



**Testosterone by LC/MS/MS and Associated Batteries:**

**Free and Total Testosterone, LC/MS/MS**

**Bioavailable Testosterone, LC/MS/MS**

Effective January 8, 2019, Laboratory Alliance of Central New York will send out specimens for Testosterone testing by Liquid Chromatography/Tandem Mass Spectrometry (LC-MS/MS) to our reference lab (ARUP Laboratories). In addition, testosterone evaluation batteries for assessment of free and bioavailable testosterone that involve the measurement of total testosterone by LC-MS/MS will also be sent out to our reference lab.

Good agreement can be expected between ARUP's LC-MS/MS method and our in-house LC-MS/MS method (which will be discontinued) because both are based on LC-MS/MS technology, which is considered the gold standard for measuring testosterone in women and children.

The circulating concentration of testosterone in women is only 5-10% of that in men. In children, the circulating concentration of testosterone is highly age and sex dependent, with reference ranges extending down to less than 5% of the adult male testosterone concentration. Testosterone testing by LC-MS/MS methodology is necessary for the accurate quantitation of the lower concentrations of testosterone found in samples from women and children. Testosterone testing by immunoassay methodology is suitable for accurate quantitation of the higher concentrations of testosterone in samples from adult males. Laboratory Alliance will continue to perform testosterone testing in-house on our automated immunoassay platform.

The following table summarizes Laboratory Alliance's testosterone menu.

Test Name	Test Code	Includes	Suggested patient population
Testosterone	TSTR	Total testosterone by immunoassay (limit of detection 7 ng/dL)	Adult males, including boys 14 years and older.
Testosterone LC	TSTFC	Total testosterone by LCMS (limit of detection 1 ng/dL)	Females, children, hypogonadal males
Testosterone, Free and Total	TSTRF	Total testosterone by immunoassay, SHBG, calculated free testosterone and % free testosterone.	Adult males, including boys 14 years and older.
Testosterone LC, Free and Total	TFTFC	Total testosterone by LCMS, SHBG, and calculated free testosterone.	Females, children, hypogonadal males
Testosterone, Bioavailable	TSTRB	Total testosterone by immunoassay, SHBG, calculated bioavailable testosterone, free testosterone and % free testosterone.	Adult males, including boys 14 years and older.
Testosterone LC, Bioavailable	TSTBCF	Total testosterone by LCMS, SHBG, calculated bioavailable testosterone, and free testosterone.	Females, children, hypogonadal males

Test details, specimen requirements and ordering information are included in the tables below:

	Immunoassay Testosterone Batteries Performed by Laboratory Alliance	LCMS Testosterone Batteries Performed by ARUP
<b>Test Codes:</b>		
Total Testosterone	TSTR	TSTFC
Total and Free Testosterone	TSTRF	TFTFC
Total, Bioavailable and Free Testosterone	TSTRB	TSTBCF
<b>Specimen requirements:</b>	One 5 mL gold top tube (SST). 2 mL serum required. Plasma (heparin) is also acceptable.	One 5 mL gold top tube (SST), or green-top (sodium or lithium heparin) tube.  1 mL (min 0.8) serum required.
<b>Storage and Transport:</b>	Centrifuge within 2 hours of collection. Transport to laboratory refrigerated or ambient.	Centrifuge within 2 hours of collection. Transport to laboratory refrigerated or ambient.
<b>Stability:</b>	Refrigerated: 2 days	Ambient : 24h; Refrigerated: 1 week; Frozen: 6 months
<b>Unacceptable Conditions:</b>		EDTA Plasma
<b>Testing Schedule:</b>	Daily	Sun - Sat
<b>CPT Codes:</b>		
Total Testosterone	84403	84403
Total and Free Testosterone	84403, 84270	84403, 84270
Total, Bioavailable, and Free Testosterone	84403, 84270	84403, 84270

	<b>Immunoassay Testosterone Batteries</b>	<b>LCMS Testosterone Batteries</b>
<b>Billing Codes:</b>		
Total Testosterone	1010097	5010749
Total and Free Testosterone	1010459	5010645
Total, Bioavailable, and Free Testosterone	1010465	5010648

A complete set of age- and gender-specific reference intervals is available on our website at [www.laboratoryalliance.com](http://www.laboratoryalliance.com).

Questions regarding these tests may be directed to Dr. Roy Huchzermeier at 315-410-7221 or [RoyHuchzermeierPhD@lacny.com](mailto:RoyHuchzermeierPhD@lacny.com), or Cheryl Haskins, MS, MT(ASCP)SC, Chemistry Special Projects Coordinator, at [cherylhaskins@lacny.com](mailto:cherylhaskins@lacny.com).

12/19/18, cmh/jar