, or wherein the subject is considered an inappropriate candidate for continued treatment with one or more DMARDs.
18. The method of any one of claims 1-16, wherein the subject has had an inadequate
20 response to one or more DMARDs.
19. The method of claim 17 or 18, wherein the DMARD is methotrexate.
20. The method of claim 17 or 18, wherein the DMARD is a TNF antagonist.
21. The method of claim 20, wherein the TNF antagonist is selected from the group consisting of etanercept, infliximab, adalimumab, golimumab and certolizumab pegol.
- 25 22. A method for treating NIP in a subject in need thereof, comprising
(i) selecting a subject who has rheumatoid arthritis and NIP; and

- (ii) administering to the subject a therapeutically effective dose of an antibody that specifically binds IL-6 receptor, wherein the antibody comprises a heavy chain variable region comprising complementarity determining regions HCDR1, HCDR2, and HCDR3 and a light chain variable region comprising complementary determining regions LCDR1, LCDR2, and LCDR3, wherein:
- 5 (a) HCDR1 comprises the amino acid sequence of SEQ ID NO: 3;
 (b) HCDR2 comprises the amino acid sequence of SEQ ID NO: 4;
 (c) HCDR3 comprises the amino acid sequence of SEQ ID NO: 5;
 (d) LCDR1 comprises the amino acid sequence of SEQ ID NO: 6;
10 (e) LCDR2 comprises the amino acid sequence of SEQ ID NO: 7; and
 (f) LCDR3 comprises the amino acid sequence of SEQ ID NO: 8.
23. The method of claim 22, wherein the antibody that specifically binds to the IL-6 receptor comprises a heavy chain variable region sequence SEQ ID NO: 1 and a light chain variable region sequence of SEQ ID NO: 2.
- 15 24. The method of claim 22, wherein the subject has a tender joint count of at least 21 and the tender joint count differs from a swollen joint count by at least 5.
25. The method of any one of claims 22-24, wherein the antibody is administered subcutaneously.
26. The method of any one of claims 22-25, wherein the subject is administered a dose of
20 about 150 mg or about 200 mg of the antibody.
27. The method of any one of claims 22-26, wherein the antibody is administered to the subject at least once every two weeks.
28. The method of any one of claims 22-27, wherein the subject has moderately to severely active rheumatoid arthritis.
- 25 29. The method of any one of claims 22-28, wherein the subject is not administered any other DMARD in course of administration with the antibody.
30. The method of any one of claims 22-28 wherein the subject is also administered one or more additional DMARDs with the antibody.

31. The method of claim 30, wherein the one or more additional DMARDs comprise methotrexate.
32. The method of claim 30, wherein the one or more additional DMARDs comprise a TNF antagonist.
- 5 33. The method of claim 32, wherein the TNF antagonist is selected from the group consisting of etanercept, infliximab, adalimumab, golimumab and certolizumab pegol.
34. The method of any one of claims 22-33, wherein the subject was previously ineffectively treated for rheumatoid arthritis by administering at least one DMARD distinct from the antibody.
- 10 35. The method of claim 34, wherein the DMARD is methotrexate.
36. The method of claim 34, wherein the DMARD is a TNF antagonist.
37. The method of claim 36, wherein the TNF antagonist is selected from the group consisting of etanercept, infliximab, adalimumab, golimumab and certolizumab pegol.
38. The method of any one of claims 22-37, wherein the subject is intolerant of one or more
- 15 DMARDs, or wherein the subject is considered an inappropriate candidate for continued treatment with one or more DMARDs.
39. The method of any one of claims 22-37, wherein the subject has had an inadequate response to one or more DMARDs.
40. The method of claim 38 or 39, wherein the DMARD is methotrexate.
- 20 41. The method of claim 38 or 39, wherein the DMARD is a TNF antagonist.
42. The method of claim 41, wherein the TNF antagonist is selected from the group consisting of etanercept, infliximab, adalimumab, golimumab and certolizumab pegol.
43. An antibody for use in treating NIP in a patient in need thereof with rheumatoid arthritis, wherein the antibody specifically binds IL-6 receptor, and wherein the antibody
- 25 comprises a heavy chain variable region comprising complementarity determining regions HCDR1, HCDR2, and HCDR3 and a light chain variable region comprising complementary determining regions LCDR1, LCDR2, and LCDR3, wherein:

- (a) HCDR1 comprises the amino acid sequence of SEQ ID NO: 3;
(b) HCDR2 comprises the amino acid sequence of SEQ ID NO: 4;
(c) HCDR3 comprises the amino acid sequence of SEQ ID NO: 5;
(d) LCDR1 comprises the amino acid sequence of SEQ ID NO: 6;
5 (e) LCDR2 comprises the amino acid sequence of SEQ ID NO: 7; and
(f) LCDR3 comprises the amino acid sequence of SEQ ID NO: 8.
44. The antibody for use according to claim 43, wherein the antibody specifically binds to the IL-6 receptor comprises a heavy chain variable region sequence SEQ ID NO: 1 and a light
10 chain variable region sequence of SEQ ID NO: 2.
45. The antibody for use according to claim 43, wherein the subject has a tender joint count of at least 21 and the tender joint count differs from a swollen joint count by at least 5.
46. The antibody for use according to any one of claims 43-45, wherein the antibody is administered subcutaneously.
- 15 47. The antibody for use according to any one of claims 43-46, wherein the subject is administered a dose of about 150 mg or about 200 mg of the antibody.
48. The antibody for use according to any one of claims 43-47, wherein the antibody is administered to the subject at least once every two weeks.
49. The antibody for use according to claim 43-48, wherein the subject has moderately to
20 severely active rheumatoid arthritis.
50. The antibody for use according to any one of claims 43-49, wherein the subject is not administered with any other DMARD in course of administration with the antibody.
51. The antibody for use according to any one of claims 43-49, wherein the subject is also administered one or more additional DMARDs with the antibody.
- 25 52. The antibody for use according to claim 51, wherein the one or more additional DMARDs comprise methotrexate.
53. The antibody for use according to claim 51, wherein the one or more additional DMARDs comprise a TNF antagonist.

54. The antibody for use according to claim 53, wherein the TNF antagonist is selected from the group consisting of etanercept, infliximab, adalimumab, golimumab and certolizumab pegol.
55. The antibody for use according to any one of claims 43-54, wherein the subject was previously ineffectively treated for rheumatoid arthritis by administering at least one DMARD different from the antibody.
56. The antibody for use according to claim 55, wherein the DMARD is methotrexate.
57. The antibody for use according to claim 55, wherein the DMARD is a TNF antagonist.
58. The antibody for use according to claim 57, wherein the TNF antagonist is selected from the group consisting of etanercept, infliximab, adalimumab, golimumab and certolizumab pegol.
59. The antibody for use according to any one of claims 43-58, wherein the subject is intolerant of one or more DMARDs, or wherein the subject is considered an inappropriate candidate for continued treatment with one or more DMARDs.
60. The antibody for use according to any one of claims 43-58, wherein the subject is has had an inadequate response to one or more DMARDs.
61. The antibody for use according to claim 59 or 60, wherein the DMARD is methotrexate.
62. The antibody for use according to claim 59 or 60, wherein the DMARD is a TNF antagonist.
63. The antibody for use according to claim 62, wherein the TNF antagonist is selected from the group consisting of etanercept, infliximab, adalimumab, golimumab and certolizumab pegol.