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Laboratory Bulletin

DATE:	6 April 2026
TO:	All Healthcare Providers
FROM:	Clinical Biochemistry, Alberta Precision Laboratories (APL)
RE:	**New Instruments for Testing Human Growth Hormone (GH), Insulin-Like Growth Factor 1 (IGF-1), and Insulin-Like Growth Factor Binding Protein 3 (IGFBP) at the University of Alberta Hospital (UAH)**

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Key Message

- Effective **Tuesday April 7**, the UAH Special Chemistry Laboratory will transition to new instruments for testing GH (and associated order sets), IGF-1, and IGFBP-3 **(Appendix, Table 1)**.
- Values and reference intervals will change **(Appendix, Tables 2, 4, and 5).**
- An additional approval criterion for GH samples will be implemented by the UAH Laboratory for testing infants and children with hypoglycemia **(Appendix Table 3).**

Background

- Transition to new instruments replaces the aging IDS iSYS instrument.
- The new instruments produce different numerical values than the IDS iSYS, and therefore, results are not directly comparable.
- Because random GH testing is unreliable, the UAH Laboratory will continue to cancel inappropriate GH samples and reflex to IGF-1 testing when criteria are not met.
- The lower limit for GH will remain at 0.1 µg/L for accurate interpretation of GH suppression testing.
- Reference intervals were derived from manufacturer's recommendations, but Tanner Stage reference intervals are unavailable.
- The Calgary Hub Laboratory (Diagnostic and Scientific Centre, DSC) will continue to use the same instruments for GH and IGF-1; these instruments differ from UAH and require separate reference intervals.
- UAH will continue to be the central site for IGFBP-3 testing in the province.

Action Required

- Become familiar with new reference intervals for GH, IGF-1, and IGFBP-3 **(Appendix, Tables 2, 4, and 5).**
- Results from the previous instrument should not be compared directly with results from the new one; patients being monitored over time should be re-baselined.
- Results for GH on hypoglycemic infants and children will now be reported by the UAH Laboratory **(Appendix Table 3)**.
- There are no changes to ordering, specimen processing, or specimen routing.

Questions/Concerns

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Approved by

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- Dr. Michael Mengel, Medical Director, North Sector, APL

Appendix

Table 1. New and old instruments used at UAH for GH, IGF-1, and IGFBP-1 testing

Test	New instrument	Old instrument
GH and associated order sets	DiaSorin Liaison	IDS-iSYS
IGF-1	DiaSorin Liaison	IDS-iSYS
IGFBP-3	Roche Cobas	IDS-iSYS

Table 2. New reference intervals for GH

Age	Male (µg/L)	Female (µg/L)	Gender X or Unknown (µg/L)
<18	<6.0	<6.0	<6.0
≥18	<1.3	<7.0	Interpretive comment lists male and female reference intervals

Table 3. Criteria used by the UAH Laboratory to approve GH samples for testing

Criteria
Pediatric patients <1 year old
Orders from Endocrinologists
Patients with acromegaly being monitored for therapy (this information should be indicated on the requisition or as a Connect Care order comment)
New: Fasting or random glucose <3.3 mmol/L collected within 1 hour of the GH sample on patients <18 years

Table 4. New reference intervals for IGF-1*

Age	Male (µg/L)	Female (µg/L)	#Gender X or Unknown (µg/L)
0-1 year	11-100	10-131	10-131
1-2 years	12-120	10-146	10-146
2-3 years	13-143	11-165	11-165
3-4 years	14-169	13-187	13-187
4-5 years	15-200	15-216	15-216
5-6 years	16-233	19-251	16-251
6-7 years	17-269	24-293	17-293
7-8 years	18-307	30-342	18-342
8-9 years	20-347	39-396	20-396
9-10 years	23-386	49-451	23-451
10-11 years	29-424	62-504	29-504
11-12 years	37-459	76-549	37-549
12-13 years	49-487	90-581	49-581
13-14 years	64-508	104-596	64-596
14-15 years	83-519	115-591	83-591
15-16 years	102-520	121-564	102-564
16-17 years	119-511	122-524	119-524
17-18 years	131-490	120-479	120-490
18-20 years	137-461	113-436	113-461
20-22 years	127-395	107-372	107-395
22-24 years	112-338	103-337	103-338
24-26 years	99-298	100-317	99-317
26-30 years	83-271	89-305	83-305
31-35 years	82-244	81-286	81-286
36-40 years	82-240	76-277	76-277
41-45 years	74-236	66-267	66-267
46-50 years	67-225	57-246	57-246
51-55 years	61-225	49-235	49-235
56-60 years	53-206	43-241	43-241
61-65 years	40-231	34-244	34-244
66-70 years	27-246	26-238	26-246
≥71 years	15-245	17-224	15-245

*Tanner Stage reference intervals are unavailable.
#The reference interval for gender X or gender unknown encompasses male and female ranges. Results should be interpreted in the context of clinical history.

Table 5. New reference intervals for IGFBP-3*

Age	Male (mg/L)	Female (mg/L)	#Gender X or Unknown (mg/L)
0-3 months	No reference interval	No reference interval	No reference interval
3-6 months	0.9-2.7	1.1-3.0	0.9-3.0
6 months-1 year	1.0-2.8	1.1-3.1	1.0-3.1
1-2	1.0-3.0	1.2-3.4	1.0-3.4
2-3	1.2-3.3	1.4-3.8	1.2-3.8
3-4	1.3-3.7	1.6-4.1	1.3-4.1
4-5	1.5-4.0	1.8-4.5	1.5-4.5
5-6	1.7-4.4	2.0-4.9	1.7-4.9
6-7	1.9-4.7	2.2-5.2	1.9-5.2
7-8	2.1-5.1	2.4-5.5	2.1-5.5
8-9	2.2-5.4	2.6-5.9	2.2-5.9
9-10	2.4-5.7	2.8-6.2	2.4-6.2
10-11	2.6-6.0	3.0-6.5	2.6-6.5
11-12	2.8-6.3	3.1-6.8	2.8-6.8
12-13	2.9-6.6	3.3-7.0	2.9-7.0
13-14	3.1-6.8	3.4-7.3	3.1-7.3
14-15	3.2-6.9	3.5-7.5	3.2-7.5
15-16	3.3-7.0	3.6-7.7	3.3-7.7
16-17	3.4-7.1	3.7-7.9	3.4-7.9
17-18	3.4-7.1	3.7-8.1	3.4-8.1
18-20	3.4-7.1	3.7-8.3	3.4-8.3
20-22	3.4-6.9	3.7-8.4	3.4-8.4
22-24	3.3-6.6	3.6-8.4	3.3-8.4
24-26	3.2-6.4	3.5-8.3	3.2-8.3
26-31	3.1-6.2	3.2-8.2	3.1-8.2
31-35	3.0-6.0	3.0-7.6	3.0-7.6
36-40	2.8-5.9	2.8-6.9	2.8-6.9
41-45	2.7-5.8	2.7-6.5	2.7-6.5
46-50	2.6-5.9	2.6-6.3	2.6-6.3
51-55	2.4-5.9	2.6-6.0	2.4-6.0
56-60	2.2-5.8	2.6-6.1	2.2-6.1
61-65	2.0-5.7	2.4-6.0	2.0-6.0
66-70	1.9-5.6	2.4-5.8	1.9-5.8
≥71	1.4-5.4	2.0-5.7	1.4-5.7

*Tanner Stage reference intervals are unavailable.
#The reference interval for gender X or gender unknown encompasses male and female ranges. Results should be interpreted in the context of clinical history.