**Clinical Information**

Thyroid peroxidase (TPO) is an enzyme used by the thyroid gland in the manufacture of thyroxine. In patients with autoimmune thyroiditis, the body produces antibodies to TPO, which mount a direct attack on the thyroid gland itself, resulting in reduced thyroxine production and consequent hypothyroidism. Levels of TPO antibodies in blood spot can indicate the presence and extent of autoimmune thyroiditis.

The most predominant form of autoimmune thyroiditis is known as Hashimoto’s disease, which is also the most common cause of overt hypothyroidism; 95% of such patients are positive for TPO antibodies. Testing for TPO antibodies has also been found to help diagnose thyroid disease in patients with abnormal thyroid-stimulating hormone and/or mild thyroid symptoms.

The reference range for TPO antibodies is 0—150 IU/mL, while 70—150 IU/mL is borderline for the presence of autoimmune thyroiditis.

**References:**


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**Assay Method: EIA**

**Intra-assay Precision**

Intra-assay precision was determined by choosing three samples spanning the reference range, and analyzing them multiple times within the same run. Results are shown below:

<table>
<thead>
<tr>
<th>Mean TPO antibody Concentration (IU/mL)</th>
<th>Standard Deviation</th>
<th>Coefficient of Variation (C.V. %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>3.3</td>
<td>7.0</td>
</tr>
<tr>
<td>53</td>
<td>5.1</td>
<td>9.6</td>
</tr>
<tr>
<td>62</td>
<td>6.7</td>
<td>10.8</td>
</tr>
</tbody>
</table>

**Inter-assay Precision**

Inter-assay precision was determined by choosing three samples spanning the reference range, and analyzing them multiple times throughout different runs. Results are shown below:

<table>
<thead>
<tr>
<th>Mean TPO antibody Concentration (IU/mL)</th>
<th>Standard Deviation</th>
<th>Coefficient of Variation (C.V. %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>5.3</td>
<td>14.6</td>
</tr>
<tr>
<td>41</td>
<td>4.7</td>
<td>11.5</td>
</tr>
<tr>
<td>371</td>
<td>51.1</td>
<td>13.8</td>
</tr>
</tbody>
</table>

**Accuracy**

To test the accuracy of the dried blood spot assay for TPO antibodies, dried blood spot samples collected at the same time as corresponding serum samples were analyzed by linear regression. Resulting correlation data are shown below (R = 0.95):

![Graph showing correlation between serum TPO and blood spot TPO](image)

**Analyte Stability**

The dried blood spot samples are stable for more than 1 month at room temperature.

**Specimen Collection**

Kits for blood spot collection contain a filter paper collection card, finger lancets, an alcohol prep pad, sterile gauze, a band-aid, easy-to-follow instructions, and a mailer to return the sample for analysis.

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**BLOOD SPOT TEST SPECIFICATIONS**

**Thyroid Peroxidase Antibodies**

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**Innovating Hormone Testing**

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