

## **TEST: T4, TOTAL**

### **PRINCIPLE:**

The measurement of Total T4 aids in the differential diagnosis of thyroid disease. Thyroxine accounts for at least 90% of circulating protein-bound iodine. While >99.9% of T4 is protein-bound, primarily to thyroxine-binding globulin (TBG), it is the free fraction that is biologically active. In most patients, the total T4 concentration is a good indicator of thyroid status. Diagnostic efficiency, however, may be improved by use of a total T4 assay in conjunction with other assays. T4 concentrations may be altered in some conditions, such as pregnancy, that affect the capacity of the thyroid hormone-binding proteins. Under such conditions, free T4 (VITROS Free T4 assay (FT4)) can provide the best estimate of the metabolically active hormone concentration. Alternatively, T3 uptake (VITROS T3 Uptake) may be used with the total T4 result to calculate the free T4 index (FT4I) and estimate the concentration of free T4.4

### **SPECIMEN REQUIREMENTS:**

2ml serum collected in a red top tube with no additive or in a serum separator tube (gel barrier). Store in the refrigerator at 2°-8° for up to 5 days. For long term storage, freeze at -20° C or below. Avoid thaw freeze cycles.

**METHOD:** Enhanced Chemiluminescence

### **REFERENCES:**

1. Oppenheimer JH. Role of Plasma Proteins in the Binding Distribution and Metabolism of the Thyroid Hormones. *New Eng J Med.* 278: 1153-1162; 1968.
2. Evered DC. Diseases of the Thyroid Gland. *Clinics in Endocrinology and Metabolism.* 3:425-450; 1974.
3. Tunbridge WMG, Hall R. Thyroid Function in Pregnancy. *Clinics in Obstetrics and Gynecology.* 2:381-393; 1975.

**Normal Range:** 5.53-11.0 µg/ml

**Turnaround Time:** 1 day