

Design of a randomized, multicentre, phase 2 study of vosoritide in children with Turner syndrome, Noonan syndrome, or short stature homeobox-containing gene (SHOX) deficiency

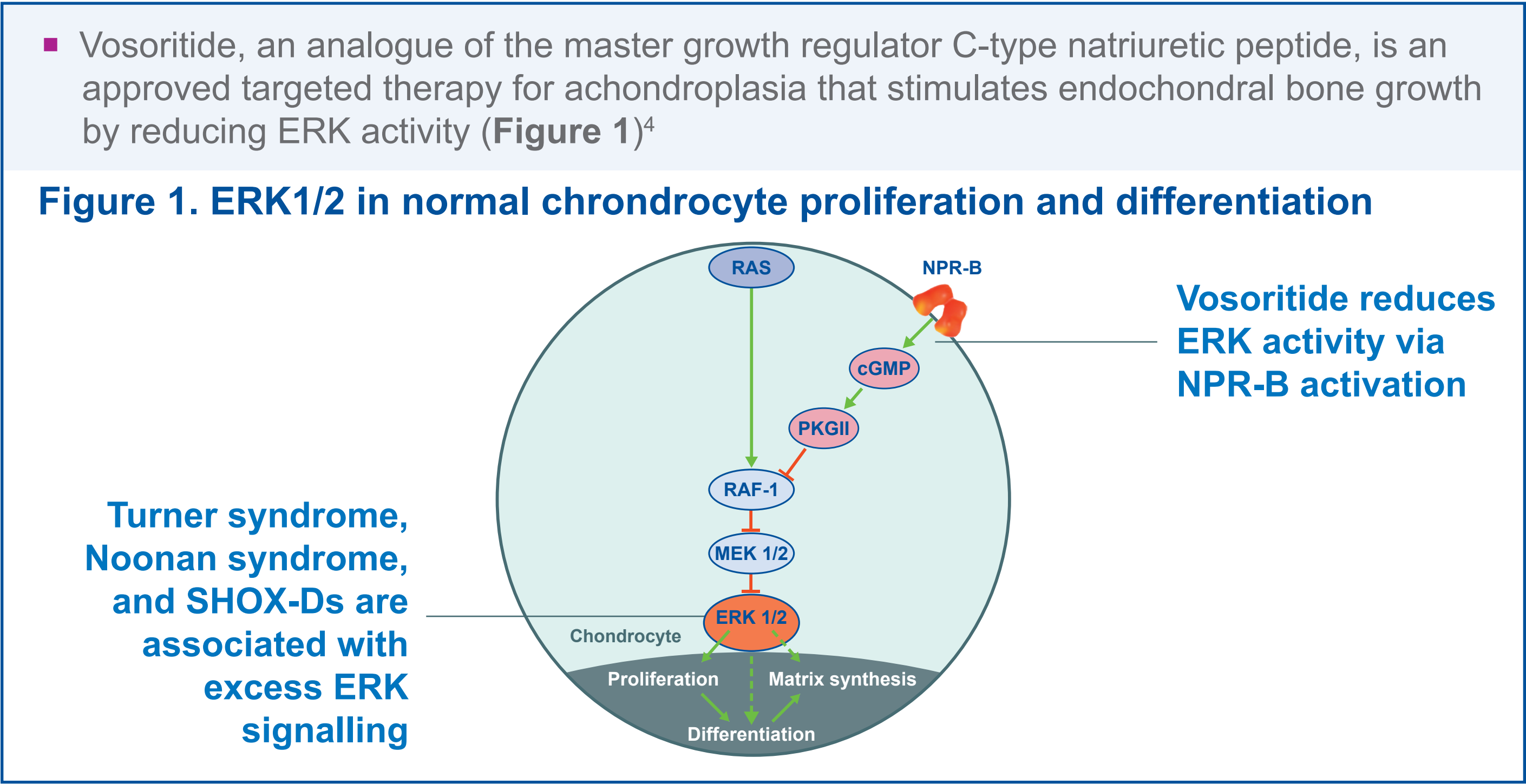
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Introduction

- Turner syndrome, Noonan syndrome, and short stature homeobox-containing gene deficiency disorders (SHOX-Ds) are associated with excess extracellular-signal-regulated kinase (ERK) signalling and characterized by short stature<sup>1-3</sup>
- Although these disorders are not associated with growth hormone dysfunction, human growth hormone (hGH) is often used; response to hGH wanes over time



