PEDIATRIC ENDOCRINOLOGY

Specialized assays and protocols for your youngest patients

labcorp

For the endocrinology specialist seeking answers to today's complex issues, consider us your source as a provider of the nation's premier laboratory services. We offer a full-service solution to assist you in providing the best care possible by integrating regional laboratory testing with the expertise of Labcorp's Endocrinology services.

The Beginning: A team with a vision

In 1972, endocrine testing was fairly new and mostly done using only binding proteins. So, a few scientists got together in a garage with a little bit of funding, and a lot of ideas based on scientific expertise and the urge to do better for endocrinology. Together, they formed the Endocrine Sciences lab which would later become known as Esoterix, and is now Labcorp's Endocrinology Center of Excellence.

Labcorp's Endocrinology Center of Excellence laboratory at Esoterix Inc. (Endocrine Sciences) offers enhanced services designed specifically for you and your pediatric patients.

- 60-day frozen serum and plasma specimen storage, allowing for add-on or repeat testing up to 2 months after the original blood draw date (available for assays performed at Labcorp's Endocrinology Center of Excellence)
- Protocols to accommodate multiple specimens for stimulation testing and diagnostic profiles
- Quantitative specimen volume analysis performed prior to testing to ensure sufficient specimen volume
- Methodologies, such as HPLC/MS-MS, to measure low and abnormal hormone levels
- Age-specific references intervals and Tanner stages on applicable tests
- Processes, including extraction, to purify specimens prior to testing
- Direct access to PhD and MD-level experts who specialize in pediatric endocrinology to discuss assay methodologies and patient cases

Additional Resources

- Endocrine hotline staffed by experienced client service representatives
- Quick reference guides of expected values and instructions for response testing
- Endocrinologist requisition and stimulation testing requisition for simplified ordering

Adrenal disease

State newborn screening programs for Congenital Adrenal Hyperplasia (CAH) may include testing for 17-hydroxyprogesterone (17-OHP). The Endocrine Society recommends confirmatory testing via HPLC/MS-MS to improve the accuracy of screening.[1] Labcorp offers comprehensive tests in alignment with these recommendations including:

- 17-OHP by HPLC/MS-MS, profiles to distinguish 21-hydroxylase deficiency from others
- CAH genetic testing
- ACTH response guide

Reproductive and gonadal disorders

- Electrochemiluminescence (ECL) and HPLC/MS-MS methodologies capable of measuring low hormone levels in accordance with CDC recommendations
- Broad menu of genetic tests to help determine causes of reproductive dysfunction, such as CAH, Klinefelter syndrome, Turner syndrome, and Kallmann syndrome

Growth disorders

- Growth stimulation testing
- IGF-1, Pediatric with Z score compares each patient's individual IGF-1 result to the reference interval for each pubertal Tanner stage, age, and gender
- Genetic testing to aid in the evaluation of short statue including *SHOX*, growth hormone deficiency, and pituitary hormone deficiency

Mineral and bone metabolism issues

- Testing for minerals and bone metabolites, as well as parathyroid-related hormones and peptides
- A comprehensive menu of 25-hydroxy vitamin D and 1,25-dihydroxy vitamin D testing, including fractionated testing evaluations by HPLC/MS-MS
- Genetic testing for many bone disorders including hypophosphatemic rickets and osteogenesis imperfecta

Thyroid disease

- Testing for hypothyroidism, including free thyroxine (free T_4) by equilibrium dialysis and HPLC/MS-MS
- Testing for Graves disease
- Genetic testing for congenital hypothyroidism and thyroid hormone resistance

Diabetes

- Diabetes autoimmune antibodies testing to help you screen for and classify type 1 diabetes
- Additional autoimmune testing for celiac disease and autoimmune thyroid diseases common in patients with type 1 diabetes[3]
- MODY genetic testing to assist in differentiating MODY from other forms of diabetes

