S-2423 - DATA SHEET

For laboratory use only

S-2423 is a chromogenic substrate sensitive to the trypsin-like serine protease which can be activated in Limulus amebocyte lysate.

Composition
Each vial contains chromogenic substrate S-2423, 25 mg and mannitol, 40 mg as a bulking agent.

Chemistry
- **Chemical name:** N-Acetyl-L-isoleucyl-L-glutamyl-glycyl-L-arginine-p-nitroaniline hydrochloride.
- **Formula:** CH₃-CO-Ile-Glu-Gly-Arg-pNA·HCl
- **Mol. wt.:** 672.1
- **ε_\text{max} :** 1.27 x 10⁴ mol⁻¹ L⁻¹ cm⁻¹ (λ_\text{max} = 316 nm in H₂O)
- **Solubility:** 10 mmol/L in H₂O, 2 mmol/L in Tris buffer (pH 9.0, I 0.20)
- **Stability:** Substance: Stable at 25°C for more than 3 years. The substance is somewhat hygroscopic and should be stored dry. Solution: 2-3 mmol/L in H₂O is stable for at least 6 months at 2 to 8°C. Contamination by microorganisms may cause hydrolysis.

Suitable stock solution: 2-3 mmol/L in H₂O

Kinetic data

<table>
<thead>
<tr>
<th>Enzyme</th>
<th>Kₘ mol/L</th>
<th>kₐ₋₋ sec⁻¹</th>
<th>pH</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porcine pancreas trypsin</td>
<td>4 x 10⁻¹</td>
<td>170</td>
<td>9.0</td>
<td>0.15</td>
</tr>
<tr>
<td>Bovine FXa</td>
<td>7 x 10⁻⁴</td>
<td>100</td>
<td>8.3</td>
<td>0.25</td>
</tr>
<tr>
<td>Urokinase</td>
<td>3 x 10⁻¹</td>
<td>10</td>
<td>8.8</td>
<td>0.05</td>
</tr>
<tr>
<td>Acrosin</td>
<td>4 x 10⁻¹</td>
<td>≥ 5</td>
<td>8.6</td>
<td>0.25</td>
</tr>
<tr>
<td>Coagulating enzyme from LAL</td>
<td>1.4 x 10⁻¹</td>
<td></td>
<td>8.3</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Determined at 37°C in 0.05 mol/L Tris buffer. Ionic strength (I) adjusted with NaCl.

**Standardization**

An Activity of ΔA/min = 0.05 (37°C) is obtained by using a substrate concentration of 2 x Kₘ and:

1. 0.8 pmol/mL of porcine trypsin (Novo)
2. 0.1 nkat S-2222/mL of bovine FXa (Chromogenix AB)
3. 70 PU/mL = 13 pmol/mL of urokinase (Leo)
4. 40 pmol/mL of boar acrosin (H Fritz, München)

**Applications**
The substrate has hitherto been used for the determination of:

1. Endotoxin in water (1,2) and solutions for parenteral administration (3).
2. Endotoxin in clinical samples like blood, cerebrospinal fluid and urine (2-7).

**References**

1. Chromogenix AB. Determination of gram-negative bacterial endotoxins in water and solutions for parenteral administration. Laboratory instruction.