STEROID PANELS
on state of the art (LC-MS/MS) Platform

Indications for Testing

- Disorders of Sex development (DSD)- Ambiguous genitalia
- Unexplainable electrolytes results in infancy
- Premature sexual development in older children
- Hirsutism and/or irregular menses in adult females - PCOS
Why steroid profiling in Ambiguous genitalia? 

- Ambiguous genitalia have varied aetiologies, 46XX DSD being the commonest of all with predominance of Congenital Adrenal Hyperplasia (CAH), salt wasting type.

- Prompt diagnosis and management of CAH patients not only saves the child but it also alleviates the agony of sex rearing in the family.

- Diagnosis of CAH is based on the quantification of 17-hydroxyprogesterone (17-OHP), usually by immunoassay, which has low specificity and high false-positive rates, resulting in a relatively high demand for a second-tier confirmation test.

- Endocrine Society Clinical Practice Guidelines (2018) recommends second tier screen by liquid chromatography-tandem mass spectrometry (LC-MS/MS)

- Various enzyme defects cannot be distinguished based on 17-OHP levels, 11β-hydroxylase, deficiency of which leads to accumulation of its substrates: 11-deoxycortisol (11-S) and 11-deoxycorticosterone (DOC) whereas A 17 hydroxylase / 17, 20-lyase deficiency a rare form of CAH, leads to elevation of plasma ACTH levels and accumulation of mineralocorticoids such as corticosterone and 11-deoxycorticosterone (DOC)

- The serum steroid profile by (LC-MS/MS) allows accurate and simultaneous quantification of thirteen steroids in the same analysis. Such an application helps to detect accumulation of specific steroids as a result of enzyme deficiencies, differentiate the various enzymatic defects potentially causing CAH, improves the positive predictive value of new born screening for CAH and leads to an early intervention.

- Finally, the determination of multiple steroids by (LC-MS/MS) in the diagnostic confirmation of CAH is also useful and informative for the subsequent molecular testing confirmation.
Why steroid profiling in Polycystic Ovarian Syndrome (PCOS)?

- Polycystic ovary syndrome (PCOS) is defined by a clinical triad of anovulation, insulin resistance, and androgen excess.
- Hyperandrogenism is a key feature of PCOS, which is the most common endocrine disorder in women of reproductive age.
- PCOS consensus criteria define androgen excess based on serum testosterone levels but literature suggest 10% of PCOS patients may be misclassified as normoandrogenemic if androstenedione is not measured.
- Elevated levels of adrenal androgens, primarily dehydroepiandrosterone sulfate (DHEAS), are present in 40%-70% of hyperandrogenic women with PCOS whereas 20%-30% of women with PCOS have increased circulating levels of androstenedione and dehydroepiandrosterone.
- It is likely that simultaneous measurement of multiple androgens (steroid/androgen profiling with highly specific and sensitive method LC-MS/MS) be more sensitive for detecting PCOS-related androgen excess and for predicting metabolic risk.

References:
### Our Key Steroid Test Range

<table>
<thead>
<tr>
<th>Test Code</th>
<th>Test name</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>G197</td>
<td>Steroid Panel 3:13 Steroids</td>
<td>Aldosterone, Androstenedione, Corticosterone, Cortisol, Cortisone, 11-Deoxycortisol, 11-Deoxycorticosterone, 21-Deoxycortisol, DHEA, DHEAS, 17α-Hydroxyprogesterone, Progesterone, Testosterone, Total Ultrasensitive</td>
</tr>
<tr>
<td>G195</td>
<td>Steroid Panel 1:6 Steroids</td>
<td>Aldosterone, Corticosterone, Cortisol, Cortisone, 11-Deoxycortisol, 21-Deoxycortisol</td>
</tr>
<tr>
<td>G196</td>
<td>Steroid Panel 2, 7 Steroids</td>
<td>Androstenedione, DHEA, DHEAS, 17α-Hydroxyprogesterone, Progesterone, Testosterone, Total, 11-Deoxycorticosterone</td>
</tr>
<tr>
<td>G191</td>
<td>Steroid Panel For Congenital Adrenal Hyperplasia (CAH)</td>
<td>Androstenedione, Cortisol, 11-Deoxycortisol, DHEA, 17α-Hydroxyprogesterone, Progesterone, Testosterone Total, 11-Deoxycorticosterone, 21-Deoxycortisol, 17α-Hydroxyprogesterone + 21-Deoxycortisol : Cortisol ratio</td>
</tr>
<tr>
<td>G193</td>
<td>Steroid Panel For PCOS / Non-classical CAH Differentiation</td>
<td>Androstenedione, DHEAS, 17α-Hydroxyprogesterone, Testosterone, Total</td>
</tr>
<tr>
<td>G194</td>
<td>Steroid Panel For Premature Adrenarche</td>
<td>Androstenedione, DHEA, DHEAS, 17α-Hydroxy-progesterone, Testosterone Total, Ultrasensitive</td>
</tr>
<tr>
<td>Z040</td>
<td>Hirsutism Panel</td>
<td>Androstenedione, DHEA, DHEAS, 17α-Hydroxyprogesterone, Testosterone Total, Ultrasensitive, Free Testosterone</td>
</tr>
</tbody>
</table>

**TAT/Reported on**
Sample Mon / Thu by 9 am; Report Wed / Sat

*Sample reaching NRL (National Reference Lab, Delhi)*

**Technique:**
Liquid chromatography–tandem mass spectrometry (LC-MS / MS)