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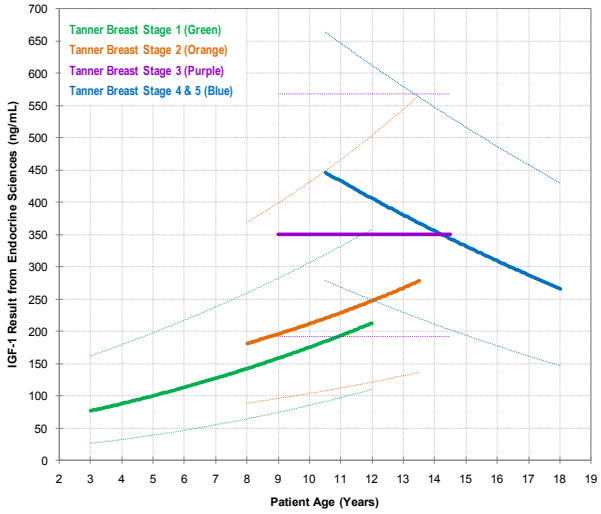
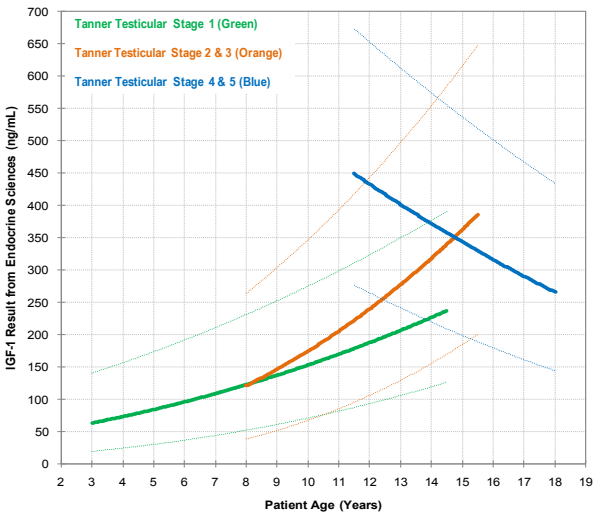
*Examples of IGF-1 asymmetric curves with transformed data by Tanner stage[2]

Female IGF-1



Male IGF-1



Pediatric Endocrinology Tests

Refer to the online test menu at **Labcorp.com** for additional assays and test numbers for stimulation testing.

Congenital Adrenal Hyperplasia (CAH) and Other Adrenal Diseases

Test Name	Test No.
11-Deoxycortisol LC/MS-MS	**500171***
11-oxo-Androgens Panel	**504683**
17-Hydroxypregnenolone, Mass Spectrometry	**140715***
17-OH progesterone, LCMS	**500163***
21-Deoxycortisol, LC/MS	**504045***
Aldosterone LC/MS	**500467***
Congenital Adrenal Hyperplasia (CAH) 21-Hydroxylase (CYP21) Mutation	**831768**
Congenial Adrenal Hyperplasia (CAH) Pediatric Profile 1 – 21-Hydroxylase Deficiency Screen (androstenedione, cortisol, DHEA, 17-OH progesterone, testosterone)	**501568***
Congenital Adrenal Hyperplasia (CAH) Pediatric Profile 6 – Comprehensive Screen (androstenedione, 11-desoxycortisol (specific S), cortisol, DHEA, deoxycorticosterone, 17-OH pregnenolone, progesterone, 17-OH progesterone, testosterone)	**500175***
Congenital Adrenal Hyperplasia (CAH) Pediatric Profile 7 – Treatment (androstenedione, 17-OH progesterone, testosterone)	**500166***

Test Name	Test No.
Cortisol, LC/MS	**500154***
Dehydroepiandrosterone (DHEA), serum, by LCMS	**500156***
Deoxycorticosterone (DOC)	**500138***
Pregnenolone, Mass Spectrometry	**140707***
Progesterone, LC/MS	**500167***
Renin activity, plasma, RIA	**500458***
Testosterone, total, women, children, and hypogonadal males by LCMS	**500159***

**Testing performed by Labcorp's Esoterix, Inc. laboratory.*

Pediatric Endocrinology Tests

Reproductive and Gonadal Disorders, including Precocious and Delayed Puberty

Test Name	Test No.
11-Deoxycortisol LC/MS-MS	**500171***
11-oxo-Androgens Panel	**504683**
17-Hydroxypregnenolone, Mass Spectrometry	**140715***
17-OH progesterone, LCMS	**500163***
Androstenedione, LC/MS, Serum or Plasma	**500152***
Chromosome Analysis, Whole Blood (Constitutional)	**511035**
Congenital Adrenal Hyperplasia (CAH) 21-Hydroxylase (CYP21) Mutation	**831768**
Cortisol, LC/MS	**500154***
DHEA Sulfate, LC/MS-MS	**500161***
Dihydrotestosterone (DHT)	**500142***
Estradiol, LC/MS	**500108***
Follicle-stimulating Hormone (FSH), Pediatric	**502280***
Human Chorionic Gonadotropin (hCG), β-Subunit, Quantitative, Serum	**004416**
Kallmann Syndrome Genetic Panel	**630542**
Luteinizing Hormone, Pediatric	**502286***
Testosterone, total, women, children, and hypogonadal males by LCMS	**500159***