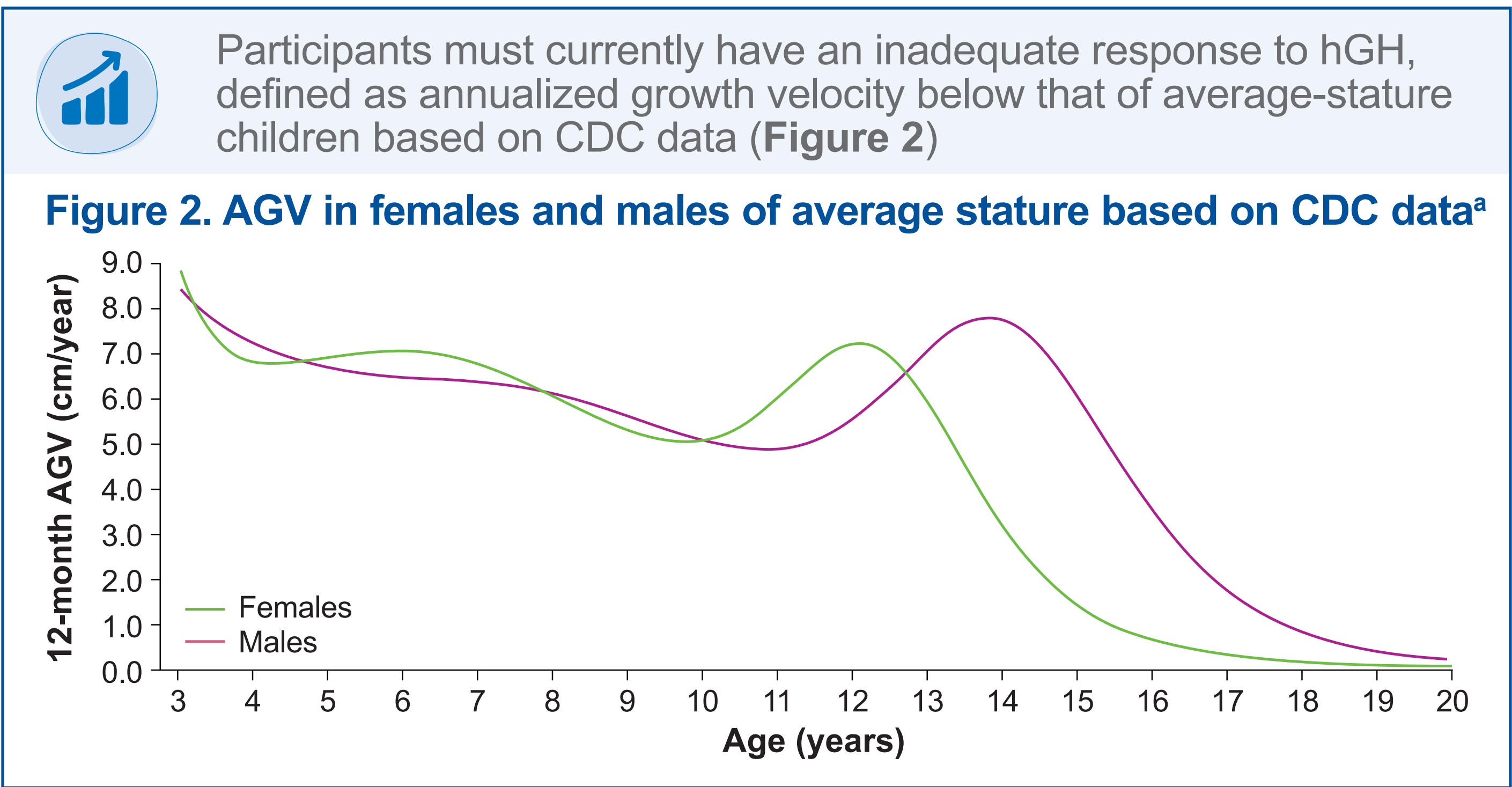
- NPR-B, atrial natriuretic factor receptor B; PKGII, protein kinase, cGMP-dependent, type II.
- Phase 1/2 studies in children with a wide variety of short-stature disorders, including Noonan syndrome (NCT04219007) and Turner syndrome (NCT05849389), are ongoing

Objective

- CANOPY NS, TS, SHOX-D-2 (study 111-211; NCT06668805) is a phase 2, randomized, hGH-controlled, multicentre basket study to determine the therapeutic dose of vosoritide in children with genetically confirmed Turner syndrome, Noonan syndrome, or SHOX-D with inadequate response to hGH for a phase 3 confirmatory study

