3' incision by ERCC5 (XPG) in TC-NER

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05/05/2024

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.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

Literature references

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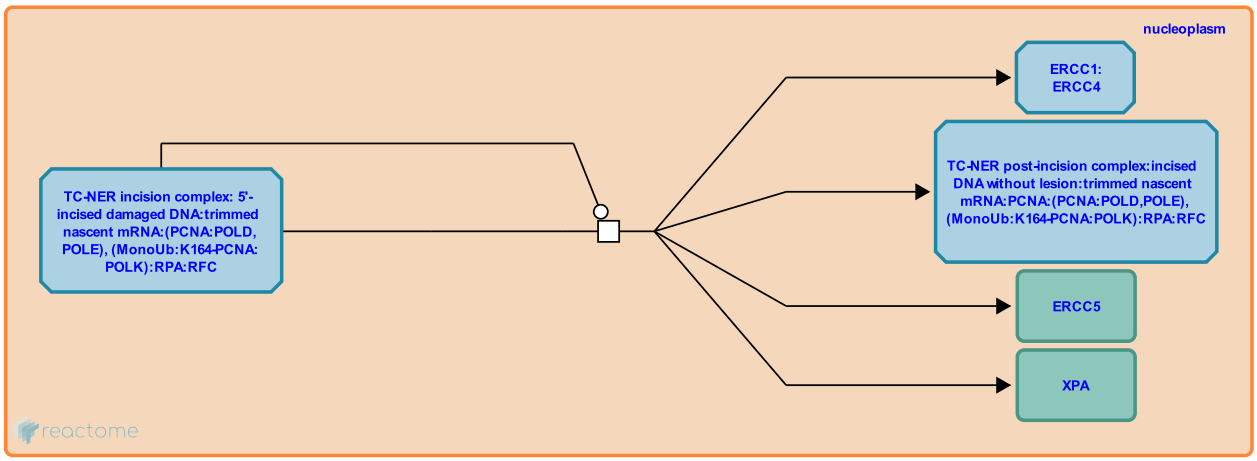
Stable identifier: R-HSA-6782224

Type: transition

Compartments: nucleoplasm



In transcription-coupled nucleotide excision repair (TC-NER), as well as in global genome nucleotide excision repair (GG-NER), the cleavage of the damaged DNA strand 3' to the site of damage is carried out by a DNA endonuclease XPG (ERCC5). While the NER-mediated DNA synthesis may be initiated prior to the 3' incision (Staresincic et al. 2009), the components of the incision complex probably dissociate from the NER site shortly after the DNA synthesis complex assembly and 3' incision (Overmeer et al. 2011). The exception is the RPA heterotrimer, which is a constituent of the NER post-incision complex, and also coats the undamaged DNA strand, thereby protecting it from endonucleolytic cleavage. RNA polymerase II-associated factors also remain bound to the TC-NER site.

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Editions

2004-01-29	Authored	Hoeijmakers, JH.
2015-06-16	Authored, Edited	Orlic-Milacic, M.
2015-08-03	Reviewed	Fousteri, M.