

Endocrine Sciences Announces the Availability of 11-Oxoandrogen Testing

New Tests Available

Endocrine Sciences, a member of the LabCorp Specialty Testing Group, once again leads the way in innovation by developing clinical testing for 11-oxoandrogen analysis using high-performance liquid chromatography-tandem mass spectrometry (HPLC MS/MS). These androgens, 11-ketotestosterone, 11-hydroxytestosterone, and 11-hydroxyandrostenedione, may be particularly important for some disease states.¹

What are 11-Oxoandrogens?

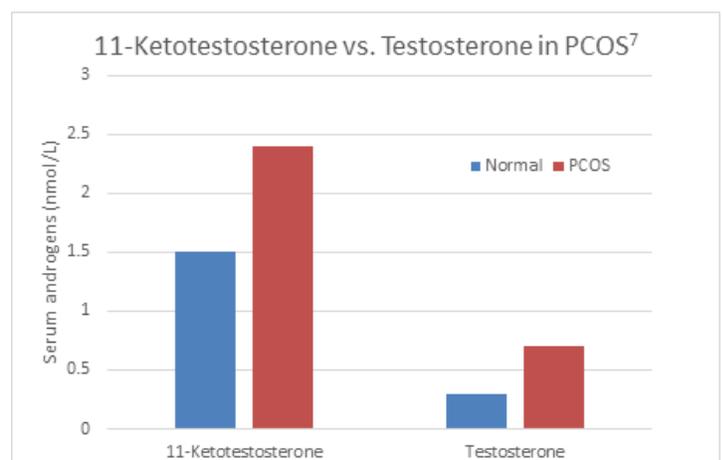
Although the presence of androgens with oxygen at the 11 position of the steroid backbone has been known for some time, the clinical utility and prevalence of these androgens have only recently come to light. Use of HPLC/MS-MS technology has enhanced research regarding 11-oxoandrogens. 11-ketotestosterone and 11-ketodihydrotestosterone bind the androgen receptor as well as testosterone and DHT.² The 11-oxoandrogens also follow the same metabolic pathways as androgens without oxygen at 11. The origin of 11-oxoandrogens is almost entirely adrenal,¹ which is important because they appear to play a significant role in several endocrine diseases.

Clinical Significance of 11-Oxoandrogens

CAH: Congenital adrenal hyperplasia due to 21-hydroxylase deficiency is a genetic disease affecting between 1:14,000 to 1:18,000 people.³ The enzyme defect responsible for the disease causes excess adrenal androgen production driven by ACTH, and the major androgens are 11-oxygenated.⁴ Therefore, 11-oxoandrogens are important to monitor in control of CAH, especially in children and women. In men, 11-oxoandrogens are proposed as biomarkers for disease activity because they are of

adrenal origin.⁴ Although excess androgens are less of a problem in adult men, they are subject to other sequelae of CAH, especially testicular adrenal-rest tumors (TARTs). Following 11-oxoandrogens is expected to be a uniquely useful biomarker when monitoring CAH in males, since testosterone is not useful as an adrenal androgen for adult men with CAH.⁵

PCOS: Polycystic ovary syndrome is a disease characterized by amenorrhea or oligomenorrhea and excess androgens. Although this syndrome is found in 8-13% of reproductive-aged women, the disease is not well understood.⁶ 11-ketotestosterone has been shown to be in excess in PCOS patients, and levels in those patients are in fact higher than levels of testosterone.⁷ This significantly points to adrenal androgens as a source of the excess androgens found in PCOS. 11-ketotestosterone appears to be a better biomarker than testosterone or androstenedione for evaluating and monitoring PCOS.⁷



Clinical Significance of 11-Oxoandrogens (continued)

Prostate Cancer: The goal of GnRH agonist treatment, antiandrogens, and 17-hydroxylase blockade are to minimize androgens in prostate cancer. Eliminating adrenal androgens has been helpful in castration-resistant prostate cancer, and it now appears that 11-ketotestosterone is an important adrenal androgen to control.^{2,8} Measuring 11-ketotestosterone as a marker of adrenal-specific androgens will provide additional information for monitoring castration-resistant prostate cancer.

Summary: 11-oxoandrogens are emerging biomarkers for androgen production of adrenal origin. These biomarkers will be useful in diseases in men, women, and children. LabCorp has the scientific and endocrine expertise to pioneer new assays for 11-oxoandrogens.

Clinical Applications for the Measurement of Oxoandrogens

- Monitor control of CAH, especially in children and women
- Monitor control of CAH in men and potentially avoid TARTs
- Evaluate and monitor treatment for PCOS
- Identify and monitor adrenal androgen suppression in castration-resistant prostate cancer

References

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Tests to Consider

Test Name	Test No.	Specimen Requirements
11-Ketotestosterone	504674	1.5 mL Serum (1 mL Minimum)
11-Hydroxytestosterone	504680	1.5 mL Serum (1 mL Minimum)
11-Hydroxyandrostenedione	504677	1.5 mL Serum (1 mL Minimum)
11-Oxoandrogens Panel (includes 11-Ketotestosterone, 11-Hydroxytestosterone, and 11-Hydroxyandrostenedione)	504683	1.5 mL Serum (1 mL Minimum)

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