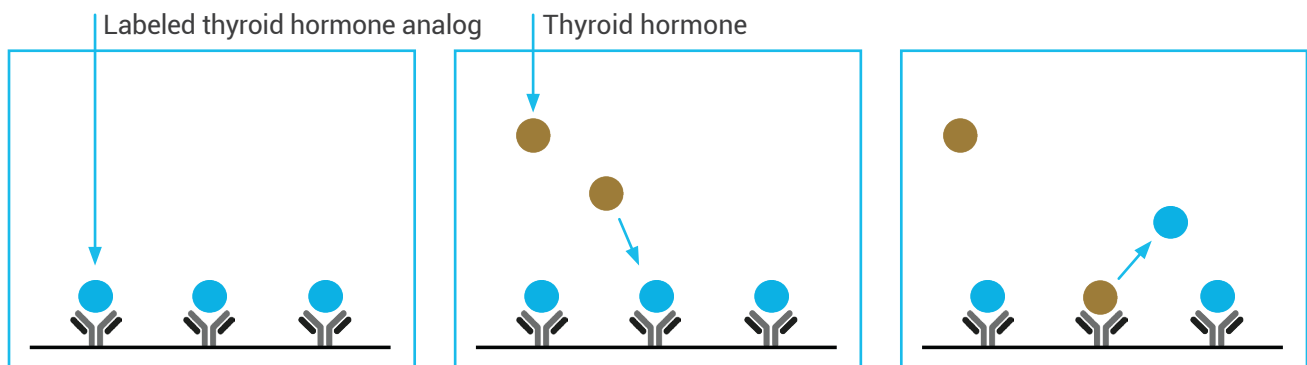


THYROID LAB ASSAYS

Evaluating total thyroid hormone levels

Total thyroid hormone consists of the entire pool of thyroid hormone—active free (unbound) thyroid hormone and inactive thyroid hormone bound to serum proteins.

Total thyroid hormone (both T3 and T4) is typically measured using competitive immunoassays:

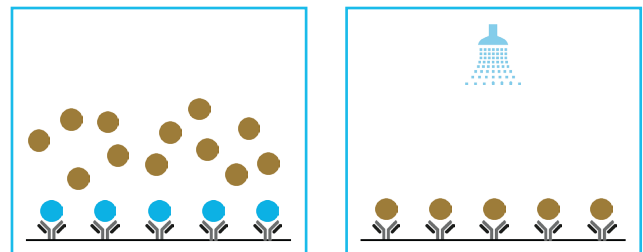


Labeled hormone analogs are bound to a solid state.

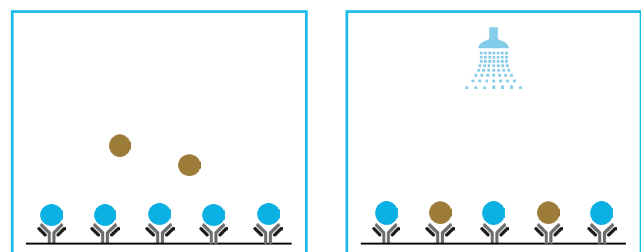
Patient's sample is added and displaces the labeled analog.

Hormone competes with labeled analog for binding to antibody.

If thyroid hormone levels are **high**, thyroid hormone will displace more labeled analog from the antibody, it will be washed away and there will be **low** signal.



If thyroid hormone levels are **low**, there will be less thyroid hormone to displace the labeled analog, resulting in **high** signal.



NOTE

• Both total T3 and total T4 can be measured, but since T4 is present at levels 10-fold greater than T3, measurements of T4 are generally more accurate than T3.

• Factors that affect thyroid binding proteins can lead to high total thyroid hormone levels, without affecting free thyroid hormone, so this is not always an accurate measure of thyroid function.