



PAML Introduces Quantitative Determination of Soluble Transferrin Receptor

Mary Ann Wilke, R&D Technologist

William Dittman, Jr., M.D., Director of Hematology

Lawrence M. Killingsworth, Ph.D., Chief Science and Technical Officer

Uncomplicated iron deficiency is usually simple to diagnose and treat. The diagnosis can be difficult, however, in patients with chronic disease, infection or inflammation. In these patients, ferritin and transferrin saturation results can be misleading indicators of iron status, due to the fact that both proteins are acute phase reactants. The low sensitivity of ferritin for iron deficiency in these patients may require a bone marrow biopsy or a trial of iron therapy to differentiate iron deficiency from other causes of anemia.

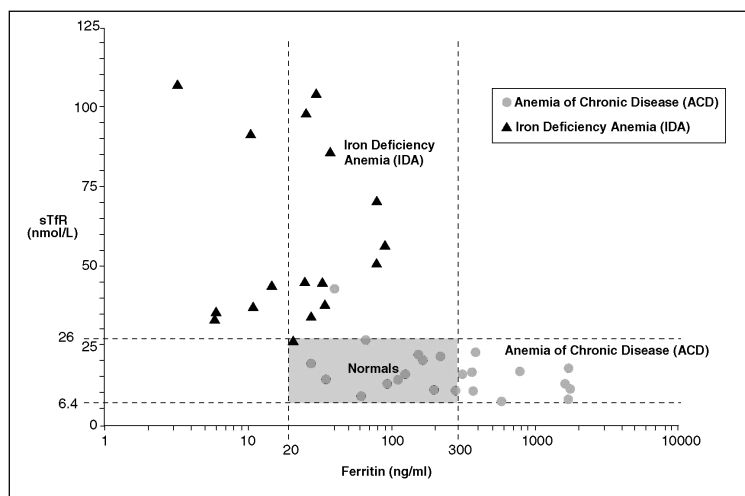
Recently, a new laboratory test has become available to aid in the clinical evaluation of a patient's iron status. Soluble transferrin receptor (sTfR) levels reflect bone marrow erythroid activity and have been shown to be a sensitive indicator of iron deficiency. The concentration of this receptor is increased in iron deficiency, and levels are unaffected by co-existing inflammatory conditions. sTfR is a useful adjunct test to identify iron deficiency in hospitalized and chronically ill patients in whom iron deficiency is expected, but whose ferritin values are normal. To maximize clinical sensitivity and specificity, sTfR should be measured in combination with other tests of iron status, including ferritin, serum iron and TIBC. The addition of sTfR to the routine regimen of tests can reduce the need for bone marrow biopsy or trial of iron therapy.

It should be noted that sTfR is not specific for iron deficiency. sTfR levels may be elevated in other disorders with increased erythroid activity, such as thalassemia and hemoglobinopathies, hemolytic disease or blood loss. African Americans and people residing at high altitudes have higher normal values. Decreased levels of sTfR may be seen in renal disease or aplastic anemia.

Features

- ▶ sTfR is a measure of erythroid activity
- ▶ sTfR is elevated in iron deficiency anemia
- ▶ sTfR can be elevated in other conditions with increased erythroid activity
- ▶ sTfR is normal in anemia of chronic disease
- ▶ sTfR can be decreased in renal disease and aplastic anemia
- ▶ sTfR should be ordered along with conventional anemia tests, such as ferritin, serum iron and TIBC

Use of Soluble Transferrin Receptor for the Differential Diagnosis of Iron Deficiency Anemia and Anemia of Chronic Disease



▲ **Iron Deficiency Anemia:**
Ferritin Normal To Low
sTfR High

● **Anemia of Chronic Disease:**
Ferritin Normal To High
sTfR Normal

For more information, please
contact Client Services or
see us on the Web at



References

Mast AE, et al. Clinical utility of the soluble transferrin receptor and comparison with serum ferritin in several populations. Clin Chem 1998;44: 45 – 51.

Allen J, et al. Measurement of soluble transferrin receptor in serum of healthy adults. Clin Chem 1998;44: 35-39.

Test Information

DESCRIPTION SOLUBLE TRANSFERRIN RECEPTOR

METHOD Chemiluminescence

ORDER CODE STFR

CPT CODE 83520

SPECIMEN 1 mL serum (red top tube). Separate serum from cells immediately after collection and put serum in separate plastic tube. Store and transport refrigerated.

COMMENTS *Minimum amount:* 0.5 mL

Other acceptable specimens: EDTA or heparin plasma (lavender or green top tube).

Unacceptable conditions: grossly hemolyzed, lipemic, or icteric samples.

Stability: unstable at room temperature, 3 days refrigerated, 1 month frozen.

SCHEDULE Monday and Wednesday evenings

TURNAROUND 1-5 days

RANGES Soluble Transferrin Receptor

African American 10.6-29.9 nmol/L

Non-African American 8.8-28.1

These reference ranges apply to individuals living at less than 5000 feet elevation.

Individuals living above 5000 feet have 6% higher values.

Provided for the clients of

PATHOLOGY ASSOCIATES MEDICAL LABORATORIES

PACLAB NETWORK LABORATORIES

TRI-CITIES LABORATORY

TREASURE VALLEY LABORATORY

ALPHA MEDICAL LABORATORY

*For more information, please contact
your local representative.*