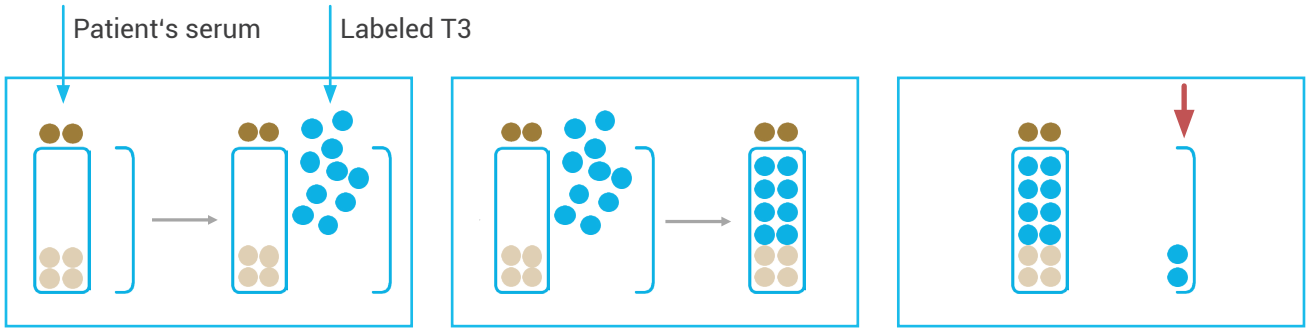
THYROID LAB ASSAYS

Measuring thyroid binding proteins

Total thyroid hormone levels can be affected by a difference in the levels of binding proteins or the affinity of binding proteins. Medications commonly affect binding protein levels: estrogens increase binding protein levels and androgens decrease binding protein levels. Both liver and kidney disease can result in lower levels of binding proteins.

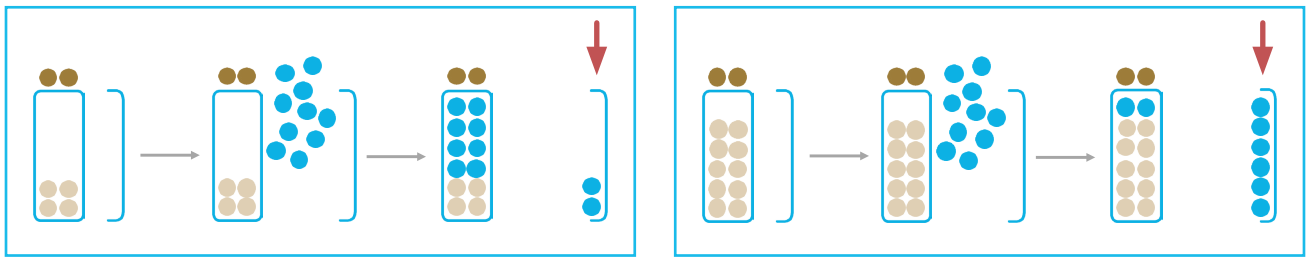
Thyroid binding proteins are measured using an indirect assay called the T3 resin uptake:



Patient's serum is mixed with a known amount of labeled T3.

This will fill all open binding sites on thyroid binding protein in the patient's serum.

Remaining labeled T3 will bind to a resin column and can be measured.



With **high** levels of binding protein, there are more available binding sites for the labeled T3 and less labeled T3 will be bound to the resin. Resin uptake will be **low**.

With **low** levels of binding protein, there are few available binding sites for labeled T3, so more labeled T3 will bind to the resin. Resin uptake will be **high**.