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Black Country Pathology Services



TRAB Test

Trace Elements Laboratory Clinical Biochemistry



NHS Pathology Serving the Black Country

Provided by Sandwell and West Birmingham NHS Trust, The Dudley Group NHS Foundation Trust, The Royal Wolverhampton NHS Trust and Walsall Healthcare NHS Trust.

A Teaching Trust of The University of Birmingham
Incorporating City, Sandwell and Rowley Regis Hospitals

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Sample requirements

- Minimum of 250µl of serum.
- Allow sample to clot adequately before centrifugation.
- Keep tubes stoppered at all times.
- Refrigerate sample at 2-8°C until transport.

Clinical Use

Autoantibodies to the thyroid stimulation hormone receptor (TRAb) are beneficial in diagnosis and management of hyperthyroidism in Graves' disease (autoimmune hyperthyroidism).

The thyroid stimulating hormone (TSH) receptor (serves as an antigen) is a two-subunit glycoprotein; the extracellular A subunit is recognised by thyroid stimulating antibodies, while those antibodies recognising the B subunit, located much nearer the cell surface, appear to function as blocking antibodies. Based on the mechanism of action TSH autoantibodies can be classified as stimulating blocking or neutral.

Although TSHR stimulating antibodies have a similar action to TSH they are not subjective to the negative feedback mechanism correlated with TSH, leading to continual prolonged activation of the TSHR. Resulting in elevated thyroid hormone level and thyrotoxicosis associated with Graves' disease.

Indications for TRAb determination include:

1. By way of exclusion, the presence of TSH receptor antibodies (TRAbs) in the serum sample differentiate between thyrotoxicosis with hyperthyroidism (for example, Graves' disease rather than toxic nodular goitre) and thyrotoxicosis without hyperthyroidism (for example, transient thyroiditis).
2. Absence of TRAbs.
3. Can be used as an important decision making for the monitoring, treatment and prediction of relapse of Graves' disease. During treatment with anti-thyroid drugs the level of TRAbs tends to fall may indicate remission thereby allowing the withdrawal of therapy.
4. TRAb are IgG-class antibodies that cross the placenta and can cause neonatal thyroid disease. The importance of measuring TRAbs in the last trimester of pregnancy aids in assessing the risk of thyroid disease in the neonate.

Reference ranges:

Interpretation of results	
<1.1 IU/L	Normal
1.11-1.75 IU/L	Intermediate
>1.75 IU/L	Raised

Method:

TRAb is measured in serum using Cobas e 801 employing a (competitive principle) immunoassay system. We offer electronic reporting of results by PDF and NPEX.

Turn round

We aim to analyse and report the results within 5 working days from receipt of sample.

References

1. Sinclair D. Analytical aspects of thyroid antibodies estimation. *Autoimmunity*. 2008;41(1):46-54. doi:10.1080/08916930701619466.
2. Kamijo K. TSH-receptor antibodies determined by the first, second and third generation assays and thyroid-stimulating antibody in pregnant patients with Graves' disease. *Endocr J* 2007;54(4):619-624.
3. Schott M, Seiβler J, Scherbaum WA. Diagnostic testing for autoimmune thyroid diseases. *J Lab Med* 2006;34(4):254-257.
4. NICE guideline [NG145] Published date: 20 November 2019
NICE clinical guidelines CG122.

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