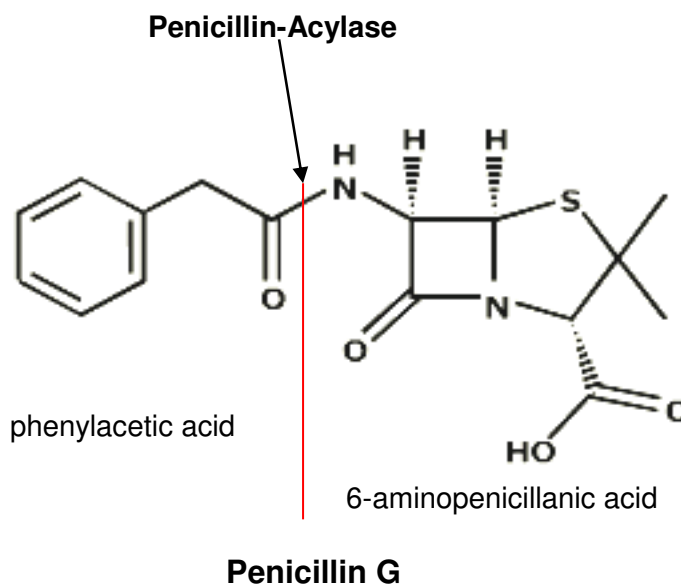


Penicillin - Acylase

Penicillin amidohydrolase
EC 3.5.1.11

Description: Cleavage of Penicillin G into 6-aminopenicillanic acid (6-APA) and phenylacetic acid.
Synthesis of unnatural penicillin by coupling 6-aminopenicillanic acid with a selected side chain (e.g. Methylcillin, Ampicillin, Phenethicillin)

Reaction:



Origin: *E.coli*

Application: semi-synthetic production of several penicillins

Michaelis-M.-Const.: $2 \cdot 10^5$ M

Activity: > 800 U/ml (method: ASA Spezialenzyme GmbH)

Specific activity: > 4 U/mg

Molecular weight: 70 000 D (by gel filtration)

| | |
|-------------------------|---|
| Isoelectric points: | 6.7 – 6.8 and 6.3 – 6.4 (by preparative isoelectric focusing) |
| Parameters of reaction: | <u>pH</u> hydrolysis of 6-nitro-3-(phenylacetoamid)bezoic acid: 7,5 hydrolysis of Penicillin G: 8,1 |
| | <u>temperature</u> optimum 54°C |
| Inhibitors: | phenylacetic acid (competitive, $K_i = 200$ mM) 6-aminopenicillanic acid (not competitive, $K_i = 15$ mM) <i>conditions: Penicillin G as substrate, 25°C, pH 8,1</i> |
| Order-No.: | 2605 |
| Form of delivery: | yellow - brown liquid with typical odour |
| Storage: | -20°C |
| Stability: | At -20°C the enzyme is stable for years. For months stable at pH 5 - 8 and at ambient temperature. Fast loss of activity after treatment with organic solvents as well as after lyophilisation. An incubation for 20 minutes at pH 5 and 50°C does not lead to a loss of activity. |
| Literature: | Kutzbach C., Rauenbusch E.: <i>Hoppe-Seyler's Z. Physiol. Chem.</i> 354, 45 (1974) Mahajan P. B.: <i>Appl. Biochem. and Biotechnol. Vol. 9.</i> 537 (1984) Savidge T. A., Cole: <i>M. in Methods in Enzymology Vol. 43.</i> 705, Academic Press, New York – London (1975) |