S-Monovette® HCY-Z-Gel

Stability of HCY concentration for up to 96 hours after blood collection

Pre Analytical Workflow

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S-MONOVETTE® HCY-Z-GEL

- ✓ Stability of HCY concentration for up to 96 h at room temperature
- ✓ Routine-use primary container for sample collection and automated analytics
- ✓ Reliable pre-analytics for optimum sample integrity

Homocysteine stabilization – a challenge

Hyperhomocysteinaemia is an important, independent risk factor for arteriosclerotic and neurodegenerative diseases[1-4]. For diagnostic purposes, the total homocysteine concentration (tHCY) in the blood plasma is determined. During this procedure, compliance with preanalytical requirements is compulsory because, even after blood collection, erythrocytes in the sample continue to produce homocysteine that diffuses into the plasma. Studies[1] indicate an increase of approximately 1 µmol/l per hour (equivalent to 10 %, from a basic value of 10 µmol/l). A comparable increase has also been shown in serum.

Several stabilizers[1] have been developed to stop this increase: Sodium fluoride causes an initial osmotic dilution of the plasma that delays but does not stop the increase of homocysteine values. Another stabilizer, 3-Deazaadenosine adversely affects immunoassays and is, therefore, only suited for HPLC determination. Furthermore, the sample must be stored in a cool environment from collection through analysis.

The S-Monovette® HCY-Z-Gel (Art. No. 04.1908.001) now enables stable homocysteine values from serum for up to 96 hours after blood collection:

A specially developed stabilizer keeps the homocysteine concentration even without centrifugation for up to 8 hours after blood collection at room temperature. A specially developed stabilizer keeps the homocysteine concentration virtually constant for up to eight hours after blood collection at room temperature. Centrifugation of the sample within this 8-hour period results in an inert gel barrier that safely separates the serum from the blood clot, ensuring further stability of the homocysteine values for a total of 96 hours.

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The graph below illustrates the results of a study with 70 donors:

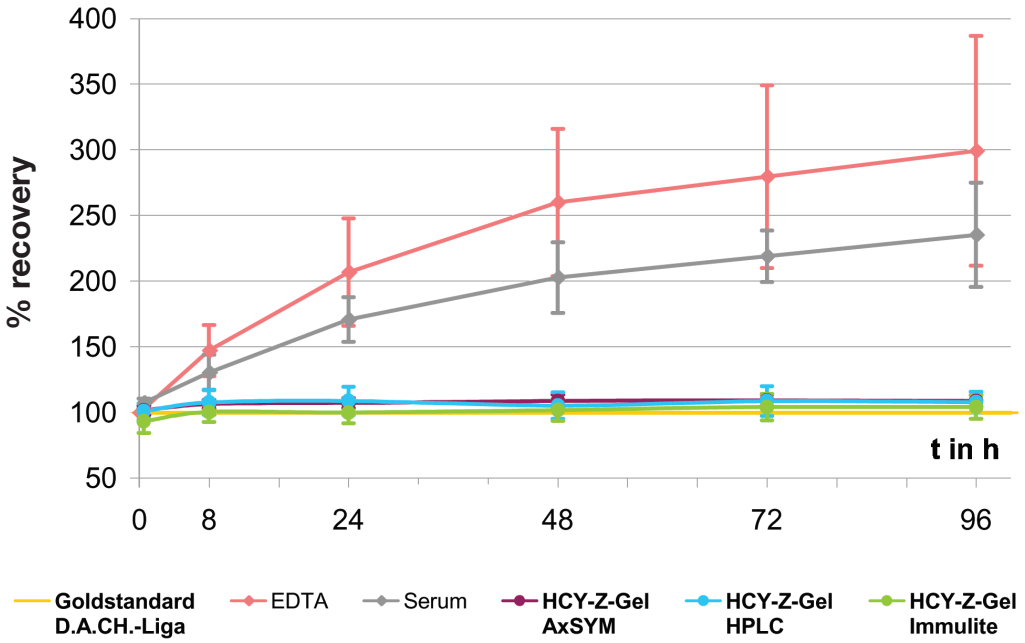

Fig. 1:
Time graphs showing average tHCY recovery rates in relation to the general EDTA reference value, with standard deviation, 70 donors

Shortly after collection, homocysteine determination in serum or plasma from non-stabilized blood shows erroneously high values. While literature indicates double values after 24 hours[1,2] homocysteine levels continue to increase beyond this point. There is no particular difference between serum and plasma.

