Cherubism is a rare condition of the mandible and maxilla. It causes round cheeks and jaws with slight upward turning of the eyes giving a facial appearance reminiscent of the angelic cherubs. The basis for the fullness of cheeks and jaws is a non-neoplastic fibrous dysplasia within the maxilla and mandible. Both ends of the spectrum, mild clinically unrecognized cases, and severe cases with extensive bone loss are seen. In some severe cases, the marked deformation results in chewing, swallowing and speech difficulties, and in rare cases, severe orbital involvement leading to diplopia may occur.

**GENETICS**

Cherubism is an autosomal dominant condition caused by mutations in the SH3BP2 gene on chromosome 4 (4p16.3). Eleven missense mutations in exon 9, and one mutation in exon 4 causing Cherubism have been reported in the SH3BP2 gene.

Cherubism is present when an individual has one copy of the defective SH3BP2 gene. Affected individuals have a 50% chance of transmitting the disorder to each child. There is a 50% chance that the affected individual’s offspring will not be affected with Cherubism.

Patients with Cherubism may show variability in clinical features due to penetrance and variable expressivity. In males the penetrance is close to 100% but in females only 50-75%.

**TEST METHODS**

- Complete sequencing of the coding region and flanking exon/intron boundaries of the SH3BP2 gene to identify mutations.

**WHO SHOULD BE TESTED?**

- Individuals clinically suspected of being affected with Cherubism
- Relatives of probands with identified SH3BP2 mutations

**TEST SENSITIVITY**

- Mutations in exon 9 of the SH3BP2 will be detected in 80% patients with Cherubism.

**POTENTIAL OUTCOMES & INTERPRETATION OF TEST RESULTS**

<table>
<thead>
<tr>
<th>SH3BP2 Gene Mutation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>None detected</td>
<td>This result is unable to confirm a diagnosis of Cherubism</td>
</tr>
<tr>
<td>Mutation detected</td>
<td>This result confirms a diagnosis of Cherubism</td>
</tr>
</tbody>
</table>

1. Current molecular testing may not detect all possible mutations for this disease. A negative test does not rule out the possibility that the individual carries a rare SH3BP2 mutation not detected by the assay.

2. The clinical course or severity of symptoms cannot be predicted by molecular analysis.

3. Test results should be interpreted in the context of clinical findings, family history and other laboratory data.

4. This test was developed and its performance characteristics validated by the Molecular Genetics Laboratory at the Hospital for Sick Children. It has not been cleared or approved by the U.S. Food and Drug Administration. The FDA has determined that such clearance or approval is not necessary. This test is used for clinical purposes.