NEIL3 recognizes and binds to 5-guanidinohydantoin

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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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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. ↗

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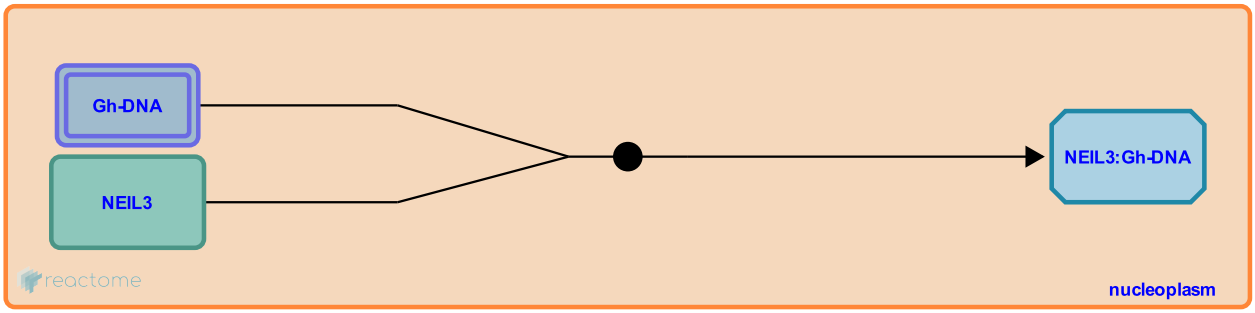
Stable identifier: R-HSA-9629358

Type: binding

Compartments: nucleoplasm



NEIL3 recognizes and binds to oxidatively damaged guanine base in the form of 5-guanidinohydantoin (Gh), with a preference for single-strand DNA (ssDNA) over double-strand DNA (dsDNA) (Krokeide et al. 2013). NEIL3 also cleaves Gh in G4 quadruplex DNA formed by telomere sequences (Zhou et al. 2013).

Literature references

Salah, M., Dalhus, B., Cederkvist, FH., Bjørås, M., Burrows, CJ., Luna, L. et al. (2013). Human NEIL3 is mainly a monofunctional DNA glycosylase removing spiroimindiohydantoin and guanidinohydantoin. *DNA Repair (Amst.) , 12*, 1159-64. ↗

Editions

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