MAYO CLINIC LABORATORIES

NEW TEST

Notification Date: April 7, 2026
Effective Date: April 9, 2026

Insulin-Like Growth Factor 1, Serum

Test ID: IGF1S

Useful for:

First-tier test for evaluation of growth disorders
Evaluation of growth hormone deficiency or excess in children and adults
Monitoring of recombinant human growth hormone treatment
Follow-up of individuals with acromegaly and gigantism

Methods:

Chemiluminescence Immunoassay

Reference Values:

Male:
<1 year: 27.0-157.0 ng/mL
1 year: 29.7-166.8 ng/mL
2 years: 33.9-183.9 ng/mL
3 years: 39.0-204.5 ng/mL
4 years: 44.3-225.0 ng/mL
5 years: 50.0-245.5 ng/mL
6 years: 56.2-267.1 ng/mL
7 years: 63.4-291.9 ng/mL
8 years: 72.4-323.1 ng/mL
9 years: 83.6-361.6 ng/mL
10 years: 96.9-406.6 ng/mL
11 years: 111.6-454.4 ng/mL
12 years: 126.1-498.7 ng/mL
13 years: 138.6-532.5 ng/mL
14 years: 147.5-551.2 ng/mL
15 years: 152.2-553.5 ng/mL
16 years: 152.9-541.8 ng/mL
17 years: 150.6-520.6 ng/mL
18 years: 146.2-493.6 ng/mL
19 years: 140.2-462.7 ng/mL
20 years: 133.1-430.0 ng/mL
21-25 years: 115.2-354.8 ng/mL
26-30 years: 97.9-281.6 ng/mL

31-35 years: 88.3-246.0 ng/mL
36-40 years: 83.4-232.7 ng/mL
41-45 years: 74.9-216.4 ng/mL
46-50 years: 66.9-205.1 ng/mL
51-55 years: 60.6-200.3 ng/mL
56-60 years: 54.3-194.2 ng/mL
61-65 years: 48.8-187.7 ng/mL
66-70 years: 46.5-191.9 ng/mL
71-75 years: 40.9-179.2 ng/mL
76-80 years: 37.1-172.0 ng/mL
81-85 years: 33.8-165.4 ng/mL
86-90 years: 32.2-166.1 ng/mL

Females:
<1 year: 17.9-125.6 ng/mL
1 year: 19.5-132.3 ng/mL
2 years: 22.2-145.4 ng/mL
3 years: 25.9-164.2 ng/mL
4 years: 30.7-187.8 ng/mL
5 years: 36.2-214.4 ng/mL
6 years: 42.0-240.4 ng/mL
7 years: 48.6-269.6 ng/mL
8 years: 56.9-305.3 ng/mL
9 years: 67.2-349.4 ng/mL
10 years: 79.5-400.3 ng/mL
11 years: 92.6-452.6 ng/mL
12 years: 105.3-499.1 ng/mL
13 years: 115.9-533.4 ng/mL
14 years: 123.4-552.0 ng/mL
15 years: 127.4-554.2 ng/mL
16 years: 127.9-541.5 ng/mL
17 years: 125.3-517.3 ng/mL
18 years: 120.5-485.8 ng/mL
19 years: 114.4-450.8 ng/mL
20 years: 107.8-416.0 ng/mL
21-25 years: 92.9-342.0 ng/mL
26-30 years: 78.4-270.0 ng/mL
31-35 years: 73.1-243.0 ng/mL
36-40 years: 69.0-227.0 ng/mL
41-45 years: 61.5-204.4 ng/mL
46-50 years: 56.8-194.5 ng/mL
51-55 years: 53.0-189.6 ng/mL
56-60 years: 45.6-172.4 ng/mL
61-65 years: 42.2-169.0 ng/mL
66-70 years: 38.3-162.5 ng/mL
71-75 years: 36.6-164.7 ng/mL
76-80 years: 34.7-164.8 ng/mL
81-85 years: 34.4-172.4 ng/mL

86-90 years: 33.6-177.8 ng/mL

Tanner stage reference intervals:
Males:
I : 81.3-255.3 ng/mL
II: 106.2-432.3 ng/mL
III: 244.9-511.4 ng/mL
IV: 222.6-577.7 ng/mL
V: 227.4-517.8 ng/mL
Females:
I: 85.9-323.0 ng/mL
II: 117.5-451.3 ng/mL
III: 258.3-528.5 ng/mL
IV: 224.2-585.8 ng/mL
V: 188.2-511.6 ng/mL

Tanner Stage reference source: Bindlingmaier M, Friedrich N, Emeny RT,et al. Reference intervals for insulin-like growth factor-1 (IGF-1) from birth to senescence: results from a multicenter study using a new automated chemiluminescence IGF-I immunoassay conforming to recent international recommendations. J Clin Endocrinol Metab. 2014;99(5):1712-1721

Note: Puberty onset (transition from Tanner stage I to Tanner stage II) occurs for boys at a median age of 11.5 (+/-2) years and for girls at a median age of 10.5 (+/-2) years. There is evidence that it may occur up to 1 year earlier in obese girls and in African American girls. For boys, there is no definite proven relationship between puberty onset and body weight or ethnic origin. Progression through Tanner stages is variable. Tanner stage V (young adult) should be reached by age 18.

Specimen Requirements:

Patient Preparation:	For 12 hours before specimen collection, patient **should not** take multivitamins or dietary supplements (eg, hair, skin, and nail supplements) containing biotin (vitamin B7).
Supplies:	Sarstedt Aliquot Tube, 5 mL (T914)
Preferred:	Red Top
Acceptable:	Serum Gel
Specimen Volume:	0.8 mL Serum
Submission Container/Tube:	Plastic Vial
Collection Instructions:	Centrifuge and aliquot serum into a plastic vial.
Minimum Volume:	0.5 mL Serum

Specimen Stability Information:

Specimen Type	Temperature	Time
Serum	Frozen (preferred)	90 days
	Ambient	7 days
	Refrigerated	7 days

Cautions:

Insulin-like growth factor 1 (IGF1) and insulin-like growth factor binding protein 3 (IGFBP3) reference ranges are highly age dependent, and results must always be interpreted within the context of the patient's age.

Increased concentrations of IGF1 are normal during pregnancy, however reference intervals on this population have not been formally established.

Discrepant IGF1 and IGFBP3 results can sometimes occur due to liver and kidney disease; however, this is uncommon and such results should alert laboratories and physicians to the possible occurrence of a preanalytical or analytical error.

The use of biotin-containing supplements may lead to inaccurately reduced IGF1 measurements.

Currently, IGF1 or IGFBP3 cannot be reliably used as risk indicators or prognostic markers in breast, colon, prostate, or lung cancer.

Insulin-like growth factor 1 and IGFBP3 assays exhibit variability among platforms and manufacturers. Results obtained with different assay methods or kits should not be used interchangeably.

All immunometric assays can, on rare occasions, be subject to a hooking effect at extremely high analyte concentrations (falsely low results) or heterophilic antibody interference (most often falsely high results). If the laboratory result does not fit the clinical picture, these possibilities should be considered.

CPT Code:

84305

Day(s) Performed: Monday through Friday

Report Available: 1 to 3 days

Questions

Contact Bethany Feind, Laboratory Resource Coordinator at 800-533-1710.