

### Leading Technology in Fluid-stable Reagents from DiaSys

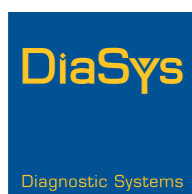
- Over 20 years of experience in development and production of clinical chemistry tests
- Premium service supply in technics, applications and after sales
- Quality products made in Germany
- High performance, ready-to-use reagents with minimized interferences, long shelf life, on-board stability and traceability to international references
- Perfectly matched fluid-stable reagents, calibrators and controls
- High grade raw materials from traceable origin
- Processes and resources certified according to ISO 13485, ISO 9001, fulfilling highest quality standards
- Sustainable processes and products preserve the environment

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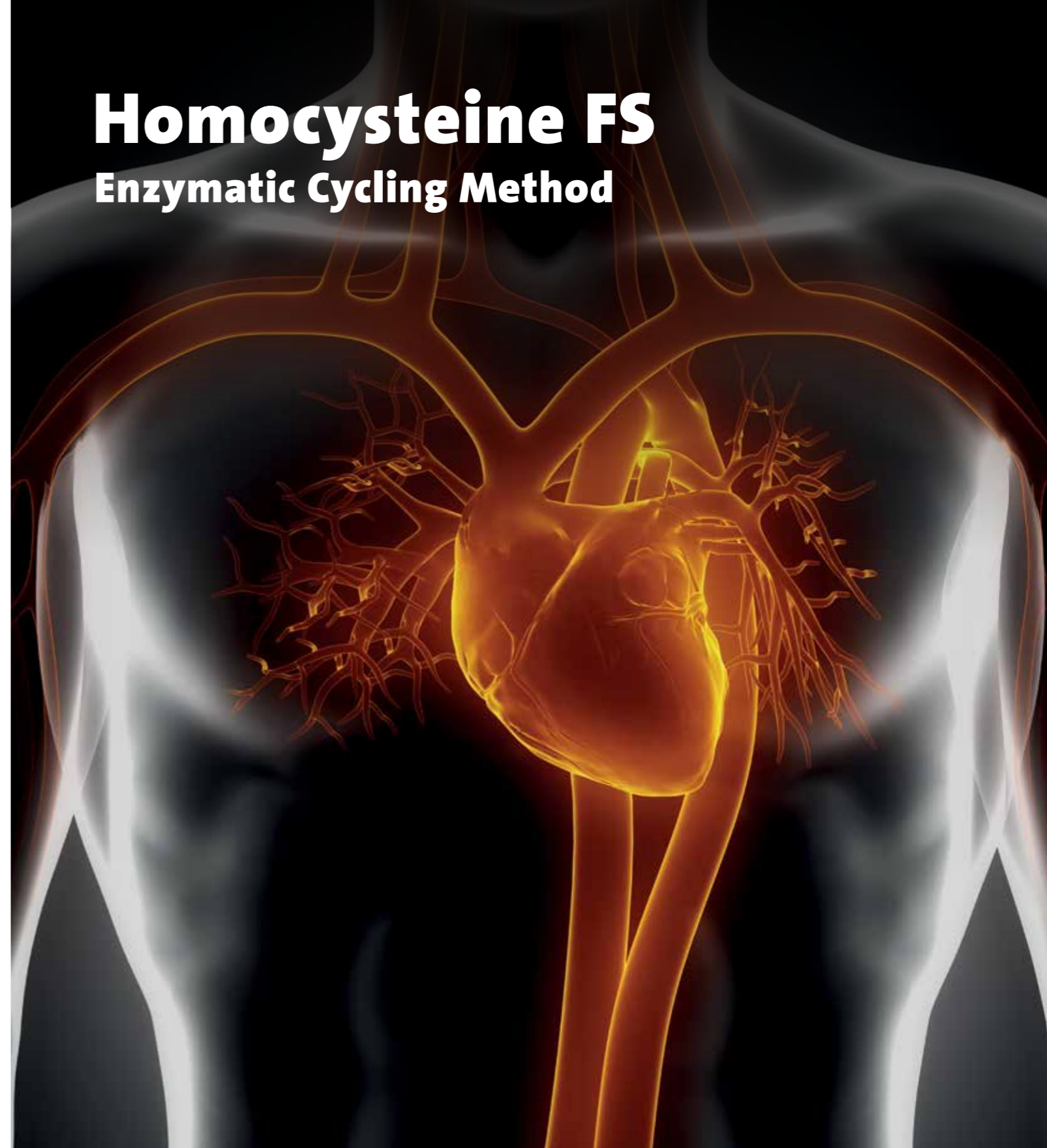


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# Homocysteine FS

## Enzymatic Cycling Method



Efficient. Specific. Easy-to-use.  
DiaSys. Liquid-Stable Solutions.



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## Clinical Use

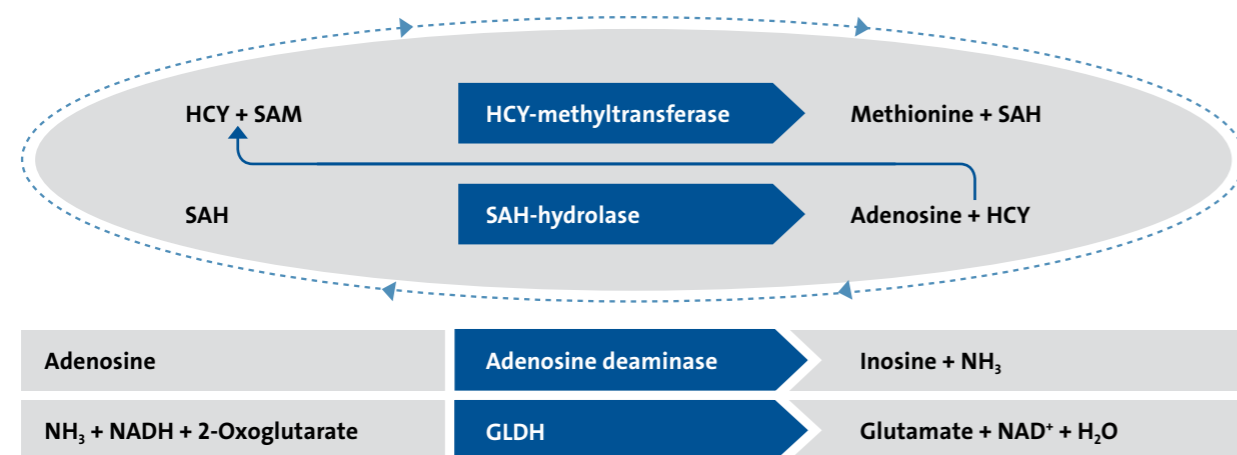
Homocysteine (HCY) is a sulfur-containing amino acid, an intermediate in the methionine cycle. Nearly 75% of total homocysteine is bound to protein through disulfide bonds, mainly albumin, whereas the rest appears in non-protein bound forms. A wide range of disorders are associated with increased concentrations of total homocysteine, e.g. birth defects, pregnancy complications, psychiatric disorders and cognitive impairment in the elderly. Accumulating evidence suggests that elevated homocysteine is an independent risk factor for stroke and cardiovascular disease; elevated levels can be lowered by increasing intake of folic acid and B vitamins. Elevation of homocysteine concentration (e.g. from 15 to 20  $\mu\text{mol/L}$ ) contributes to the pathogenesis of atherosclerotic vascular disease by increasing proliferation of vascular smooth muscle cells, endothel dysfunction, oxidative damage, increased synthesis of collagen and reduction of arterial wall elasticity.

Homocysteine concentrations increase during life. Certain factors are linked to total homocysteine concentrations. Age, sex, racial and ethnic differences, genetic, dietary and life style are strong determinants. Concentrations are higher in the elderly and greater in men than in women.

## Recommendations

HCY measurement in high-risk patients and their relatives are recommended. Furthermore, HCY determinations should be used to assess the total risk profile of patients with manifest cardiovascular disease.

