

CycLex[®] Assay Kits for NAD⁺ Metabolism Research - Enzyme Activity Analysis and Compound Screening -



NAD⁺ metabolism has emerged as a central research area in aging, metabolic disorders, mitochondrial function, and age-related diseases.

Beyond its well-known function in energy metabolism, NAD⁺ is involved in a wide range of biological processes, including the maintenance of redox balance and DNA repair. In addition, NAD⁺ serves as an essential cofactor for enzymes such as sirtuins (SIRT), which regulate cellular functions and aging-related signaling pathways¹).

Intracellular NAD⁺ levels are tightly controlled through the salvage pathway by enzymes such as NAMPT and NMNAT. Studies have revealed a close connection between NAD⁺ metabolism and circadian rhythm regulation, further highlighting the physiological significance of this pathway²).

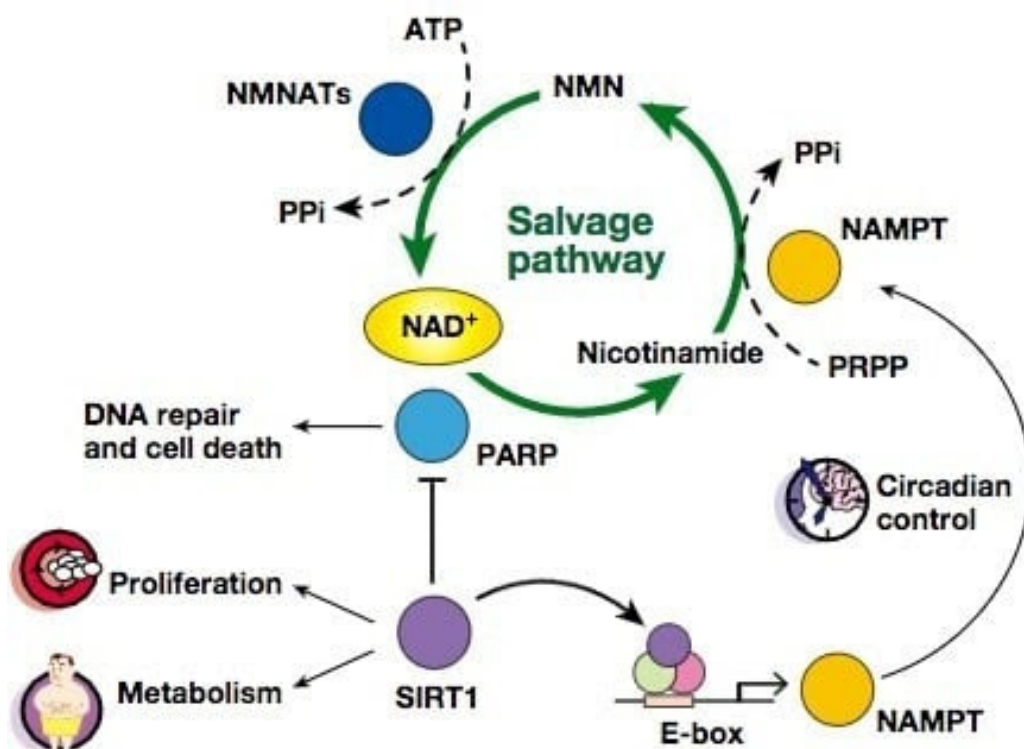


Figure 1. Overview of the NAD⁺ Metabolic Network Involving NAMPT, NMNAT and SIRT1

MBL offers a comprehensive range of CycLex[®] assay kits for quantitative analysis of NAD⁺ biosynthesis, metabolism, and NAD⁺-dependent signaling pathways. These kits enable enzyme activity measurement and are well suited for evaluating inhibitors and activators in drug discovery and aging research.

References

- 1) Covarrubias, A. J., *et al.*, *Nat Rev Mol Cell Biol.* (2021) [PMID: [33353981](#)]
- 2) Nakahata, Y., *et al.*, *Science* (2009) [PMID: [19286518](#)]

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Featured Products

■ Tools for NAD⁺ Biosynthesis and Metabolism Research

Understanding NAD⁺ metabolism requires the evaluation of key biosynthetic enzymes, such as NAMPT and NMNAT, as well as assessment of cellular redox status through the NAD⁺/NADH ratio.

Together, these assays provide a workflow for evaluating the NAD⁺ pathway from biosynthesis to downstream signaling.

• [CycLex[®] NAD⁺/NADH Colorimetric Assay Kit Ver.2](#)

→ Quantification of intracellular NAD⁺ and NADH levels and determination of the NAD⁺/NADH ratio (redox status)

• [CycLex[®] NAMPT Colorimetric Assay Kit Ver.2](#)

→ Evaluation of NAMPT activity and screening of inhibitors or activators

• [CycLex[®] NMNAT1 Colorimetric Assay Kit Ver.2](#)

→ Evaluation of NMNAT1 activity and screening of inhibitors or activators

■ SIRT Activity Assay Tools

MBL also provides assay kits for studying the activity of the SIRT family of NAD⁺-dependent deacetylases. These kits are useful for investigating SIRT function in aging and metabolic research, as well as for the evaluation of inhibitors and activators.

• [CycLex[®] SIRT1/Sir2 Deacetylase Fluorometric Assay Kit Ver.2](#)

• [CycLex[®] SIRT2 Deacetylase Fluorometric Assay Kit Ver.2](#)

• [CycLex[®] SIRT3 Deacetylase Fluorometric Assay Kit Ver.2](#)

About CycLex®

CycLex® is a brand of research tools designed to support drug discovery and life science research. CycLex® products focus on the analysis of protein kinases, phosphatases, acetylation/deacetylation, and other protein modification pathways, helping advance research in cell signaling, metabolism, and disease biology.

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