Clinical Use
• Assess pituitary growth hormone disorders

Reference Range
Adults ng/mL
  Fasting ≤10
  After 75 g oral glucose <1
Children ≤13

Interpretive Information
- Gigantism
- Acromegaly
- Selected pituitary tumors
- Pregnancy, due to HPL cross-reactivity
- Laron dwarfism (GH resistance)

- Pituitary GH deficiency
- Hypopituitarism, congenital or acquired
- GH secretory dysfunction

Because of diurnal variability, random growth hormone values are not reliable for diagnosis of growth hormone deficiency, acromegaly (adults), or gigantism (pediatrics).

Clinical Background
GH is a polypeptide (~20,000 MW) secreted by the anterior pituitary gland under the control of hypothalamic growth hormone releasing hormone (GHRH) and somatostatin, which stimulate and inhibit release, respectively.

Excess GH production can be caused by pituitary adenoma. In adults, excess GH production produces acromegaly; in children, it produces gigantism.

Insufficient GH production in children results in growth retardation and, in adults, decreased muscle mass.

Measuring GH concentration in children is useful for clinically evaluating short stature and helping to differentiate between abnormal GH production and other causes of growth failure. In adults a GH deficiency syndrome has been described that is associated with osteoporosis, dyslipidemia, increased visceral obesity, and poor quality of life. Because random GH measurements are not usually meaningful, inhibitory protocols, provocative tests, and prolonged sampling usually are employed. See Disorders of Growth Hormone in the Test Application and Interpretation section.

Method
• Immunochemiluminometric assay (ICMA)
• Analytical sensitivity: 0.1 ng/mL

Specimen Requirements
1 mL refrigerated serum
0.5 mL minimum

No additive red top preferred
SST red top acceptable