

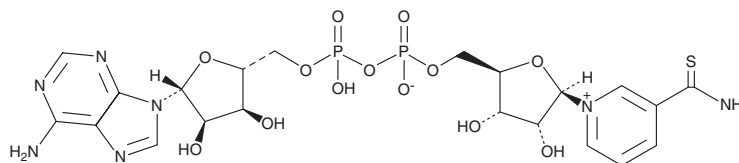
# PRODUCT INFORMATION



## Thio-NAD

Item No. 36466

**CAS Registry No.:** 4090-29-3  
**Formal Name:** P'→5'-ester with  
3-(aminothioxomethyl)-1-β-D-  
ribofuranosylpyridinium adenosine  
5'-(trihydrogen diphosphate), inner salt  
**Synonyms:** Thionicotinamide adenine dinucleotide,  
Thionicotinamide NAD  
**MF:** C<sub>21</sub>H<sub>27</sub>N<sub>7</sub>O<sub>13</sub>P<sub>2</sub>S  
**FW:** 679.5  
**Purity:** ≥98%  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:** ≥4 years



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

### Laboratory Procedures

Thio-NAD is supplied as a solid. Aqueous solutions of thio-NAD can be prepared by directly dissolving the solid in aqueous buffers. The solubility of thio-NAD in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Thio-NAD is a thione-modified derivative of the signaling molecule and enzyme cofactor NAD<sup>+</sup> (Item No. 16077).<sup>1</sup> It can replace NAD<sup>+</sup> as a cofactor in alkaline phosphatase (ALP) enzyme activity assays. Thio-NAD has been used as a substrate in dual-enzyme cycling ELISA to identify severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spike glycoprotein, also known as surface glycoprotein, and live *M. tuberculosis* bacterium in patient sputum.<sup>2,3</sup> It exhibits absorbance at 405 nm, allowing it to be distinguished from other cofactors.<sup>1</sup>

### References

1. Watabe, S., Kodama, H., Kaneda, M., *et al.* Ultrasensitive enzyme-linked immunosorbent assay (ELISA) of proteins by combination with the thio-NAD cycling method. *Biophysics (Nagoya-shi)* **10**, 49-54 (2014).
2. Kyosei, Y., Namba, M., Yamura, S., *et al.* Proposal of de novo antigen test for COVID-19: Ultrasensitive detection of spike proteins of SARS-CoV-2. *Diagnostics (Basel)* **10(8)**, 594 (2020).
3. Wang, W.-H., Takeuchi, R., Jain, S.-H., *et al.* A novel, rapid (within hours) culture-free diagnostic method for detecting live *Mycobacterium tuberculosis* with high sensitivity. *EBioMedicine* **60**, 103007 (2020).

#### 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.

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