Participants

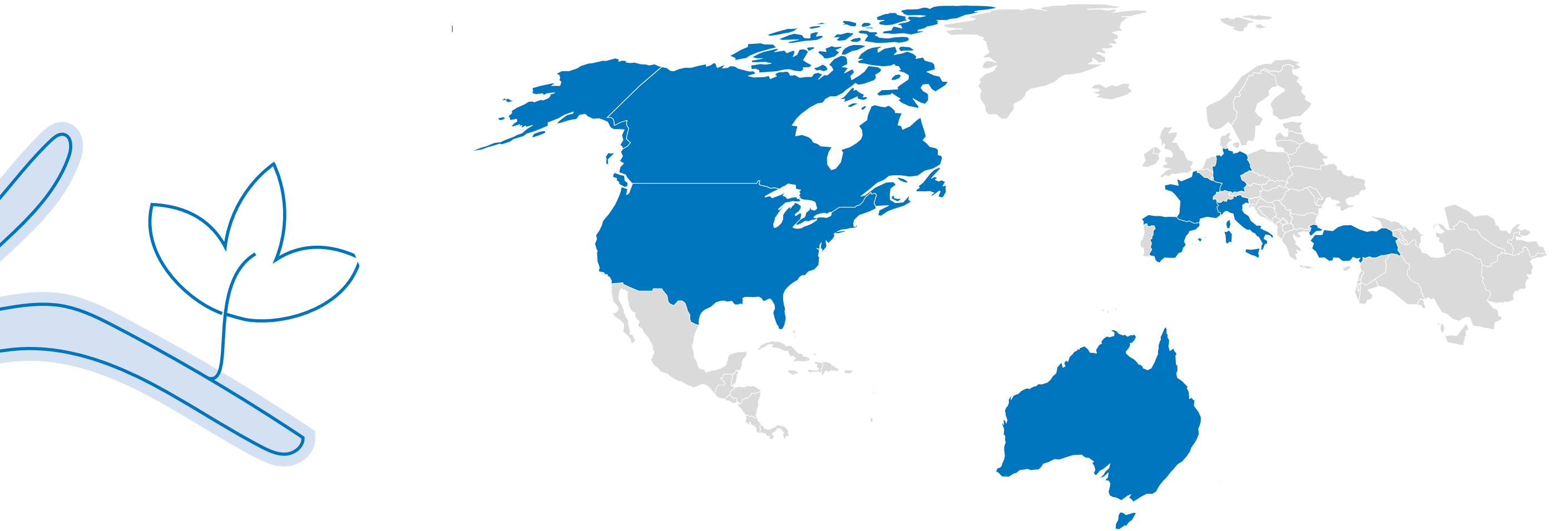
- Approximately 72 children with genetically confirmed Turner syndrome, Noonan syndrome, or SHOX-D with inadequate response to hGH
- Age ≥3 to <11 years (females) or <12 years (males) and prepubertal
- Height Z-score less than or equal to −2.00 standard deviations (SDs) from US Centers for Disease Control and Prevention (CDC) average-stature references
  - Up to 20% of participants may have a height Z-score >−2.00 and ≤−1.75 SDs
- Receiving ≥0.35 mg/kg/week hGH (or an optimized dose according to the local standard of care) for ≥1 year without dose changes in the previous 6 months



