MAYO
Mayo Medical Laboratories
1-800-533-1710

NEW TEST ANNOUNCEMENT
NOTIFICATION DATE: January 22, 2013
EFFECTIVE DATE: January 31, 2013

INSULIN-LIKE GROWTH FACTOR 1 (IGF-1) AND INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN 3 (IGFBP-3) GROWTH PANEL

Test ID: IGFG

NOTE: This test is replacing the IGFP, Insulin-Like Growth Factor 1 (IGF-1) and Insulin-Like Growth Factor Binding Protein 3 (IGFBP-3) Growth Panel, which will become obsolete on January 31, 2013.

Profile Information:

Test ID	Reporting Name	Available Separately	Always Performed
IGF1I	Insulin-Like Growth Factor 1, S	Yes	Yes
IGFB3	IGFBP-3, S	Yes	Yes

USEFUL FOR:

- Diagnosing growth disorders
- Diagnosing adult growth hormone deficiency
- Monitoring of recombinant human growth hormone treatment
- Insulin-like growth factor binding protein 3 can be used as a possible adjunct to insulin-like growth factor 1 (IGF-1) and growth hormone in the diagnosis and follow-up of acromegaly and gigantism.

METHODOLOGY: IGF1I/35099: Chemiluminescence
IGFB3/83300: Enzyme-Labeled Chemiluminescent Immunometric Assay

REFERENCE VALUES: Insulin-Like Growth Factor 1 (IGF-1)

Males:

Age	ng/mL	0.1 Percentile (ng/mL)
0-11 months	15-150	3
1 year	18-179	4
2 years	22-204	5
3 years	25-224	6
4 years	28-241	8
5 years	32-259	9
6 years	36-281	11
7 years	42-311	13
8 years	49-351	16
9 years	58-401	19
10 years	70-458	24
11 years	82-516	29
12 years	93-567	35
13 years	103-603	41
14 years	111-620	46
15 years	115-618	50
16 years	115-598	52
17 years	113-566	54

Females:

Age	ng/mL	0.1 Percentile (ng/mL)
0-11 months	18-146	5
1 year	20-159	6
2 years	23-177	7
3 years	27-198	8
4 years	32-223	10
5 years	36-246	12
6 years	41-269	15
7 years	48-299	17
8 years	56-339	21
9 years	68-396	26
10 years	83-465	32
11 years	99-537	40
12 years	115-598	48
13 years	126-637	56
14 years	133-647	62
15 years	134-631	65
16 years	130-595	66
17 years	123-546	64

Males: Continued

Age	ng/mL	0.1 Percentile (ng/mL)
18 years	109-527	
19 years	104-484	
20 years	98-443	
21-25 years	83-344	
26-30 years	75-275	
31-35 years	71-241	
36-40 years	69-226	
41-45 years	64-210	
46-50 years	59-201	
51-55 years	56-201	
56-60 years	51-194	
61-65 years	47-191	
66-70 years	46-195	
71-75 years	42-187	
76-80 years	39-184	
80-85 years	37-182	
85-90 years	35-182	

Females: Continued

Age	ng/mL	0.1 Percentile (ng/mL)
18 years	114-493	
19 years	105-441	
20 years	97-398	
21-25 years	84-323	
26-30 years	77-271	
31-35 years	73-244	
36-40 years	68-225	
41-45 years	62-205	
46-50 years	56-194	
51-55 years	53-191	
56-60 years	45-173	
61-65 years	41-168	
66-70 years	39-168	
71-75 years	36-166	
76-80 years	35-168	
80-85 years	35-179	
85-90 years	33-179	

Reference values have not been established for patients that are > 90 years of age.

IGF-1 reference values according to Tanner stages I-V:.

Males
-Stage I: 83-255 ng/mL
-Stage II: 114-440 ng/mL
-Stage III: 236-516 ng/mL
-Stage IV: 218-580 ng/mL
-Stage V: 229-522 ng/mL

Females
-Stage I: 90-324 ng/mL
-Stage II: 104-456 ng/mL
-Stage III: 249-519 ng/mL
-Stage IV: 238-574 ng/mL
-Stage V: 187-509 ng/mL

Note: Puberty onset, i.e. the transition from Tanner stage 1 (pre-pubertal) to Tanner stage 2 (early pubertal), occurs for girls at a median age of 10.5 (+/- 2) years and for boys at a median age of 11.5 (+/-2) years. There is evidence that it may occur up to 1 year earlier in obese girls and in African-American girls. By contrast, for boys there is no definite proven relationship between puberty onset and body weight or ethnic origin. Progression through Tanner stages is variable.

