

MUTYH mediated recognition and binding of an adenine opposite to an 8-oxoguanine

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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

Fabregat, A., Sidiropoulos, K., Viteri, G., Forner, O., Marin-Garcia, P., Arnau, V. et al. (2017). Reactome pathway analysis: a high-performance in-memory approach. *BMC bioinformatics*, 18, 142. [↗](#)

Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics*, 33, 3461-3467. [↗](#)

Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res*, 46, D649-D655. [↗](#)

Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology*, 14, e1005968. [↗](#)

Reactome database release: 88

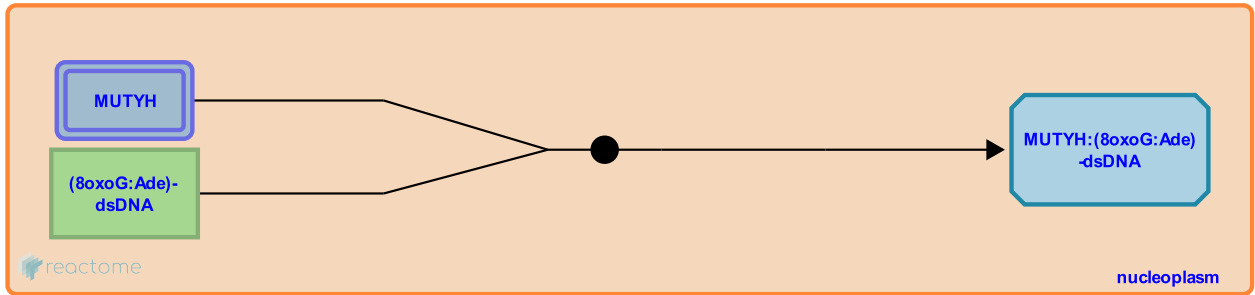
This document contains 1 reaction ([see Table of Contents](#))

MUTYH mediated recognition and binding of an adenine opposite to an 8-oxoguanine ↗

Stable identifier: R-HSA-110237

Type: binding

Compartments: nucleoplasm



MUTYH (MYH), an adenine DNA glycosylase, was cloned as the human homolog of E.coli DNA repair gene mutY (Slupska et al. 1996). MUTYH recognizes adenines and 2-hydroxyadenines on the newly synthesized DNA strand mispaired with guanines or 8-oxoguanines on the template strand (Ohtsubo et al. 2000, Boldogh et al. 2001).

Literature references

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Bassett, H., Milligan, D., Lee, MS., McCullough, AK., Lloyd, RS., Boldogh, I. (2001). hMYH cell cycle-dependent expression, subcellular localization and association with replication foci: evidence suggesting replication-coupled repair of adenine:8-oxoguanine mispairs. *Nucleic Acids Res.*, 29, 2802-9. ↗

Nishioka, K., Fujiwara, T., Shimokawa, H., Oda, H., Iwai, S., Ohtsubo, T. et al. (2000). Identification of human MutY homolog (hMYH) as a repair enzyme for 2-hydroxyadenine in DNA and detection of multiple forms of hMYH located in nuclei and mitochondria. *Nucleic Acids Res.*, 28, 1355-64. ↗

Editions

2004-02-03	Authored, Edited	Matthews, L.
2014-12-04	Edited, Revised	Orlic-Milacic, M.
2014-12-22	Reviewed	Borowiec, JA.
2018-06-28	Reviewed	Nakabeppu, Y.