Monobind Technical Support Memo

Subject; Growth Hormone Ranges
Date; September 2010

QUESTION:

Regarding your ELISA kit for determination of Growth Hormone (1725-300), do you have expected values for children, women and men separately or only general expected (normal) values stated in the product insert?

ANSWER:

We can only provide a copy of reference ranges from a large clinical laboratory below which although is not Monobind's products, we would expect comparable results.

Growth Hormone (ng/mL) 004275
Volume: 0.8 mL (0.3 mL minimum) Serum

Age	Male/Female
1 day	5-53
1 wk	5-27
1-12 mo	2-10
1 yr to Adult	Less than 5.0

For further info on reference ranges for adult males and females, see enclosed data provided by Mayo Clinic.

Authorized by: AShatola Sept-05-2010
Quality Representative

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Values are valid only on day of printing.

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

1. Camacho-Hubner C: Assessment of growth hormone status in acromegaly: what biochemical markers to measure and how? Growth Hormone IGF Res 2000;10 Suppl B:S125-299

2. Nilsson AG: Effects of growth hormone replacement therapy on bone markers and bone mineral density in growth hormone-deficient adults. Horm Res 2000;54 Suppl 1:52-57

3. Strasburger CJ, Dattani MT: New growth hormone assays: potential benefits. Acta Paediatr 1997 Nov;Suppl 423:5-11

4. Okada S, Kopchick JJ: Biological effects of growth hormone and its antagonist. Trends Mol Med 2001Mar;7:126-132

5. Veldhuis JD, Iranmanesh A: Physiological regulation of human growth hormone (GH)-insulin-like growth factor type I (IGF-I) axis: predominant impact of age, obesity, gonadal function, and sleep. Sleep 1996;19:S221-224