

## CLINICAL SPECIFICATIONS

# THYROID PEROXIDASE

### Function:

Thyroid peroxidase (TPO) is an enzyme expressed mainly in the thyroid that frees iodine for its addition onto thyroglobulin tyrosine residues for the production of thyroxine (T4) or triiodothyronine (T3), thyroid hormones. Some TPO antibodies may lyse thyroid cells or inhibit TPO enzyme activity, *in vitro*<sup>2,7</sup> but in general it is considered an antibody response to thyroid damage inflicted by T-Cells.

### Antibodies Appear:

Autoimmune Thyroid Disease<sup>1,3,5,6</sup>  
 Graves' Disease<sup>3</sup>  
 Hashimoto's Thyroiditis<sup>2</sup>  
 Vitiligo<sup>3,4</sup>

**Known Cross-Reactions:** Thyroglobulin,<sup>9</sup> gliadin,<sup>10</sup> *Helicobacter pylori*,<sup>11</sup> heat shock protein<sup>12</sup>

### Clinical Significance:

Autoimmunity occurs when antibodies against TPO cause gradual destruction of follicles in the thyroid gland, and decrease assimilation of thyroid hormones into the cells.<sup>5,6,8</sup> Elevated antibodies to TPO are often associated with a hypothyroid condition called Hashimoto's Disease. It is important to note that TPO antibodies can be detected in circulation long before the change of thyroid function can be observed by changes in the TSH levels.<sup>1</sup> Additionally, Vitiligo often precedes thyroid dysfunction,<sup>3</sup> and thus Vitiligo patients should be screened for thyroid disorders. Researchers have shown that there is an increased risk of autoimmune and/or endocrine disorders in first and second degree relatives of vitiligo patients with positive organ-specific antibodies.<sup>4</sup>

### References:

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