## Leading Technology in Fluid-stable Reagents from DiaSys

- Global player in clinical chemistry tests with recognized R & D department
- Quality products made in Germany
- High quality raw materials from traceable origin
- Processes and resources certified according to ISO 13485, ISO 9001, fulfilling highest internal quality standards
- Sustainable processes and products preserve the environment
- High performance ready-to-use reagents with minimized interferences, long shelf life, on-board stability and traceability to international references
- Perfectly matched fluid-stable reagents, calibrators and controls
- Premium service supply in technics, applications and after sales

**CHOOSING QUALITY.**

DiaSys offers reagent kits for manual and automated use plus the appropriate calibrators and controls. Detailed information about the iron tests is available on our website **www.diasys-diagnostics.com/products/reagents** and in our product catalogue.

Climate-neutral print
(Carbon neutral)
ID: 53471-1311-1001

Printed on FSC-certified paper

DiaSys
Diagnostic Systems

**DiaSys**
**Diagnostic Systems GmbH**
Alte Strasse 9
D-65558 Holzheim

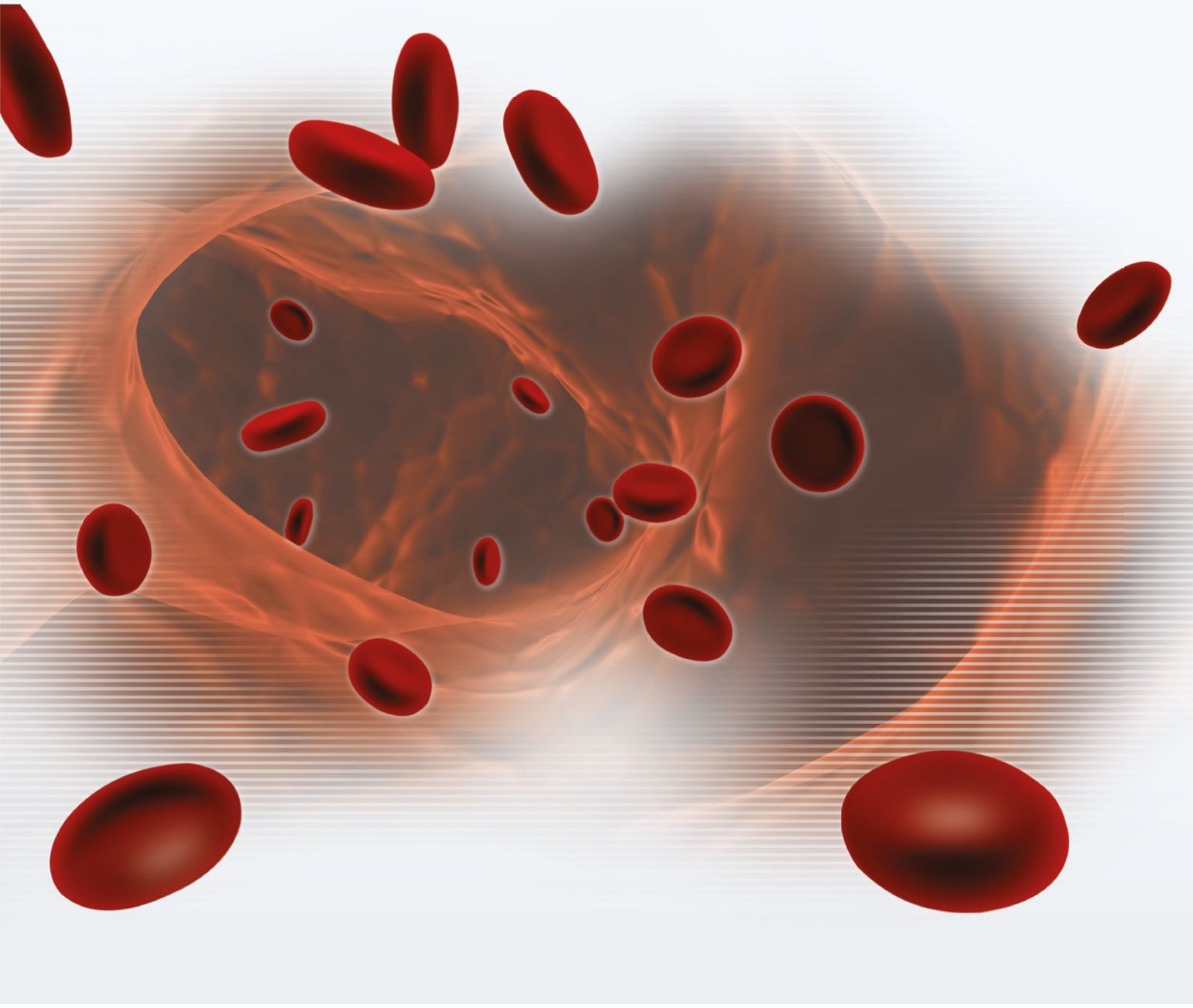
Phone: +49(0) 64 32 /91 46-0
Fax: +49(0) 64 32 /91 46-32
E-Mail: info@diasys.de
**www.diasys-diagnostics.com**

