**IGF-1 Generation Test**

**ICE Test Name:** None – Please request tests separately

**Principle**
Growth hormone is administered to the patient where there is strong suspicion of growth hormone insensitivity. This is generally indicated by short stature with low IGF-1 levels and a normal or high response to GH provocation tests. Growth hormone should stimulate the generation of IGF-1 which is measured in basal and stimulated blood samples. Failure of IGF-1 generation is suggestive of growth hormone insensitivity. With a sensitivity of 77 – 91% and a specificity <97% this test is generally useful only in detecting more severe cases of growth hormone insensitivity.

**Indication**
- Diagnosis of growth hormone insensitivity

**Precautions**
- None reported

**Side Effects**
- No significant effect of short term Growth hormone use

**Preparation**
- None required

**Protocol**
1. **Day 1** – take blood sample for IGF-1 estimation
2. **Administer growth hormone sub-cutaneously to patient at a dose of 0.1 U/kg body weight/day (i.e. 33 micrograms/kg body weight/day)** for 4 days (days 1, 2, 3, 4)
3. **Day 5** – take blood sample for IGF-1 estimation

**Time Points:**
<table>
<thead>
<tr>
<th>Day of test</th>
<th>Procedure</th>
<th>Blood Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Administer Growth Hormone</td>
<td>IGF-1</td>
</tr>
<tr>
<td>2</td>
<td>Administer Growth Hormone</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Administer Growth Hormone</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Administer Growth Hormone</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>IGF-1</td>
</tr>
</tbody>
</table>

**Samples**
- **IGF-1** 1 mL clotted blood (brown top)
- Record actual sample collection times on the printed barcodes.
- SEND ALL SAMPLES TO THE LABORATORY TOGETHER

**Interpretation**
- An incremental increase in IGF-1 of >15 µg/L above the baseline level excludes severe GH insensitivity

**References**