

# NMRK1 phosphorylates NR to yield NMN

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## Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

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## Literature references

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Reactome database release: 70

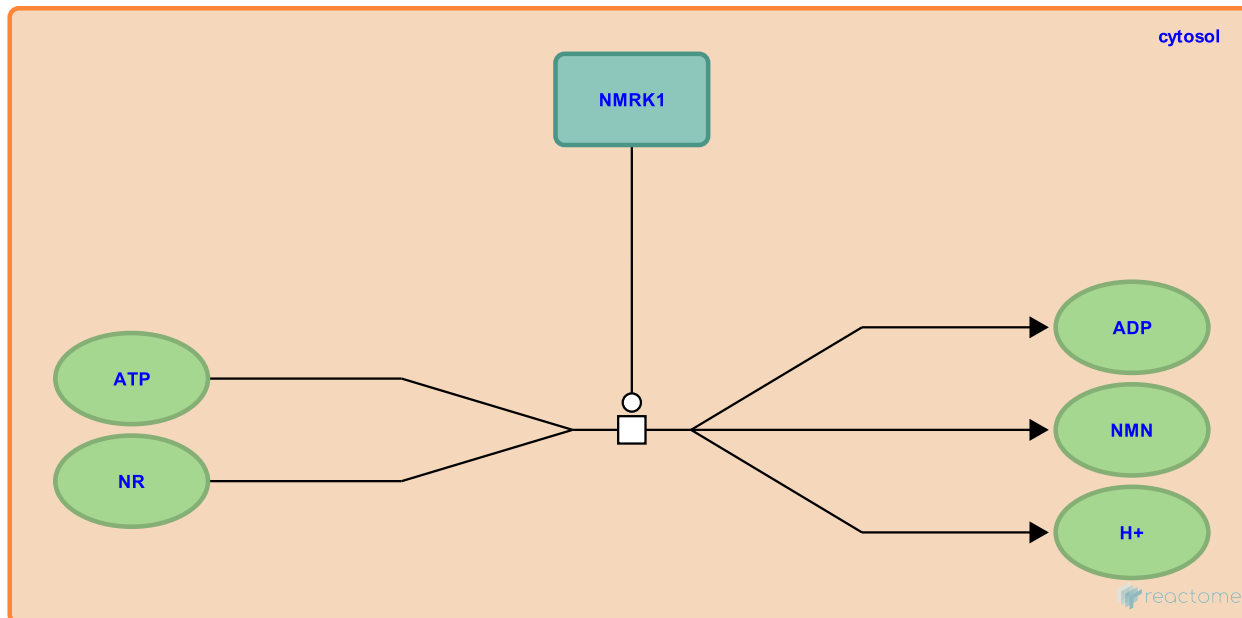
This document contains 1 reaction ([see Table of Contents](#))

## NMRK1 phosphorylates NR to yield NMN [↗](#)

**Stable identifier:** R-HSA-8869633

**Type:** transition

**Compartments:** cytosol



NMRK1 (nicotinamide riboside kinase 1) catalyzes the reaction of NR (N-ribosylnicotinamide) and ATP to yield NMN (beta-nicotinamide D-ribonucleotide), ADP, and H<sup>+</sup>. The enzyme is also active with GTP as a phosphate donor (not annotated here) (Bieganowsky & Brenner 2004; Sasiak & Saunders 1996; Tempel et al. 2007). The reaction is annotated with ATP(4-), the major ionized form of ATP at pH 7.2 (Stockbridge & Wolfenden 2009), as the phosphate donor. NMRK1 is a cytosolic enzyme (Nikiforov et al. 2011).

### Literature references

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### Editions

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