In contrast, the graph demonstrates effective stabilization of the homocysteine serum values determined with the S-Monovette® HCY-Z-Gel. Even four days after blood collection, homocysteine values remain virtually unchanged.

The S-Monovette® HCY-Z-Gel has been tested on the following instruments to validate its suitability for three entirely different determination methods.

Abbott AxSYM: **FPIA**
HPLC: **RP-FD**
Immulite 2000: **CLIA**

Ordering Information

Order No.	Volume	L x Ø	Order No. Description Packaging	Packaging
04.1908.001	2,7 ml	75x13 mm	S-Monovette® HCY-Z-Gel	50 pcs./inner box 500 pcs./case

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SARSTEDT AG & Co. KG
P.O. Box 12 20
D-51582 Nümbrecht

Phone: +49 2293 305 0
Fax: +49 2293 305 3992

export@sarstedt.com
www.sarstedt.com

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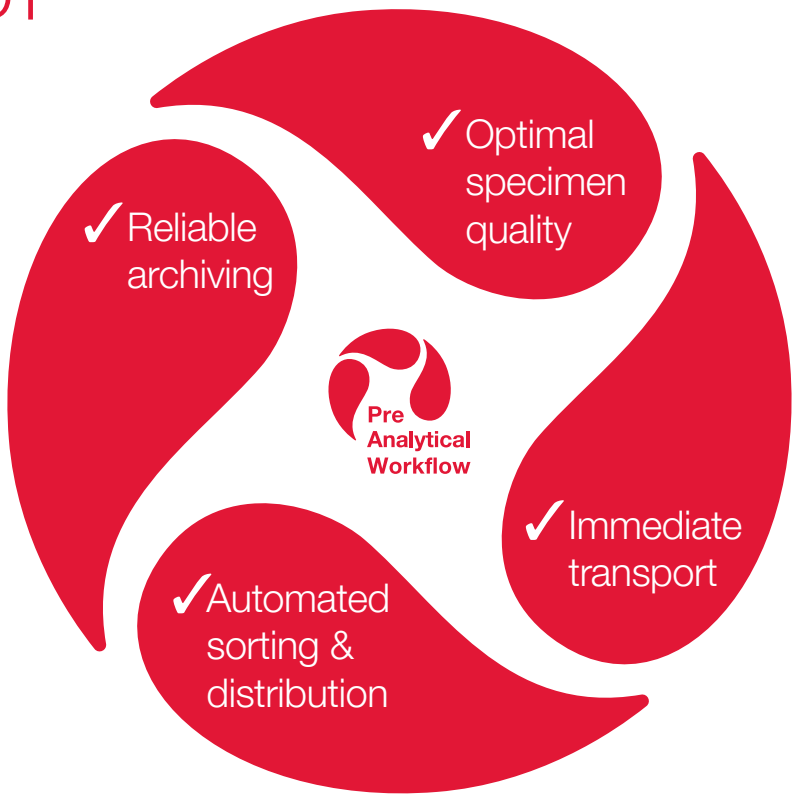

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2 Ueland P, Refsum H, Stabler SP, Malinow MR, Andersson A, Allen RH: Total Homocysteine in Plasma or Serum: Methods and Clinical Applications Clin Chem 1993, 39, 1764-1779.

3 Andersson A, Isaksson A, Hultberg B: Homocysteine Export from Erythrocytes and its Implication for Plasma Sampling Clin Chem 1992, 38, 1311-1315.

4 Stanger O, Herrmann W, Pietrzik K, Fowler B, Geisel J, Dierkes J, Weger M: Konsensuspapier der D.A.CH.-Liga Homocystein über den rationellen klinischen Umgang mit Homocystein, Folsäure und B-Vitaminen bei kardiovaskulären und thrombotischen Erkrankungen - Richtlinien und Empfehlungen J. Kardiol. 2003, 10, 190-199.

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