

## Nicotinamide Solution (1 M)

Cat. No. : PB180602

Size: 1mL

### General Information

<b>Product Form</b>	Liquid
<b>Solvent</b>	Ultrapure water
<b>Concentration</b>	1 mol/L
<b>Storage</b>	-5~-20°C
<b>Whether to avoid light</b>	Shading light
<b>Shipping</b>	Ice bag
<b>Expiration date</b>	12 months

### Background

Nicotinamide, also known as vitamin B3 (Vitamin B3), is a small molecule compound with a wide range of biological functions. As a non-competitive inhibitor of sirtuins, nicotinamide is involved in a variety of important exogenous and in vivo regulatory mechanisms by affecting deacetylation reactions. In yeast, nicotinamide strongly inhibits SIR2-mediated transcriptional silencing, increases the frequency of rDNA recombination, and shortens replication lifetime. The yeast enzyme PNC1 converts nicotinamide to nicotinic acid, which activates Sir2 and counteracts the effects of nicotinamide on telomere repression and rDNA (ribosomal DNA) silencing. In addition, nicotinamide inhibits the deacetylation of p53, histone H3 and H4 and induces apoptosis in a variety of tumor cells accompanied by a caspase cascade activation response.

Niacinamide has been explored in preclinical studies for the treatment of cancer and type I diabetes, showing potential therapeutic value. As a B vitamin, nicotinamide is involved in a variety of enzymatic redox reactions and plays an important role in organoid cultures. For example, in gastrointestinal, liver and breast organoid cultures, nicotinamide synergizes with cytokines and other biochemical reagents to not only exhibit anti-inflammatory properties, but also promote the differentiation of mesenchymal stem cells to insulin-producing cells. By inhibiting the activity of sirtuins, nicotinamide further promotes organoid formation and prolongs their culture lifespan, providing important support for organoid research.

Common working concentration: 10 mM.

### Notes

1. This product was sterilized by 0.1 μm filtration and can be used directly after melting.
2. It is necessary to pay attention to the aseptic operation and avoid the contamination.
3. Before using, the product should be thawed at 2-8°C and shaken thoroughly; repeated freeze-thaw cycles are not advised..
4. If precipitation happens after thawing, the contents can be resuspended by pipetting or vortex mixing. After incubating the solution at 37°C for 20 to 30 minutes or letting it stand at room temperature for about an hour, check to see if the precipitate dissolves as intended. If the product dissolves completely, it can be used as usual.
5. This product is a concentrated solution and should be diluted prior to use as required.
6. The product should be used within a month if stored regularly at 2-8°C. Keep in a frozen state at -20°C for extended storage. Long-term storage at room temperature or between 2-8°C is not recommended. When lesser amounts are required, aliquoting is advised to prevent repeated freeze-thaw cycles.
7. This product is for research use only.
8. Avoiding skin and eye contact. Don't inhale dust and take relevant precautions when operating.