

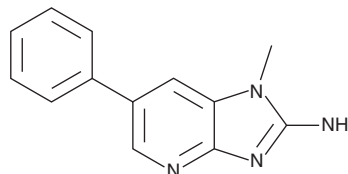
PRODUCT INFORMATION



2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine

Item No. 22590

CAS Registry No.: 105650-23-5
Formal Name: 1-methyl-6-phenyl-1H-imidazo[4,5-b]pyridin-2-amine
Synonym: PhIP
MF: C₁₃H₁₂N₄
FW: 224.3
Purity: ≥98%
UV/Vis.: λ_{max}: 223 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP) is supplied as a crystalline solid. A stock solution may be made by dissolving the PhIP in the solvent of choice, which should be purged with an inert gas. PhIP is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of PhIP in ethanol is approximately 15 mg/ml and approximately 10 mg/ml in DMSO and DMF.

PhIP is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, PhIP should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. PhIP has a solubility of approximately 0.25 mg/ml in a 1:3 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

PhIP is a food-derived carcinogen that is found in high temperature-cooked fish and meat.¹ In humans, PhIP is metabolized by the cytochrome (CYP) P450 isoform CYP1A2 and conjugated by N-acetyltransferase or sulfotransferase to a metabolite that reacts with DNA to form adducts, which are directly correlated with increased risk of breast, colon, and prostate cancers.¹⁻³ Chronic treatment (1 pM/L for 20 cycles) of MCF-10A cells with PhIP induces anchorage-independent cell growth and reduces cellular dependence on growth factors.¹ It increases wild-type H-Ras gene and protein expression, which activates ERK signaling, MMP-2 and MMP-9 protein expression, and NOX1-driven production of reactive oxygen species (ROS) *in vitro*. *In vivo*, PhIP pre-treatment of MCF-10A cells increases tumor formation in a murine breast cancer xenograft model. In a CYP1A2 humanized rat model, PhIP induces formation of colon tumors with β-catenin gene mutations that hyperactivate the Wnt signaling pathway, mimicking the phenotype observed in human tumor isolates.³ *In vivo* administration of PhIP (400 ppm/week for 52 weeks) also increases the occurrence of atypical hyperplasias and carcinomas in the ventral prostate and seminal vesicles of rats.²

References

1. Choudhary, S., Sood, S., Donnell, R.L., *et al. Carcinogenesis* **33**(4), 876-885 (2012).
2. Shirai, T., Sano, M., Tamano, S., *et al. Cancer Res.* **57**(2), 195-198 (1997).
3. Wang, H., Zhou, H., Liu, A., *et al. Mol. Carcinog.* **54**(11), 1264-1274 (2015).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 01/31/2020

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM