## IGF-1 Generation Test

Test Name: 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[1].

### 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 on days 1, 2, 3 & 4:***

| Generic | Brand (if applicable) | Route | Dose | Frequency | Comments |
|---|---|---|---|---|---|
| Somatropin | Genotropin Miniquick or similar if unavailable | Subcutaneously | 0.1 units/kg body weight/day (i.e. 33 micrograms/kg body weight/day) | Daily for 4 days (day 1- day 4) | |

3. **Day 5** – take blood sample for IGF-1 estimation.

### Samples

*IGF-1*          1.2 mL clotted blood (white top)

### Interpretation

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

### References

1. Coutant R., Dörr H.G., Gleeson H. & Argente J. (2012) Limitations of the IGF1 generation test in children with short stature. *Eur J of Endocrinology* **166**: 351 – 357