820 108 | November 2013

CHOOSING QUALITY.

# Iron Metabolism Diagnostics

The Essentials For Reliable Iron Diagnostics



- Iron
- Transferrin
- Ferritin
- UIBC

DiaSys
Diagnostic Systems

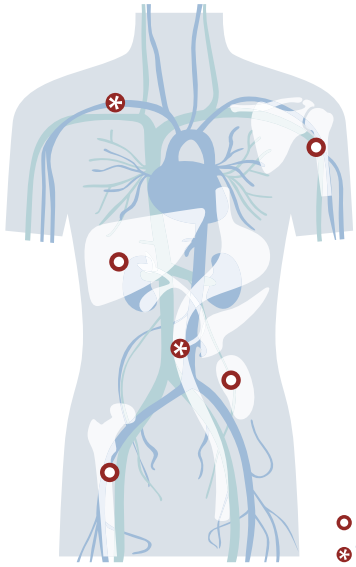
CHOOSING QUALITY.

# Iron Metabolism

Iron is an essential element in living cells and part of many metabolic pathways including transport and storage of oxygen. Iron uptake mainly occurs in its ferrous form ($Fe^{2+}$). Oxidized to ferric iron ($Fe^{3+}$) it is bound to the transport protein transferrin and delivered to target tissues.

After endocytosis iron is incorporated into cytochromes, oxygen-binding proteins or enzymes. Excess iron is stored in a protein complex as ferritin, mainly present in liver, spleen and bone marrow.

The main amount of iron is found in hemoglobin. Aging erythrocytes undergo phagocytosis resulting in release of iron which binds to transferrin to re-enter the cycle.




# Clinical Relevance

Iron metabolism disorders are related to several significant diseases. Increased iron levels occur in hemochromatosis (iron overload) and liver damage, whereas decreased iron levels may cause anemia. Elevated transferrin levels can indicate iron deficiency, whereas the determination of transferrin saturation is used in screening for hemochromatosis to exclude iron overload in iron distribution disorders (e.g. in liver diseases).

Variations of serum ferritin levels are closely related to changes in tissue ferritin. A decreased ferritin level indicates tissue iron depletion and is particularly useful in the early detection of iron deficiency anemia. Increased ferritin values may indicate iron overload in conjunction with hemochromatosis. Ferritin is also used for evaluation of chronic liver disease, infections, inflammation and malignancy.

Normally, $^1/_3$ of transferrin iron-binding sites are saturated by $Fe^{3+}$. The reserve iron-binding capacity of transferrin is called the unsaturated iron-binding capacity (UIBC). The sum of UIBC and iron in serum represent the total iron-binding capacity (TIBC). Serum UIBC levels vary in disorders of iron metabolism where iron capacities are often increased in iron deficiency and decreased in chronic inflammatory disorders or malignancies.

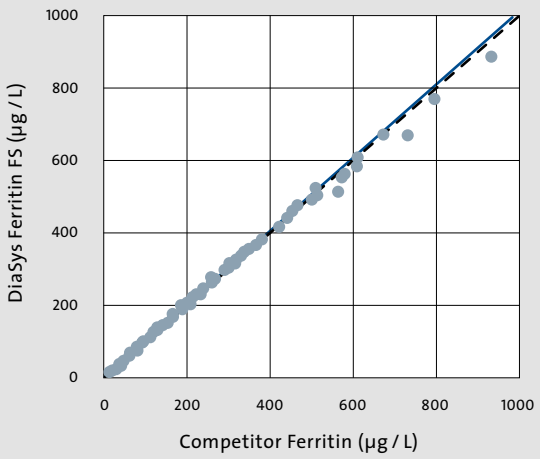
# Benefits from DiaSys Iron Metabolism Diagnostics

