

TET1,2,3 oxidizes 5-hydroxymethyl- cytosine to 5-formylcytosine

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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](#))

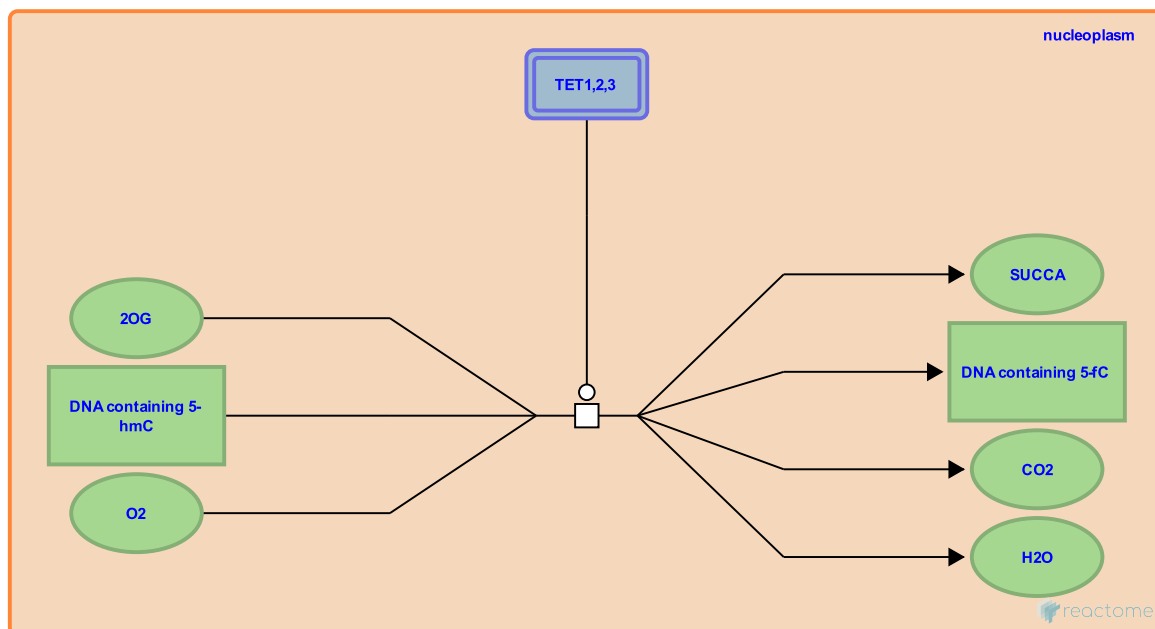
TET1,2,3 oxidizes 5-hydroxymethylcytosine to 5-formylcytosine ↗

Stable identifier: R-HSA-5220990

Type: transition

Compartments: nucleoplasm

Inferred from: Tet1,2,3 oxidizes 5-hydroxymethylcytosine to 5-formylcytosine (Mus musculus)



As inferred from mouse, TET1, TET2, and TET3 oxidize 5-hydroxymethylcytosine (5-hmC) in DNA using molecular oxygen and 2-oxoglutarate to yield 5-formylcytosine (5-fC), carbon dioxide, and succinate.

Literature references

Ponnaluri, VK., Mukherji, M., Maciejewski, JP. (2013). A mechanistic overview of TET-mediated 5-methylcytosine oxidation. *Biochem. Biophys. Res. Commun.*, 436, 115-20. ↗

Editions

2013-12-29	Authored, Edited	May, B.
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