

CLAIMS

1. A pharmaceutical composition comprising a soluble fibroblast growth factor receptor 3 (sFGFR3) polypeptide consisting of an amino acid sequence with at least 99% sequence identity to the amino acid sequence of SEQ ID NO: 4, in which the pharmaceutical
5 composition comprises between about 1 mg/ml and about 500 mg/ml of the sFGFR3 polypeptide.
2. A pharmaceutical composition according to Claim 1, in which the sFGFR3 polypeptide consists of the amino acid sequence of SEQ ID NO: 4.
3. A pharmaceutical composition according to Claim 1 or 2, in which the sFGFR3
10 polypeptide is an isolated sFGFR3 polypeptide.
4. A pharmaceutical composition according to Claim 1, 2 or 3, in which the sFGFR3 polypeptide binds to fibroblast growth factor 1 (FGF1), fibroblast growth factor 2 (FGF2), fibroblast growth factor 9 (FGF9) or fibroblast growth factor 18 (FGF18).
5. A pharmaceutical composition according to any preceding claim, further comprising a
15 pharmaceutically acceptable excipient, carrier, or diluent.
6. A pharmaceutical composition according to any preceding claim for use in treating a skeletal growth retardation disorder in a subject.
7. A pharmaceutical composition for use according to Claim 6, in which the pharmaceutical composition is formulated for administration at a dose of about 0.002 mg/kg
20 to about 20 mg/kg.
8. A pharmaceutical composition for use according to Claim 7, in which the pharmaceutical composition is formulated for administration at a dose of about 0.01 mg/kg to about 10 mg/kg or a dose of about 0.2 mg/kg to about 20 mg/kg.
9. A pharmaceutical composition for use according to Claim 6, 7 or 8, in which the
25 pharmaceutical composition is formulated for daily, weekly, or monthly administration.
10. A pharmaceutical composition for use according to Claim 9, in which the pharmaceutical composition is formulated for administration seven times a week, six times a week, five times a week, four times a week, three times a week or twice a week.

11. A pharmaceutical composition for use according to any of Claims 6 to 10, in which the pharmaceutical composition is formulated for parenteral administration, enteral administration, or topical administration.
12. A pharmaceutical composition for use according to Claim 11, in which the
5 pharmaceutical composition is formulated for subcutaneous administration, intravenous administration, intramuscular administration, intra-arterial administration, intrathecal administration, or intraperitoneal administration.
13. A pharmaceutical composition for use according to Claim 12, in which the pharmaceutical composition is formulated for subcutaneous administration.
- 10 14. A pharmaceutical composition for use according to any of Claims 6 to 13, in which the skeletal growth retardation disorder is a FGFR3-related skeletal disease.
15. A pharmaceutical composition for use according to Claim 14, in which the FGFR3-related skeletal disease is selected from the group consisting of achondroplasia, thanatophoric dysplasia type I (TDI), thanatophoric dysplasia type II (TDII), severe achondroplasia with
15 developmental delay and acanthosis nigricans (SADDEN), hypochondroplasia, a craniosynostosis syndrome, and camptodactyly, tall stature, and hearing loss syndrome (CATSHL).
16. A pharmaceutical composition for use according to Claim 15, in which the skeletal growth retardation disorder is achondroplasia.
- 20 17. A pharmaceutical composition for use according to Claim 15, in which the craniosynostosis syndrome is selected from the group consisting of Muenke syndrome, Crouzon syndrome, and Crouzonodermoskeletal syndrome.
18. A pharmaceutical composition for use according to any of Claims 6 to 17, in which the FGFR3-related skeletal disease is caused by expression in the subject of a constitutively active
25 FGFR3.
19. A pharmaceutical composition for use according to Claim 18, in which the constitutively active FGFR3 comprises an amino acid substitution of a glycine residue with an arginine residue at position 380 of SEQ ID NO: 5.

20. A pharmaceutical composition for use according to any of Claims 6 to 19, in which the subject has been diagnosed with the skeletal growth retardation disorder.
21. A pharmaceutical composition for use according to any of Claims 6 to 20, in which the subject exhibits one or more symptoms of the skeletal growth retardation disorder selected from the group consisting of short limbs, short trunk, bowlegs, a waddling gait, skull malformations, cloverleaf skull, craniosynostosis, wormian bones, anomalies of the hands, anomalies of the feet, hitchhiker thumb, and chest anomalies.
22. A pharmaceutical composition for use according to Claim 21, in which the subject exhibits an improvement in the one or more symptoms of the skeletal growth retardation disorder after administration of the pharmaceutical composition.
23. A pharmaceutical composition for use according to any of Claims 6 to 22, in which the subject has not been previously administered the pharmaceutical composition.
24. A pharmaceutical composition for use according to any of Claims 6 to 23, in which the subject is selected from the group consisting of an infant, a child, and an adult.
25. A pharmaceutical composition for use according to any of Claims 6 to 24, in which the subject is a human.
26. A pharmaceutical composition for use according to any of Claims 6 to 25, in which the pharmaceutical composition increases survival of the subject.
27. A pharmaceutical composition for use according to any of Claims 6 to 26, in which the pharmaceutical composition restores foramen magnum shape in the subject.
28. A kit comprising a pharmaceutical composition according to any of Claims 1 to 5, in which the kit optionally comprises instructions for using the kit.
29. A soluble fibroblast growth factor receptor 3 (sFGFR3) polypeptide comprising the amino acid of SEQ ID NO: 33.