

**S-2251™**

For Laboratory Use Only

For General Laboratory Use

**S-2251™**

S-2251 is a chromogenic substrate for plasmin and streptokinase-activated plasminogen.

**COMPOSITION**

Each vial contains chromogenic substrate S-2251 25 mg and mannitol 60 mg as a bulking agent.

**CHEMISTRY**

*Chemical name:* H-D-Valyl-L-leucyl-L-lysine-p-Nitroaniline dihydrochloride

*Formula:* H-D-Val-Leu-Lys-pNA · 2HCl

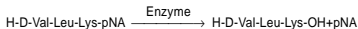
*Mol. wt:* 551.6

$\epsilon_{316 \text{ nm}}$ :  $1.27 \cdot 10^4 \text{ mol}^{-1} \cdot \text{L} \cdot \text{cm}^{-1}$

*Solubility:* > 40 mmol/L in H<sub>2</sub>O

*Stability:* Substance: Stable until expiry date if stored at 2-8°C. Avoid exposure to light. The substance is hygroscopic and should be stored dry.  
Solution: 3 mmol/L in H<sub>2</sub>O is stable for at least 6 months at 2-8°C. Contamination by microorganisms may cause hydrolysis.

*Suitable stock solution:* 3-4 mmol/L in H<sub>2</sub>O.

**PRINCIPLE**

The method for the determination of activity is based on the difference in absorbance (optical density) between the pNA formed and the original substrate. The rate of pNA formation, i.e. the increase in absorbance per second at 405 nm, is proportional to the enzymatic activity and is conveniently determined with a photometer.

**KINETIC DATA**

*Plasmin (human):*  $K_m = 3 \cdot 10^{-4} \text{ mol/L}$ ,  
 $V = 0.5 \cdot 10^{-6} \text{ mol/min} \cdot \text{CU}$

*Plasminogen - SK:*  $K_m = 2 \cdot 10^{-4} \text{ mol/L}$ ,  
 $V = 1 \cdot 10^{-6} \text{ mol/min} \cdot \text{mL plasma}$ .  
Determined at 37°C in 2.5 mL  
0.05 mol/L Tris buffer pH 7.4, I 0.5.

**CHROMOGENIX**

## STANDARDIZATION

An activity of  $\Delta A/\text{min}=0.05$  ( $37^\circ\text{C}$ ) is obtained by using a substrate concentration of  $2 \cdot k_m$  and:

1. 0.010 CU/mL of human plasmin from Chromogenix AB.
2. 0.0011 U/mL of the plasmin standard from NIBSC, Potters Bar, London.
3. 0.0078 CU/mL of SK-activated human plasminogen from Chromogenix AB.

The substrate is insensitive to kallikrein (glandular and plasma) and urokinase.

## APPLICATIONS

The substrate has been used for the determination of:

1. Antiplasmin in plasma (1,2,3,5)
2. Plasminogen in plasma (4,5,6,7)



1. EDY J et al.: Inhibition of plasmin by normal and antiplasmindepleted human plasma. *Thromb Res* 8, 513-518 (1976)
2. TEGER-NILSSON A-C et al.: Determination of a new rapid plasmin inhibitor in human blood by means of a plasmin specific tripeptide substrate. *Scand J Clin Lab Invest* 37, 403-409, (1977).
3. Chromogenix AB. Determination of antiplasmin in plasma with S-2251. Laboratory Instruction.
4. SORIA J et al.: Dosage du plasminogène a l'aide d'un substrat chromogène tripeptidique. *Pathologie Biologie* 24, 725-729 (1976).
5. FRIBERGER P.: Methods for the determination of plasmin, antiplasmin and plasminogen by means of the substrate S-2251. *Haemostasis* 7, 138-145, (1975)
6. PHILO R D and GAFFNEY P J.: Some observation on the assay of plasminogen using streptokinase and S-2251. *Haemostasis* 11 suppl. 1, 66 (1982).
7. Chromogenix AB. Determination of plasminogen in plasma with S-2251. Laboratory Instruction.

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