

Product Information

p-Aminohippuric acid sodium salt

Product Number **A3759**

Store at Room Temperature

Product Description

Molecular Formula: $C_9H_9N_2NaO_3$

Molecular Weight: 216.2

CAS Number: 94-16-6

pK_a of conjugate acid: 3.6¹

Melting point: 123-125 °C

Synonyms: 4-Aminohippuric acid sodium salt,
N-(4-Aminobenzoyl)glycine sodium salt, PAH.

p-Aminohippuric acid (PAH) is a liver metabolite of p-aminobenzoic acid (PABA). PAH is formed by conjugation of PABA and glycine. The ability of the liver to convert PABA to PAH is a way of measuring liver function.² An HPLC method for the determination of PAH and PABA levels in urine has been published.³

This product has been used to measure renal function by two different methods. One method which uses PAH and inulin to measure renal flow is an enzymatic assay for inulin.⁴ The other is a direct assay for this compound which measures renal flow. Plasma clearance of aminohippurate is considered to be equal to the effective renal plasma flow.⁵ The mechanism by which this compound is secreted by the kidneys involves an organic anion transporter.⁶ This compound causes natriuresis (excessive loss of sodium in the urine). The mechanism for the natriuretic effect has been determined.⁷

The effect of this compound on the central nervous system (CNS) distribution of the anti-AIDS drugs ddC and AZT has been studied.⁸

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (50 mg/ml), yielding a clear, colorless solution. A USP formulation of this compound consists of an aqueous solution (200 mg/ml) of PAH free acid prepared with the addition of sodium hydroxide; it has a pH of 6.7-7.6.¹ This compound is also soluble in dilute hydrochloric acid (200 mg/ml, with decomposition). It is freely soluble in alkaline solutions (with decomposition).¹

Storage/Stability

A 1% solution of this compound at pH 7 has been found to be stable after storage for one week at 80 °C.⁹

References

1. Martindale: The Extra Pharmacopoeia, 29th ed., Pharmaceutical Press (London, UK: 1989), p. 938.
2. Furuya, K. N., et al., Glycine conjugation of para-aminobenzoic acid (PABA): a quantitative test of liver function. *Clin. Biochem.*, **28(5)**, 531-540 (1995).
3. Chan, K., et al., Direct and simultaneous high-performance liquid chromatographic assay for the determination of p-aminobenzoic acid and its conjugates in human urine. *J. Chromatogr.* **426(1)**, 103-109 (1988).
4. Fischer, P. A., et al., A new procedure for evaluation of renal function without urine collection in rat. *Kidney Int.*, **58(3)**, 1336-1341 (2000).
5. Smith, H. W., et al., The renal clearance of substituted hippuric acid derivatives and other aromatic acids in dog and man. *J. Clin. Invest.*, **24**, 338-404 (1945).
6. Burckhardt, G., et al., Molecular physiology of renal p-aminohippurate secretion. *News Physiol. Sci.*, **16**, 114-118 (2001).

7. Lifschitz, M.D., The natriuretic effect of the organic acid para-aminohippurate. J. Lab. Clin. Med., **88(6)**, 895-903 (1976).
8. Gibbs, J. E., and Thomas, S. A., The distribution of the anti-HIV drug, 2'3'-dideoxycytidine (ddC), across the blood-brain and blood-cerebrospinal fluid barriers and the influence of organic anion transport inhibitors. J. Neurochem., **80(3)**, 392-404 (2002).
9. Boersma, H.H., et al., Good stability in normal circumstances. Stability of sodium p-aminohippurate injection fluids. Zeikenhuisfarmacie, **134(42)** (1999).

IRB/RXR 11/03

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.