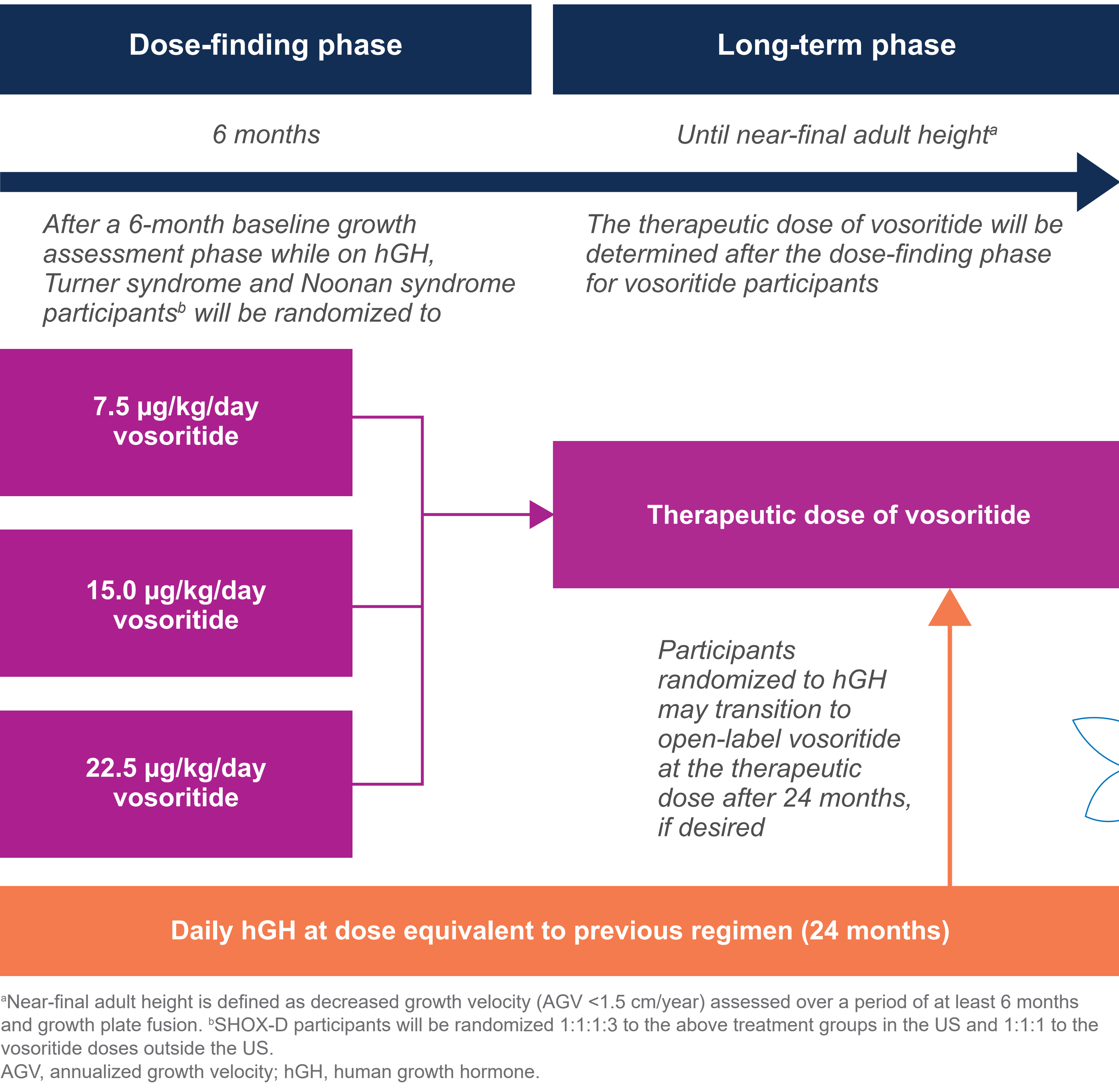
<sup>a</sup>CDC height chart data were used to determine AGV by deriving the difference in median height assessments 12 months apart in age. AGV, annualized growth velocity; CDC, US Centers for Disease Control and Prevention.