Growth Disorders, including Growth Hormone Deficiency, Primary IGF-1 Deficiency, & Idiopathic Short Stature

Test Name	Test No.
Angelman and Prader-Willi Syndromes, DNA Analysis	**511210**
Chromosome Analysis, Whole Blood (Constitutional)	**511035**
Combined Pituitary Hormone Deficiency Genetic Panel	**630534**
Comprehensive Short Stature Genetic Panel	**630520**
Growth Hormone Deficiency Genetic Panel	**630527**
Growth Hormone, RIA	**500632***
IGF-1, Pediatric with Z score	**503660***
IGFBP-3, RIA	**500644***
SHOX Gene Sequencing	**630561**

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Pediatric Endocrinology Tests

Mineral Metabolism Disorders

Test Name	Test No.
Alkaline Phosphatase	**001107**
Calcitriol (1,25 di-OH Vitamin D)	**081091**
Calcitriol (1,25 di-OH Vitamin D), fractionated D2 and D3 by LCMS	**500600***
Calcium	**001016**
Creatinine	**001370**
Hypophosphatasia and Hypophosphatemic Rickets Panel	**630292**
Magnesium	**001537**
Osteogenesis Imperfecta Genetic Panel	**630543**
Parathyroid Hormone (PTH), Intact	**015610**
Phosphorus	**001024**
Vitamin D, 25-Hydroxy	**081950**
Vitamin D, 25-Hydroxy, Fractionated, Mass Spectrometry	**504115***

Thyroid Disorders, including Hypothyroidism and Graves Disease

Test Name	Test No.
Congenital Hypothyroidism Genetic Panel	**630264**
Iodine, Serum or Plasma	**070034**
VistaSeq® RET Comprehensive Analysis	**483472**
Thyroglobulin Antibody	**006685**
Thyroid Peroxidase (TPO) Antibodies	**006676**
Thyroid-stimulating Hormone (TSH)	**004259**
Thyroid-stimulating Immunoglobulin (TSI)	**140749**
Thyroxine (T4)	**001149**
Thyroxine (T4), Free, Dialysis/Mass Spectrometry	**501902***
Thyroxine (T4), Free, Direct	**001974**
Thyroxine-binding Globulin (TBG), Serum	**001735**
Triiodothyronine (T3)	**002188**
Triiodothyronine (T3), Free	**010389**
Triiodothyronine (T3), Free, Dialysis and LC/MS-MS	**503600***
TSH Receptor Antibody (TBII), RRA	**500538***

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Pediatric Endocrinology Tests

Diabetes and Common Autoimmune Conditions

Test Name	Test No.
Antipancreatic Islet Cells	**160721**
Celiac Disease Pediatric Screen with Reflex (includes tissue transglutaminase IgA, total immunoglobulin A, tissue transglutaminase IgG; reflex to total IgA and/or tTG IgG)	**164700**
Congenital Hyperinsulinism Genetic Panel	**630500**
Diabetes Autoimmune Profile (includes ICA-512/IA-2 antibodies, GAD-65 antibodies, insulin antibodies and ZNT8 antibodies)	**504050***
Maturity-Onset Diabetes of the Young (MODY) 4-Gene Panel	**630568**
Maturity-Onset Diabetes of the Young (MODY) Expanded Genetic Panel	**630513**
Thyroglobulin Antibody	**006685**
Thyroid Peroxidase (TPO) Antibodies	**006676**

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References

1. Speiser PW, Azziz R, Baskin LS, Ghizzoni L, Hensle TW, Merke DP, Myer-Bahlburg HFL, Miller WL, Montori VM, Oberfield SE, Ritzen M, White PC. Congenital Adrenal Hyperplasia Due to Steroid 21-hydroxylase Deficiency: An Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab. Sept 2010; 95(9):4133-4160.
2. Internal data on file. Endocrine Sciences, 2012.
3. American Diabetes Association. Standards of Medical Care in Diabetes – 2011. Diabetes Care. Jan 2011; 34(1):S11-S48.

For more information, visit us at
Labcorp.com/endocrinology

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