GHRHR gene
growth hormone releasing hormone receptor

Normal Function
The \textit{GHRHR} gene provides instructions for making the growth hormone releasing hormone receptor. This receptor is active (expressed) on the growth-stimulating somatotropic cells in the pituitary gland. This gland is located at the base of the brain and produces many hormones, including growth hormone. Growth hormone is necessary for the normal growth of the body's bones and tissues. The GHRHR receptor attaches (binds) to a molecule called growth hormone releasing hormone. This binding, along with the actions of other molecules, triggers the production of growth hormone and its release from the pituitary gland.

Health Conditions Related to Genetic Changes
\textbf{Isolated growth hormone deficiency}

More than 20 mutations in the \textit{GHRHR} gene have been found to cause isolated growth hormone deficiency, a condition characterized by slow growth and short stature. Mutations in the \textit{GHRHR} gene cause some cases of isolated growth hormone deficiency type IB. Most of these mutations replace single protein building blocks (amino acids) in the receptor protein, preventing the production of a functional receptor. A nonfunctional receptor cannot effectively trigger the production of growth hormone or signal its release from the pituitary gland. As a result, little growth hormone is produced or available in the body in people with \textit{GHRHR} gene mutations, leading to isolated growth hormone deficiency type IB.
Chromosomal Location

Cytogenetic Location: 7p14.3, which is the short (p) arm of chromosome 7 at position 14.3

Molecular Location: base pairs 30,963,953 to 30,979,528 on chromosome 7 (Homo sapiens Updated Annotation Release 109.20190607, GRCh38.p13) (NCBI)

Credit: Genome Decoration Page/NCBI

Other Names for This Gene
• GHRFR
• GHRH receptor
• GHRHR_HUMAN
• GRF receptor
• GRFR
• growth hormone-releasing factor receptor
• growth hormone-releasing hormone receptor

Additional Information & Resources

Scientific Articles on PubMed
• PubMed
  https://www.ncbi.nlm.nih.gov/pubmed?term=%28%28GHRHR%5BTIAB%5D%29+OR+%28growth+hormone+releasing+hormone+receptor%5BTIAB%5D%29+OR+%28GHRH+receptor%5BTIAB%5D%29%29+AND+%28%28Genes%5BMH%5D%29+OR+%28Genetic+Phenomena%5BMH%5D%29%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+1800+days%22%5Bdp%5D

Catalog of Genes and Diseases from OMIM
• GROWTH HORMONE-RELEASING HORMONE RECEPTOR
  http://omim.org/entry/139191
Research Resources

- Atlas of Genetics and Cytogenetics in Oncology and Haematology
  http://atlasgeneticsoncology.org/Genes/GC_GHRHR.html

- ClinVar

- HGNC Gene Symbol Report

- Monarch Initiative
  https://monarchinitiative.org/gene/NCBIGene:2692

- NCBI Gene

- UniProt
  https://www.uniprot.org/uniprot/Q02643

Sources for This Summary


- OMIM: GROWTH HORMONE-RELEASING HORMONE RECEPTOR
  http://omim.org/entry/139191


  Free article on PubMed Central: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3014602/

Reprinted from Genetics Home Reference:

Reviewed: February 2012
Published: July 16, 2019