Study sites

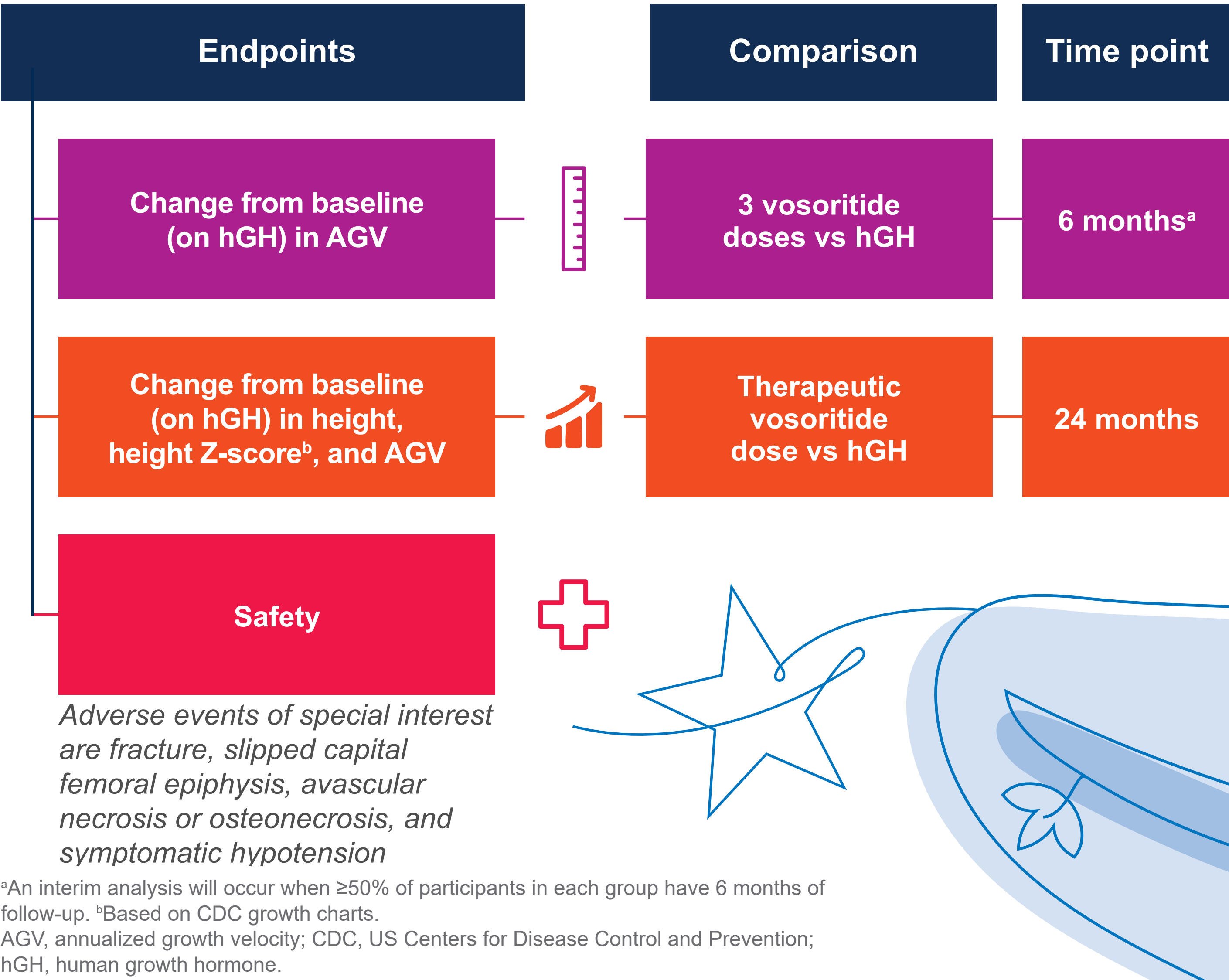
- CANOPY NS, TS, SHOX-D-2 is recruiting at sites in the USA, Canada, Turkey, Italy, Germany, Spain, France, and Australia



Study design



Endpoints



References

1. Roberts AE, et al. *Lancet*. 2013;381:333-42. 2. Marchini A, et al. *Endo Rev*. 2016;37:417-48. 3. Gravholt CH, et al. *Nat Rev Endo*. 2019;15:601-14. 4. European Medicines Agency. Voxzogo product information. Accessed February 28, 2025. [https://www.ema.europa.eu/en/documents/product-information/voxzogo-epar-product-information\\_en.pdf](https://www.ema.europa.eu/en/documents/product-information/voxzogo-epar-product-information_en.pdf)

Acknowledgements

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Disclosures

AL and ML are employees and shareholders of BioMarin Pharmaceutical Inc. RKS has received grant funding from BioMarin Pharmaceutical Inc., is a consultant for BioMarin Pharmaceutical Inc., and is currently the principal investigator for a trial of vosoritide in children with Turner syndrome (NCT05849389). BSM is a consultant for Amgen, Ascendis Pharma, BioMarin Pharmaceutical Inc., Eton Pharmaceuticals, GenSci, Novo Nordisk, Pfizer, Soleno, and Tolmar and has received research support from AbbVie, Aeterna Zentaris, Alexion, Foresee, Lumos Pharma, Novo Nordisk, OPKO Health, Pfizer, and Sangamo. LS is a consultant for BioMarin Pharmaceutical Inc., OPKO Health, and Pfizer and an investigator for Novo Nordisk and BioMarin Pharmaceutical Inc. KM has received consulting payments from BioMarin Pharmaceutical Inc., Novo Nordisk, and QED Therapeutics, has participated as an investigator for BioMarin Pharmaceutical Inc., and has received speaker fees and travel support from BioMarin Pharmaceutical Inc. and Novo Nordisk. RR is a consultant for BioMarin Pharmaceutical Inc. IS and AHL are employees and shareholders of BioMarin (UK) Ltd. AD has received grant funding from BioMarin Pharmaceutical Inc., is a consultant for BioMarin Pharmaceutical Inc., and is currently a primary investigator for a trial of vosoritide in children with genetic causes of short stature (NCT04219007).

For more information on CANOPY NS, TS, SHOX-D-2, scan this QR code.

To learn about other vosoritide clinical trials, scan this QR code.

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