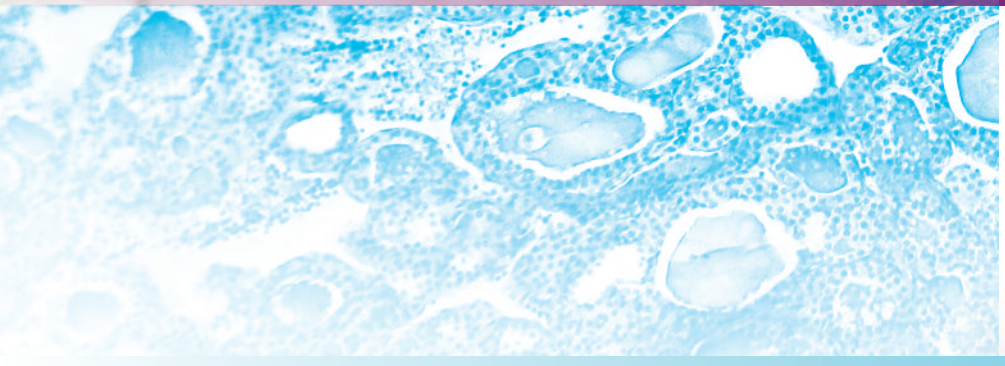
Thermo Scientific B·R·A·H·M·S Tg
Immunodiagnostic Assays



confident follow-up

of thyroid cancer patients

Tg + Recovery: reliable strategies to overcome assay interferences and to increase applicable Tg results

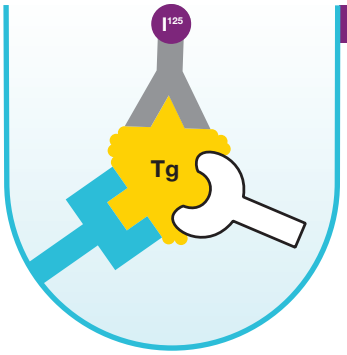
Thermo
SCIENTIFIC

Assay interferences

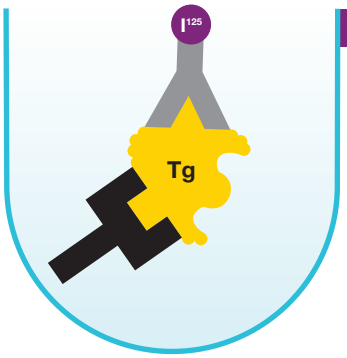
Thyroglobulin (Tg) is a highly specific tumor marker for differentiated thyroid carcinoma. Its measurement in serum represents one of the most efficient tools for early detection of tumor relapse after an effective primary therapy.

Interferences, particularly by anti-Tg autoantibodies, often give rise to false Tg results. This might occur, even with newly developed Tg assays, in spite of their improvements that have been made by the manufacturers.

This problem appears to be quite a challenge for laboratory practice. We will try to approach this phenomenon with the help of examples and will show and validate ways to resolve this problem.

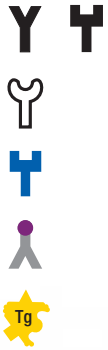


undisturbed measurement



disturbed measurement (I)

disturbed measurement (II)



Anti-Tg autoantibodies causing interferences

Anti-Tg autoantibody not causing interferences

1st assay antibody

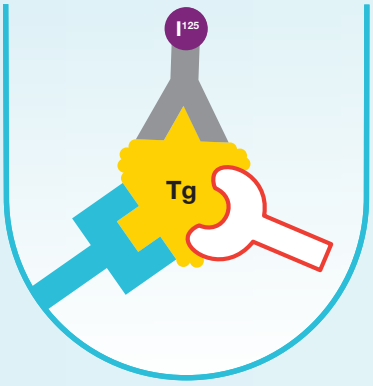
2nd assay antibody

Thyroglobulin in serum

Tg antibody measurement

Patient A

with anti-Tg antibodies not causing interferences

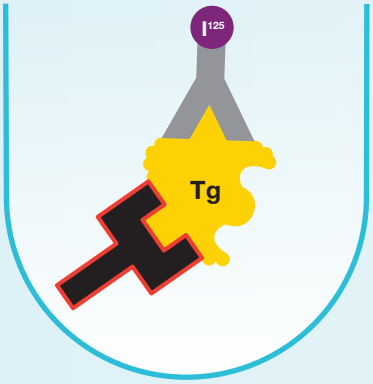


- Real Tg level: 5 ng/mL
- Tg antibodies not causing interferences: 1000 U/mL
- Measured Tg level: 5 ng/mL

Tg result will be discarded!

Patient B

with anti-Tg antibodies causing interferences



- Real Tg level: 5 ng/mL
- Tg antibodies causing interferences: 1000 U/mL
- Measured Tg level: 0 ng/mL

Tg result will be discarded!

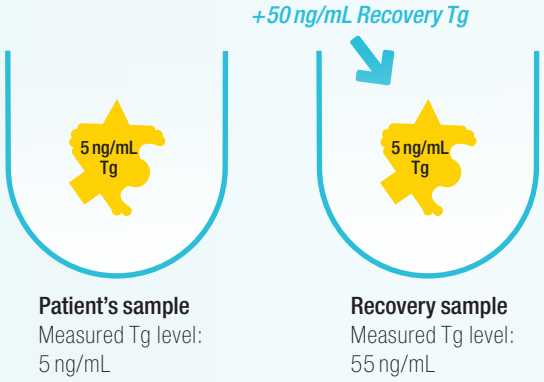
Patient C

with not detectable anti-Tg antibodies causing interferences

- Real Tg level: 5 ng/mL
- Tg antibodies causing interferences below detection limit
- Measured Tg level: 0 ng/mL

Tg result will be falsely considered valid!

Tg recovery test



Patient's sample
Measured Tg level:
5 ng/mL

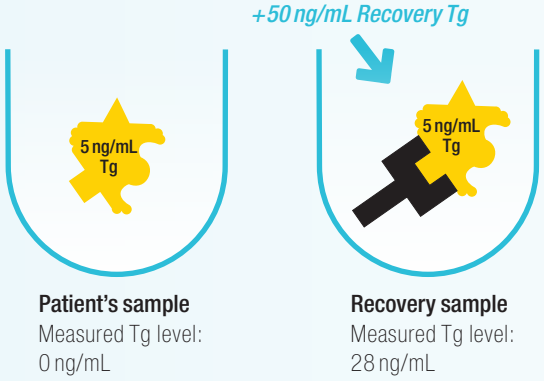
Recovery sample
Measured Tg level:
55 ng/mL

- Real Tg level: 5 ng/mL

Recovery

$$\frac{55\ \text{ng/mL} - 5\ \text{ng/mL}}{50\ \text{ng/mL}} = \frac{50}{50} \triangleq 100\%$$

Tg result is considered valid!



Patient's sample
Measured Tg level:
0 ng/mL

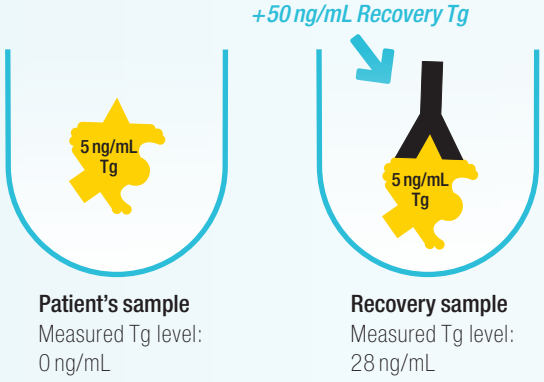
Recovery sample
Measured Tg level:
28 ng/mL

- Real Tg level: 5 ng/mL
- Tg antibodies causing interferences: 1000 U/mL

Recovery

$$\frac{28\ \text{ng/mL} - 0\ \text{ng/mL}}{50\ \text{ng/mL}} = \frac{28}{50} \triangleq 56\%$$

Tg result will be discarded!



Patient's sample
Measured Tg level:
0 ng/mL

Recovery sample
Measured Tg level:
28 ng/mL

- Real Tg level: 5 ng/mL
- Tg antibodies causing interferences below detection limit

Recovery

$$\frac{28\ \text{ng/mL} - 0\ \text{ng/mL}}{50\ \text{ng/mL}} = \frac{28}{50} \triangleq 56\%$$

Tg result will be discarded!

... and how to overcome

The validation of a measured serum Tg result by determining only anti-Tg autoantibodies involves the **risks**:

- not to consider accurate Tg results (see Patient A)
- **not to recognize invalid falsely low Tg levels as such and to consider them as valid** (see Patient C)

The measurement of Tg recovery guarantees the most efficient and effective classification of "valid"and "invalid" Tg results.

The rate of applicable Tg results increases.

Thermo Scientific B·R·A·H·M·S Tg and anti-Tg assays

B·R·A·H·M·S **Tg-pluS** RIA

B·R·A·H·M·S **Tg-pluS** LIA

B·R·A·H·M·S **Tg-S** RIA

B·R·A·H·M·S **Tg-S Recovery** RIA

B·R·A·H·M·S **hTg** KRYPTOR (with Recovery)

B·R·A·H·M·S **anti-Tg** RIA

B·R·A·H·M·S **anti-Tg_n** RIA

B·R·A·H·M·S **anti-Tg_n** LIA

B·R·A·H·M·S **anti-Tg_n** KRYPTOR

Clinical Diagnostics

Thermo Fisher Scientific
B·R·A·H·M·S GmbH
Neuendorfstr. 25
16761 Hennigsdorf
Germany

+49-3302-883-0
+49-3302-883-100 fax
info.brahms@thermofisher.com

www.thermoscientific.com/brahms
www.thermoscientific.com/copeptin
www.thermoscientific.com/procalcitonin
www.thermoscientific.com/kryptor

Thermo SCIENTIFIC
Part of Thermo Fisher Scientific

105367.4