

Search for in [Advanced Search](#)

[« Previous](#)

FEBS Letters


Volume 583, Issue 10, Pages 1593-1598, 19 May 2009

[Next »](#)[Print or Share This Page](#)

Access this article on
[SciVerse ScienceDirect](#)

Hydrolysis of the phosphoanhydride linkage of cyclic ADP-ribose by the Mn²⁺-dependent ADP-ribose/CDP-alcohol pyrophosphatase

Edited by Judit Ovadi

[Jose Canales](#), [Ascension Fernandez](#), [Joaquim Rui Rodrigues](#), [Rui Ferreira](#), [Joao Meireles Ribeiro](#), [Alicia Cabezas](#), [Maria Jesus Costas](#), [Jose Carlos Cameselle](#) 

Received 27 March 2009; accepted 9 April 2009; published online 20 April 2009.

[Abstract](#) [Full Text](#) [PDF](#) [Images](#) [References](#) [Supplemental Materials](#)

Abstract

Cyclic ADP-ribose (cADPR) metabolism in mammals is catalyzed by NAD glycohydrolases (NADases) that, besides forming ADP-ribose, form and hydrolyze the N1-glycosidic linkage of cADPR. Thus far, no cADPR phosphohydrolase was known. We tested rat ADP-ribose/CDP-alcohol pyrophosphatase (ADPRibase-Mn) and found that cADPR is an ADPRibase-Mn ligand and substrate. ADPRibase-Mn activity on cADPR was 65-fold less efficient than on ADP-ribose, the best substrate. This is similar to the ADP-ribose/cADPR formation ratio by NADases. The product of cADPR phosphohydrolysis by ADPRibase-Mn was N1-(5-phosphoribosyl)-AMP, suggesting a novel route for cADPR turnover.

Abbreviations: [ADPRibase-Mn](#), Mn²⁺-dependent ADP-ribose/CDP-alcohol pyrophosphatase, [cADPR](#), [cyclic ADP-ribose](#), [DMSO](#), [dimethylsulfoxide](#), [NADase](#), [NAD glycohydrolase](#), [pRib-Ado](#), N1-(5-phosphoribosyl)-adenosine, [pRib-AMP](#), N1-(5-phosphoribosyl)-adenosine 5'-monophosphate, [pRib-ATP](#), N1-(5-phosphoribosyl)-adenosine 5'-triphosphate, [Rib-Ado](#), N1-(ribosyl)-adenosine, [Rib-AMP](#), N1-(ribosyl)-adenosine 5'-monophosphate

Keywords: [Cyclic ADP-ribose](#), [ADP-ribose](#), [Pyrophosphatase](#), [Phosphoribosyl-AMP](#), [Histidine biosynthesis](#), [Immune signaling](#)

To access this article, please choose from the options below

[Login](#) | [Register](#)

Login to an existing account or Register a new account.

Purchase this article for 31.50 USD (You must login/register to purchase this article)

Online access for 24 hours. The PDF version can be downloaded as your permanent record.

[Subscribe to this title](#)

Get unlimited online access to this article and all other articles in this title 24/7 for one year.

[Claim access now](#)

For current subscribers with Society Membership or Account Number.

[Visit SciVerse ScienceDirect](#) to see if you have access via your institution.

PII: S0014-5793(09)00297-X

doi:10.1016/j.febslet.2009.04.023

© 2009 Federation of European Biochemical Societies

[« Previous](#)

FEBS Letters

Volume 583, Issue 10, Pages 1593-1598, 19 May 2009

[Next »](#)

Article Tools

[Download Images*](#)[Email Abstract](#)[Add to My Reading List](#)[Rights/Permissions](#)[Request Reprints](#)[Related Articles](#)[\(3\) Cited in Scopus](#)[Export Citation](#)[Create Citation Alert](#)[Full Text On ScienceDirect](#)[* Image Usage & Resolution](#)