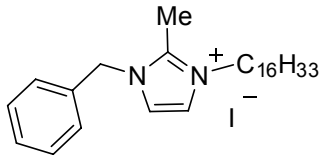
1-Hexadecyl-2-methyl-3-(phenylmethyl)-1*H*-imidazolium iodide (**NH125**) - inhibitor of eukaryotic elongation factor 2 kinase against human cancer cell lines & potent antibacterial agent against drug-resistant bacteria



Chemical Formula: $C_{27}H_{45}IN_2$
Molecular Weight: 524.56

***Tautomeric double bonds in the structure ***

Ref. 1: Arora et al**. Identification and Characterization of an Inhibitor of Eukaryotic Elongation Factor 2 Kinase against Human Cancer Cell Lines.** *Cancer Research* (**2003**), *63*, 6894-6899

NH125 inhibited eEF-2 kinase activity (IC_{50} = 60 nM) in vitro, blocked the phosphorylation of eEF-2 in intact cells, and showed relative selectivity over other protein kinases: protein kinase C (IC_{50} = 7.5 mM), protein kinase A (IC50 = 80 mM), and calmodulin-dependent kinase II (IC_{50} > 100 mM). NH125 decreased the viability of 10 cancer cell lines with IC50s ranging from 0.7 to 4.7 mM. Forced overexpression of eEF-2 kinase in a glioma cell line produced 10-fold resistance to NH125. These results suggest that identification of potent inhibitors of eEF-2 kinase may lead to the development of new types of anticancer drugs.

Ref. 2: Yamamoto et al. **Identification and characterization of a potent antibacterial agent, NH125, against drug-resistant bacteria.** *Bioscience, Biotechnology, and Biochemistry* (**2000**), *64*, 919-923

New imidazole compounds were synthesized to develop a novel and effective antibacterial agent: 1-benzyl-3-cetyl-2-methylimidazolium iodide (**NH125**). *In vitro* experiments demonstrated that **NH125** effectively inhibited a number of different histidine protein kinases. Furthermore, oxacillin-resistant Staphylococcus aureus (ORSA), vancomycin-resistant Enterococcus faecalis (VRE), penicillin-resistant Streptococcus pneumoniae (PRS), and other Gram-positive and Gram-negative bacteria were found to be very sensitive to **NH125**.

OTAVA catolg no.	CAS RN	Amount	Delivery time	Purity
7070707012	278603-08-0	**1 mg** **5 mg** **25 mg** **1 gram** **5 grams**	**In-stock** **In-stock** **In-stock** **In-stock** **In-stock**	≥ 95% by ^{13}C NMR & ^{1}H NMR