



## SORBITOL DEHYDROGENASE (SDH)

### DETERMINATION OF SORBITOL DEHYDROGENASE (SDH) IN SERUM

- Enzymatic Method
- Instrument Application Sheets Available
- Use Serum
- Incl. SDH Calibrator
- Also available SDH Control, High Level
- Wavelength 340, 334, 365 nm



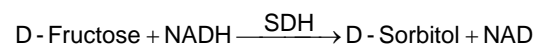
Products	Product no.	Quantity
SDH Reagent Set	2902	18 - 180 tests
SDH Control, High Level	2901	10 x 2 ml
SDH Calibrator	2968	10 x 2 ml

## SUMMARY

### CLINICAL BACKGROUND AND ASSAY PRINCIPLE

Sorbitol Dehydrogenase (SDH, L-Iditol Dehydrogenase: EC 1.1.1.14) was first described by Blakley in 1951 as an enzyme which catalyzes the reversible oxidation-reduction reaction, involving the interconversion of fructose and sorbitol. The possible use of serum SDH activity as an aid in the diagnosis of liver injury was proposed by Gerlach in 1957 following the observation that SDH is localized primarily in the liver. Normally very little, if any, is present in the bloodstream; consequently, the appearance of SDH activity in serum may be indicative of hepatocellular injury.

Additional studies by Gerlach and others have supported this premise by noting sharp increases in serum SDH activity in cases of extensive liver damage, such as in acute hepatitis. Although an elevation in serum SDH activity is considered to be a specific index for liver cell destruction, Asada and Galambos as well as Wiesner et al., report it to be less sensitive than transaminase assay for detection of certain liver disorders. Moreover, SDH levels remain elevated for much shorter period of time than do transaminase activities. Various procedures for determination of SDH activity in serum have been reported. Most methods are based on the catalytic reduction of fructose to sorbitol utilizing the coenzyme, reduced nicotinamide adenine dinucleotide (NADH). The described procedure is based on this principle and is similar to methods described by Ascade and Galambos and Wiesner et al.



The rate of decrease in absorbance at 340 nm becomes a measure of SDH activity.

### SAMPLE MATERIAL

It is recommended that specimen collection be carried out in accordance with NCCLS document M29-T2. No known test method can offer complete assurance that human blood samples will not transmit infection. Therefore, all blood derivatives should be considered potentially infectious.

Serum is used for assay. Since red cells are practically devoid of SDH slight hemolysis does not affect the test. Blood is drawn into a plain tube and allowed to clot. The serum is separated from the clot by any conventional method.

According to Secchi and Ghidoni serum SDH is very labile and activity drops approximately 1% per hour at room temperature and about 0.5% per hour at 0°C. It is recommended that the assay must be performed as soon as possible after collection of blood.



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## QUALITY CONTROL

The reliability of test results should be monitored with use of control materials with known SDH levels for each run of the assay. INstruChemie offers SDH control, high level productnr.: 2901, 10 x 2 ml, for verifying the validity of test results. SDH activity determined in the material by this procedure should fall within the range stated for the control.

## EXPECTED VALUES

Normal Serum SDH: Up to 1.0 Units / Liter. (25 °C),  
Up to 1.3 Units / Liter. (30 °C),  
Up to 1.9 Units / Liter. (37 °C).

Normal ranges stated above were taken from the literature. Copeland suggests that each laboratory determine a normal range. Attention should be given to the fact certain that measurements in clinical healthy individuals are influenced by diet, sex, age, diurnal variation, physical activity, menstrual cycle, pregnancy and environments factors.

Elevated values reported in:

Hepatitis: 5 – 167 Units / Liter (25 °C).

Myocardial infarction  
Pancreatitis  
Liver cirrhosis  
Obstructive jaundice  
Diabetes mellitus

} Up to 6.0 Units / Liter (25 °C),

Gerlach reported no elevation in two cases of cirrhotic hepatitis. Secchi et al., found values approximately three times higher than normal in experimental lead poisoning of guinea pigs.

## NOTES

1. For in vitro diagnostic use only.
2. For professional use only.
3. Always contact INstruChemie for the complete product insert and latest edition.
4. Printed in the Netherlands, SDH-summary-280916-1.FEN