Insulin-Like Growth Factor Binding Protein 3 (IGFBP-3)

Age	mcg/mL
1-7 days	< or =0.7
8-14 days	0.5-1.4
15 days-11 months	unavailable
1 year	0.7-3.6
2 years	0.8-3.9
3 years	0.9-4.3
4 years	1.0-4.7
5 years	5.2-1.1
6 years	5.6-1.3
7 years	6.1-1.4
8 years	6.5-1.6
9 years	7.1-1.8
10 years	7.7-2.1
11 years	8.4-2.4
12 years	8.9-2.7
13 years	3.1-9.5
14 years	3.3-10
15 years	3.5-10

Age	mcg/mL
16 years	3.4-9.5
17 years:	3.2-8.7
18 years	3.1-7.9
19 years	2.9-7.3
20 years	2.9-7.2
21-25 years	3.4-7.8
26-30 years	3.5-7.6
31-35 years	3.5-7.0
36-40 years	3.4-6.7
41-45 years	3.3-6.6
46-50 years	3.3-6.7
51-55 years	3.4-6.8
56-60 years	3.4-6.9
61-65 years	3.2-6.6
66-70 years	3.0-6.2
71-75 years	2.8-5.7
76-80 years	2.5-5.1
81-85 years	2.2-4.5

IGFBP-3 reference values according to Tanner stages I-V:

Males	Females
Stage I: 1.2-6.4 mcg/mL	Stage I: 1.4-5.2 mcg/mL
Stage II: 2.8-6.9 mcg/mL	Stage II: 2.3-6.3 mcg/mL
Stage III: 3.9-9.4 mcg/mL	Stage III: 3.1-8.9 mcg/mL
Stage IV: 3.3-8.1 mcg/mL	Stage IV: 3.7-8.7 mcg/mL
Stage V: 2.7-9.1 mcg/mL	Stage V: 2.6-8.6 mcg/mL

Note: Puberty onset, i.e. the transition from Tanner stage 1 (pre-pubertal) to Tanner stage 2 (early pubertal), occurs for girls at a median age of 10.5 (+/- 2) years and for boys at a median age of 11.5 (+/-2) years. There is evidence that it may occur up to 1 year earlier in obese girls and in African-American girls. By contrast, 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 5 (young adult) should be reached by age 18.

SPECIMEN REQUIREMENTS:

Collection Container/Tube:
Preferred: Red Top
Acceptable: Serum gel
Submission Container/Tube: Plastic vial
Specimen Volume: 1.0 mL
Collection Instructions: Spin down promptly. Aliquot into two equal portions.
Additional Information: Indicate patient's age and sex.

SPECIMEN STABILITY INFORMATION:

Specimen Type	Temperature	Time
Serum	Frozen	14 days

CAUTIONS:

- Insulin-like growth factor 1 (IGF-1) and insulin-like growth factor binding protein 3 (IGFBP-3) reference ranges are highly age dependent and results must always be interpreted within the context of the patient's age.
- Discrepant IGF-1 and IGFBP-3 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 pre-analytical or analytical error.
- Currently, IGF-1 or IGFBP-3 IGF-1 cannot be reliably used as risk indicators or prognostic markers in breast, colon, prostate, or lung cancer.
- IGF-1 assays exhibit significant variability among platforms and manufacturers. Direct comparison of results obtained by different assays is problematic. If IGF-1 and IGFBP-3 are being used for serial monitoring, re-baselining of patients is preferred if assays are changed.
- Heterophile antibodies in human serum can react with the immunoglobulins included in the assay components causing interference with immunoassays. Specimens from patients with autoimmune diseases or from individuals routinely exposed to animals or animal serum products can demonstrate this type of interference, potentially causing an anomalous result. The assay reagents have been formulated to minimize the risk of such interference; however, rare interactions can occur. For diagnostic purposes, the results obtained from this assay should always be used in combination with the clinical examination, patient medical history, and other findings.

CPT CODE: 83520-IGFBP3
84305-IGF1I

DAY(S) SET UP: Monday through Friday; 5 a.m.-12a.m., Saturday; 6 a.m.-6 p.m.

ANALYTIC TIME: Same day/1 day

QUESTIONS: Contact your Mayo Medical Laboratories' Regional Manager or Greg Renkly, MML Laboratory Technologist Resource Coordinator
Telephone: 800-533-1710