- Liquid-stable ready-to-use reagents allow convenient handling; no reagent preparation is required
- Perfectly matched reagents, calibrators and controls approve secure data acquisition
- High precision ensures reliability of test results
- Interferences from common substances as ascorbate, lipids or bilirubin are minimized
- High calibration stability allows usage up to the last drop of reagent
- Traceability to international reference material assures comparability of test results

## Ferritin FS

- Particle-enhanced immunoturbidimetric assay
- Wide measuring range from 5 to 1000 µg / L
- Superior prozone security up to 30000 µg / L
- Calibration and on-board stability ≥ 25 days
- Use of serum and plasma

### Method comparison

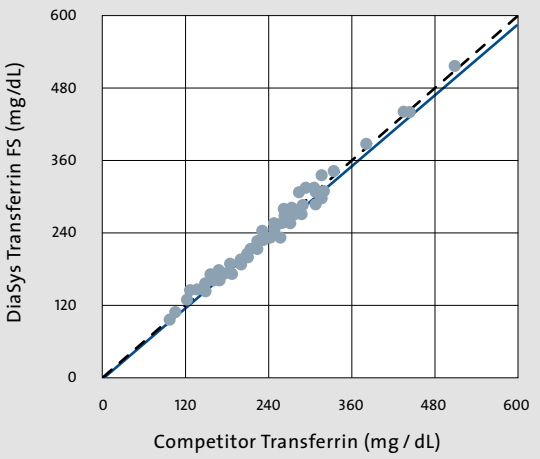



y = 1.006 x + 2.193 µg / L; r = 0.999; n = 105

## Transferrin FS

- Immunoturbidimetric test
- High linearity up to 800 mg / dL
- Prozone security up to 2000 mg / dL
- Calibration and on-board stability 4 weeks
- Use of serum and plasma

### Method comparison

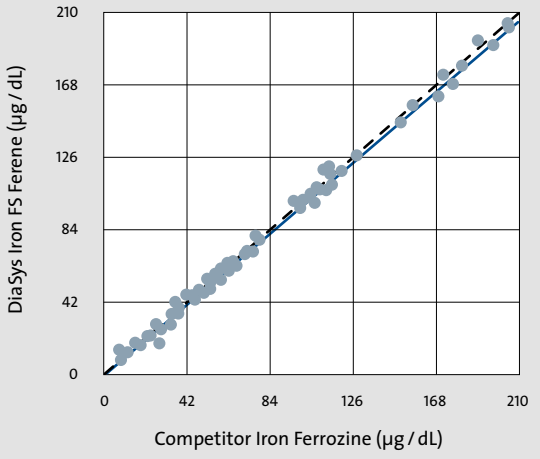



y = 0.979 x – 0.933 mg / dL; r = 0.993; n = 70

## Iron FS Ferene

- Colorimetric test using Ferene as chelating agent
- High linearity up to 1000 µg / dL
- Calibration and on-board stability 6 weeks
- Use of serum and plasma

### Method comparison

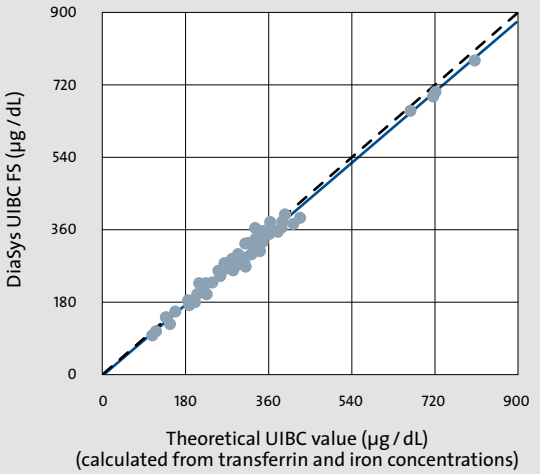



y = 0.998 x – 0.329 µg / dL; r = 0.999; n = 70

## UIBC FS

- Colorimetric test using Ferene as chelating agent
- Ready-to-use reagents
- High linearity up to 750 µg / dL
- Use of serum and plasma

### Method comparison




y = 0.985 x – 6.558 µg / dL; r = 0.993; n = 98