## Test Principle



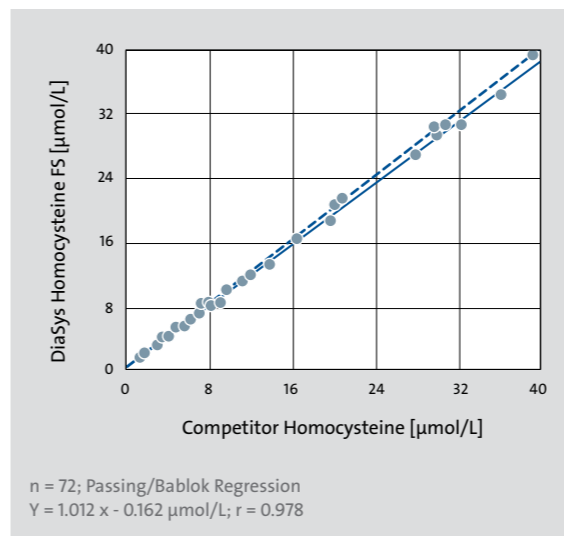
The DiaSys Homocysteine FS assay is based on an enzymatic cycling technique leading to significant amplification of the detection signal. In a first step, oxidized total homocysteine is reduced to free homocysteine (HCY) which reacts with the co-substrate S-adenosylmethionine (SAM) to form methionine and S-adenosyl homocysteine (SAH). SAH is hydrolysed into adenosine and HCY. The formed HCY is cycled into the homocysteine conversion reaction to amplify the detection signal whereas the adenosine is immediately hydrolysed into inosine and ammonia which is processed by glutamate dehydrogenase with concomitant conversion of NADH to NAD<sup>+</sup>. The decrease of NADH is measured at 340 nm and is proportional to the homocysteine concentration in the sample.

## DiaSys Homocysteine FS – Features & Benefits

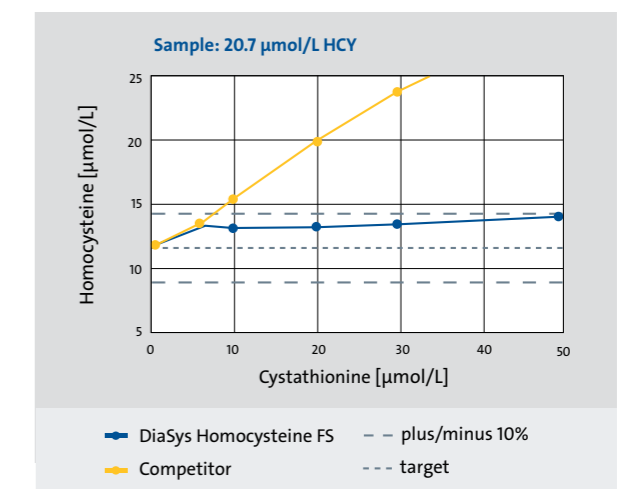
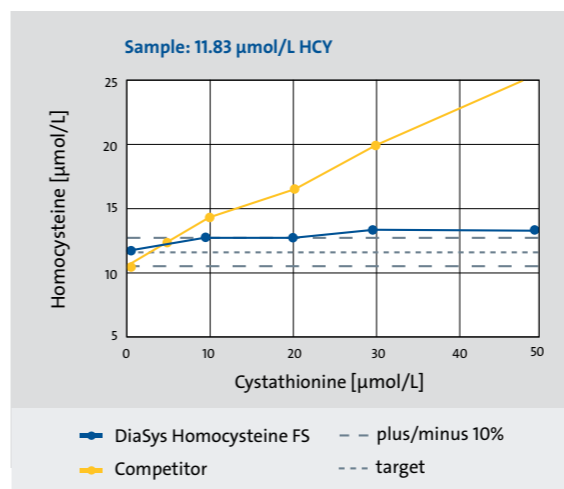
- Enzymatic cycling method
- Liquid stable, ready-to-use reagent with appropriate liquid stable calibrators and controls
- Measuring range up to 50  $\mu\text{mol/L}$
- Use of serum or EDTA/heparin plasma
- No interferences from thio-containing substances like cystathionine
- Long on-board stability of 6 weeks
- Calibrator standardized to reference material NIST SRM 1955
- Good correlation to other enzymatic methods and HPLC
- Applicable on any clinical chemistry analyzer

## Performance Data

### Method Comparison



### Data on Interferences



No interference by elevated levels of cystathionine which are often increased in patients with renal failure.