**Product Name**: Nicotinamide

**Catalog Number**: T0934

**CAS Number**: 98-92-0

**Molecular Formula**: C6H6N2O

**Molecular Weight**: 122.12

**Appearance**: Solid

**Melting Point**: 128-131°C

**Description**: Niacinamide is an important compound functioning as a component of the coenzyme NAD. Its primary significance is in the prevention and/or cure of blacktongue and PELLAGRA. Most animals cannot manufacture this compound in amounts sufficient to prevent nutritional deficiency and it therefore must be supplemented through dietary intake.

**Storage**: 2 years -80°C in solvent; 3 years -20°C powder;

<table>
<thead>
<tr>
<th>Solubility</th>
<th>DMSO</th>
<th>23 mg/mL (188.3 mM)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Ethanol</td>
<td>23 mg/mL (188.3 mM)</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>22 mg/mL (180.2 mM)</td>
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</tbody>
</table>

( <1 mg/ml refers to the product slightly soluble or insoluble )

**Receptor (IC50)**: SIRT

**In vitro Activity**

Nicotinamide strongly inhibits yeast silencing, increases rDNA recombination, and shortens replicative life span to that of a sir2 mutant. Nicotinamide abolishes silencing and leads to an eventual delocalization of Sir2 even in G(1)-arrested cells, demonstrating that silent heterochromatin requires continual Sir2 activity. [1] Nicotinamide induces differentiation and maturation of human fetal pancreatic islet cells. [2] Nicotinamide regulates sirtuins by switching between deacetylation and base exchange. Nicotinamide switching is quantitated for the Sir2s from Archeaglobus fulgidus (Sir2Af2), Saccharomyces cerevisiae (Sir2p), and mouse (Sir2alpha). [3] Nicotinamide selectively reduces a specific phospho-species of tau (Thr231) that is associated with microtubule depolymerization in Alzheimer's disease transgenic mice, in a manner similar to inhibition of SirT1. Nicotinamide also dramatically increases acetylated alpha-tubulin, a primary substrate of SirT2, and MAP2c in Alzheimer's disease transgenic mice, both of which are linked to increased microtubule stability. [4] Nicotinamide fosters DNA integrity and maintains phosphatidylserine membrane asymmetry to prevent cellular inflammation, cellular phagocytosis and vascular thrombosis. Nicotinamide both prevents and reverses neuronal and vascular cell injury. [5]

**In vivo Activity**

Normal and streptozotocin-nicotinamide induced adult male diabetic rats receive quercetin (10, 25 and 50 mg/kg/bw) orally, and cause significant decrease in FBG and cardiac injury marker levels with increased in insulin levels[6]. Nicotinamide improves maternal hypertension, proteinuria, and glomerular endotheliosis in RUPP mice. Moreover, nicotinamide prolongs pregnancies, and improves survival and growth of the embryos in RUPP PE mice[7].

**Animal Experiment**

Animal Model: Mice

**Reference**


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