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## **Unit Code 8688: Growth Hormone, Serum**

### **Useful For**

Diagnosis of acromegaly and assessment of treatment efficacy (in conjunction with glucose suppression test)

Diagnosis of hGH deficiency (in conjunction with growth hormone stimulation test)

### **Clinical Information**

The anterior pituitary secretes human growth hormone (hGH) in response to exercise, deep sleep, hypoglycemia, and protein ingestion. hGH stimulates hepatic insulin-like growth factor-1(IGF-1) and mobilizes fatty acids from fat deposits to the liver. Hyposecretion of hGH causes dwarfism in children. Hypersecretion causes gigantism in children or acromegaly in adults.

Because hGH levels in normal and diseased populations overlap, hGH suppression and stimulation tests are needed to evaluate conditions of hGH excess and deficiency; random hGH levels are inadequate.

### **Reference Values**

Adults

Males: 0.01-0.97 ng/mL

Females: 0.01-3.61 ng/mL

Reference intervals have not been formally verified in-house for pediatric and adolescent patients. The published literature indicates that reference intervals for adult, pediatric, and adolescent patients are comparable.

### **Interpretation**

**Acromegaly:** Glucose normally suppresses hGH (<1-2 ng/mL). Individuals with acromegaly show no decrease or a paradoxical increase in hGH level. After successful treatment, a normal response to glucose is observed, although hGH levels may not fall to within normal limits.

**Deficiency:** Low levels, particularly under stimulation, indicate hGH deficiency.

### **Cautions**

The test has limited value in assessing growth hormone secretion in normal children. #15867 "Insulin-Like Growth Factor 1, Serum" is recommended as the first test for assessing deficient or excess growth during childhood and adolescent development; reference intervals for Tanner stages are available. Suspected causes of dwarfism need to be diagnosed with the aid of provocative testing.

This test is not useful as a screen for acromegaly; #15867 "Insulin-Like Growth Factor 1, Serum" is preferred. Elevated levels of hGH indicate the possibility of gigantism or acromegaly, but must be confirmed with stimulation and suppression testing.

Growth hormone is secreted in surges; single measurements are of limited diagnostic value.

## Clinical Reference

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