ENGLISH

S-2302™

For Laboratory Use Only

For General Laboratory Use

S-2302™

CHROMOGENIX

S-2302 is a chromogenic substrate for plasma kallikrein

COMPOSITION

Each vial contains chromogenic substrate S-2302 25 mg and mannitol 60 mg as a bulking agent.

CHEMISTRY

Chemical name:	H-D-Prolyl-L-phenylalanyl-L-arginine-p-nitroaniline dihydrochloride.
Formula:	H-D-Pro-Phe-Arg-pNA · 2HCl
Mol. wt:	611.6
$\varepsilon_{316\ nm}$:	$1.27 \cdot 10^4\ mol^{-1} \cdot L \cdot cm^{-1}$
Solubility:	> 10 mmol/l in H_2O
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: 4 mmol/l in H_2O is stable for more than 6 months at 2-8°C. Contamination by microorganisms may cause hydrolysis.
Suitable stock solution:	4 mmol/l in H_2O.

PRINCIPLE

$$\text{H-D-Pro-Phe-Arg-pNA} \xrightarrow{\text{Enzyme}} \text{H-D-Pro-Phe-Arg OH+pNA(yellow)}$$

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.

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KINETIC DATA

Human plasma kallikrein: $K_m = 2 \cdot 10^{-4}$ mol/l, $V = 6.8 \cdot 10^{-6}$ mol/min · PEU. Determined at 37°C in 2.5 ml of 0.05 mol/l Tris buffer pH 7.8 I 0.05. PEU (Plasma Equivalent Units). PEU refers to the activity generated from 1 ml of normal human plasma using Cephotest® (NYCO, Oslo) as activator. The same K_m was obtained for a highly purified human plasma kallikrein.

APPLICATIONS

The substrate has been used for the determination of:

1. Prekallikrein in plasma (1,2,3)
2. Kallikrein inhibitors in plasma (2,4)
3. F XII in plasma (5)
4. Kallikrein-like activity in plasma (2,6)
5. Prekallikrein activator in albumin and immunoglobulin preparations (7,8)

1. CLAESON G et al.: Methods for determination of prekallikrein in plasma glandular kallikrein. Haemostasis 7, 76-78 (1978).
2. GALLIMORE M J & FRIBERGER P. Simple chromogenic peptide substrate assays for determining prekallikrein, kallikrein inhibition and kallikrein-like activity in human plasma. Thromb. Res. 25, 293-298 (1982).
3. Chromogenix AB. Determination of prekallikrein in plasma with S-2302. Laboratory Instruction.
4. Chromogenix AB. Determination of kallikrein inhibitor activity in plasma. Laboratory Instruction.
5. VINAZZER H. Assay of total factor XII and of activated factor XII in plasma with a chromogenic substrate. Thromb. Res. 14, 155-166 (1979).
6. Chromogenix AB. Determination of kallikrein-like activity in plasma with S-2302. Laboratory Instruction.
7. ALVING B M et al.: Contact-activates factors: Contaminants of immunoglobulin-preparations with coagulant and vasoactive properties J Lab Clin Med 96, 334-346 (1980).
8. Chromogenix AB. Determination of prekallikrein activator in albumin and immunoglobulin preparations with S-2302. Laboratory Instruction.

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