

Claims

1. A crystalline form of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide, which is selected from the series consisting of polymorph 1, polymorph 2, polymorph 3, hydrate 1 and hydrate 2 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide and any mixture thereof.
2. Polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1, which has characteristic reflections in an X-ray powder diffractogram using CuK-alpha1 radiation in reflection mode at 2Theta angles (in degree) of 14.9 ± 0.2 , 19.4 ± 0.2 , 19.7 ± 0.2 , 20.0 ± 0.2 , 22.3 ± 0.2 , 25.0 ± 0.2 .
3. Polymorph 2 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1, which has characteristic reflections in an X-ray powder diffractogram using CuK-alpha1 radiation in reflection mode at 2Theta angles (in degree) of 5.8 ± 0.2 , 6.7 ± 0.2 , 9.3 ± 0.2 , 11.2 ± 0.2 , 19.4 ± 0.2 , 22.1 ± 0.2 .
4. Polymorph 3 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1, which has characteristic reflections in an X-ray powder diffractogram using CuK-alpha1 radiation in reflection mode at 2Theta angles (in degree) of 15.2 ± 0.2 , 15.9 ± 0.2 , 17.3 ± 0.2 , 19.2 ± 0.2 , 22.2 ± 0.2 , 25.3 ± 0.2 .
5. Hydrate 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1, which has characteristic reflections in an X-ray powder diffractogram using CuK-alpha1 radiation in reflection mode at 2Theta angles (in degree) of 5.3 ± 0.2 , 13.5 ± 0.2 , 17.9 ± 0.2 , 19.5 ± 0.2 , 21.5 ± 0.2 , 24.9 ± 0.2 .

6. Hydrate 2 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide which has characteristic reflections in an X-ray powder diffractogram using CuK-alpha1 radiation in reflection mode at 2Theta angles (in degree) of 2.9 ± 0.2 , 5.3 ± 0.2 , 8.3 ± 0.2 , 11.5 ± 0.2 , 17.1 ± 0.2 , 22.8 ± 0.2 .

7. A pharmaceutical composition comprising at least one of polymorphs 1, 2 and 3 and hydrates 1 and 2 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to any of claims 1 to 6, and one or more pharmaceutically acceptable excipients.

8. A pharmaceutical composition according to claim 7, comprising polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 2, and one or more pharmaceutically acceptable excipients.

9. Polymorph 1, 2 or 3 or hydrate 1 or 2 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to any of claims 1 to 6 for use as a pharmaceutical.

10. Polymorph 1, 2 or 3 or hydrate 1 or 2 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to any of claims 1 to 6 for use in the treatment of a disease whose course involves an increased activity of I κ B kinase.

11. Polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 2 for use in the treatment of a disease whose course involves an increased activity of I κ B kinase according to claim 10.

12. A process for preparing polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-

amide according to any of claims 1 and 2, comprising heating polymorph 2 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 3 in a mixture of acetone and water to a temperature of 50 to 60 °C, cooling the mixture to 20 to 25 °C and isolating the precipitated solid.

13. A process for preparing polymorph 2 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to any of claims 1 and 3, comprising heating hydrate 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 5 in a mixture of diisopropyl ether and methanol to a temperature of 60 to 70 °C, cooling the mixture to 20 to 25 °C and isolating the precipitated solid.

14. A process for preparing polymorph 3 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to any of claims 1 and 4, comprising drying hydrate 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 5 at a temperature of 50 to 70 °C and a pressure of 20 to 50 mbar.

15. A process for purifying 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide, wherein at least one of polymorph 2, polymorph 3, hydrate 1 and hydrate 2 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to any of claims 1 and 3 to 6 or a mixture of any of them is isolated.

CLAIMS

1. Polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide, which has characteristic reflections in an X-ray powder diffractogram using CuK-alpha1 radiation in reflection mode at 2Theta angles (in degree) of 14.9 ± 0.2 , 19.4 ± 0.2 , 19.7 ± 0.2 , 20.0 ± 0.2 , 22.3 ± 0.2 , 25.0 ± 0.2 .
2. A pharmaceutical composition-comprising polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1, and one or more pharmaceutically acceptable excipients.
3. Polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1 for use as a pharmaceutical.
4. Polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1 for use in the treatment of a disease whose course involves an increased activity of I κ B kinase.
5. A process for preparing polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1, comprising heating polymorph 2 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide in a mixture of acetone and water to a temperature of 50 to 60 °C, cooling the mixture to 20 to 25 °C and isolating the precipitated solid.
6. Polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1 for use in the treatment of inflammatory, immunologically or metabolism-mediated acute

and chronic arthritis, arthropathies, rheumatoid arthritis, degenerative joint diseases, spondyloses, diabetes Type II, inflammatory bowel disease, loss of cartilage following joint trauma or a relatively long period of joint immobilization following meniscus or patella injuries or ligament ruptures, diseases of the connective tissue, myalgias and disturbances of bone metabolism.

7. Polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1 for use in the treatment of pain including acute pains and chronic pains.

8. Polymorph 1 of 2-(2-methylamino-pyrimidin-4-yl)-1H-indole-5-carboxylic acid [(S)-1-carbamoyl-2-(phenyl-pyrimidin-2-yl-amino)-ethyl]-amide according to claim 1 for use in the treatment of chronic pain according to claim 7 wherein the chronic pain is selected from chronic musculoskeletal diseases, pains associated with menstrual bleeding, pains associated with osteoarthritis or rheumatoid arthritis, pains associated with intestinal inflammation, pains associated with cardiac muscle inflammation, pains associated with multiple sclerosis, pains associated with neuritis, pains associated with carcinomas and sarcomas, pains associated with AIDS, pains associated with chemotherapy, amputation pain, trigeminus neuralgia, headaches, and neuropathic pains.