

Product Name:	Isoniazid
Product Number:	I004
CAS Number:	54-85-3
Molecular Formula:	C ₆ H ₇ N ₃ O
Molecular Weight:	137.14
Appearance:	White Crystalline Powder
Source:	Water: very soluble
pH:	6.0-8.0
Melting Point:	170-173°C
Storage Conditions:	≤30°C
Description:	Isoniazid is a bactericidal and bacteriostatic against <i>Mycobacterium tuberculosis</i> , the causal agent of tuberculosis.
Mechanism of Action:	<p>Isoniazid itself is not toxic to the bacterial cell, but acts as a prodrug and is activated by the Mycobacterial enzyme KatG, a catalase-peroxidase. This enzyme prevents the formation of unstable oxygen radicals. Once activated, isoniazid binds to and inactivates InhA, an enoyl-reductase involved in mycolic acid synthesis.</p> <p>The inhibition of cell wall lipid synthesis, depletion of nucleic acid pools and metabolic depression contribute to the potency and selectivity.</p>
Spectrum:	Isoniazid targets <i>Mycoplasma</i> species including <i>M. tuberculosis</i> , <i>M. bovis</i> , and <i>M. kansasii</i> .
Microbiology Applications	A missense mutation within the Mycobacterial <i>inhA</i> gene was shown to confer resistance to Isoniazid in <i>M. smegmatis</i> and <i>M. bovis</i> . The wild-type <i>inhA</i> gene also conferred resistance when transferred on a multicopy plasmid vector to <i>M. smegmatis</i> and <i>M. bovis</i> BCG. (Banerjee et al, 1994).
References:	<p>Banerjee A et al (1994) InhA, a gene encoding a target for isoniazid and ethionamide in <i>Mycobacterium tuberculosis</i>. 263(5144):227-230</p> <p>Johnsson K (1994) Studies on the mechanism of action of Isoniazid and Ethionamide in the chemotherapy of tuberculosis. Amer. Chem. Soc. Vol 5009-010</p> <p>Timmins GS and Deretic V (2006) Mechanisms of action of Isoniazid. Molec. Microbiol. 62(5):1220-1227</p>