

# THYROID LAB ASSAYS

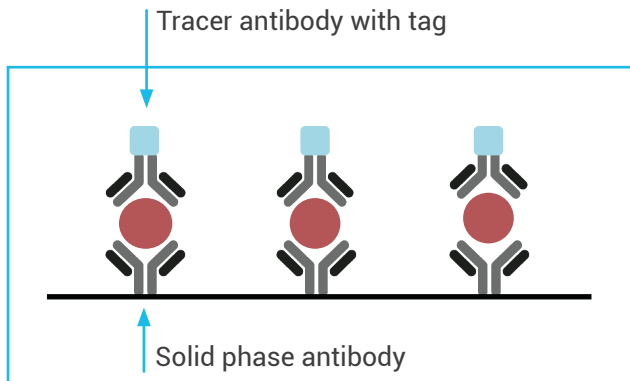
## Identifying assay interference



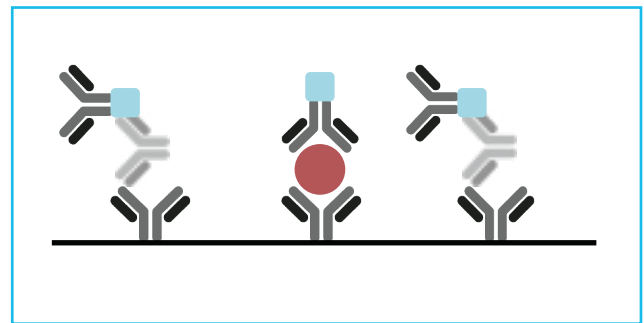
*Suspect lab interference when labs do not fit with the clinical picture, or when TSH and thyroid hormone levels are both elevated.*

Some patients have antibodies that interfere with immunoassays (particularly the TSH sandwich assay).

- These Antibodies crosslink bound antibody and labeled antibody in the absence of TSH.
- Leads to falsely elevated TSH results.



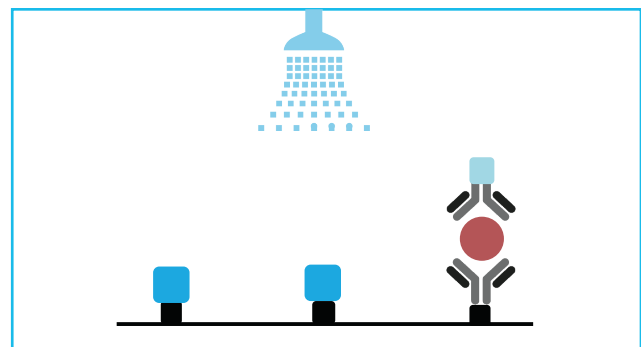
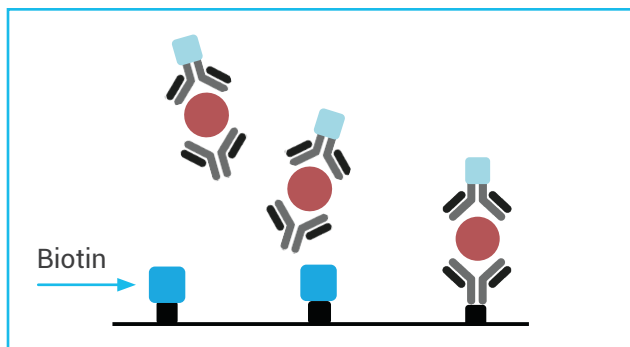
**Correct measurement**



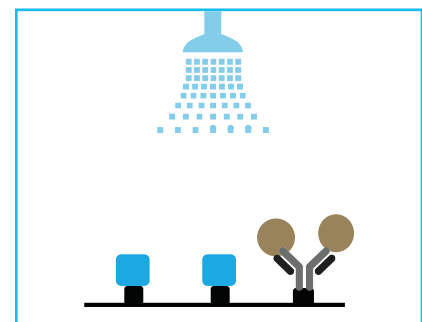
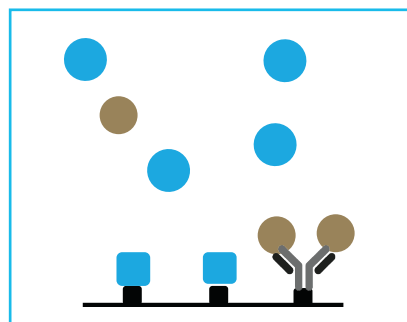
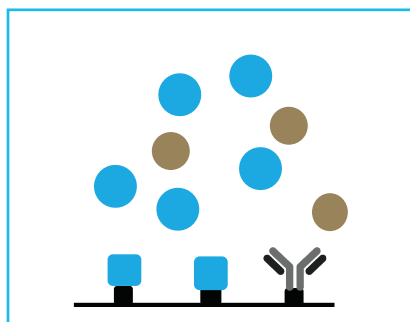
**Falsely elevated measurement**

### Biotin can also interfere with thyroid labs:

- Biotin interferes with binding of the solid state antibody or analog.
- This decreases the binding of the labeled protein.
- The effect on lab results varies, depending on the lab.



For TSH, the amount of labeled antibody is directly proportional to levels of TSH, so results are **falsely low** with biotin.



For thyroid hormone, the amount of labeled antigen is inversely proportional to thyroid hormone levels, so results are **falsely high** with biotin.

#### Further reading

Sharm A, Baumann N, Shah P. Biotin-Induced Biochemical Graves Disease: A Teachable Moment. *JAMA Internal Medicine*. 2017, 177(4):571.