Impaired BRCA2 binding to PALB2

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This is just an excerpt of a full-length report for this pathway. To access the complete report, please download it at the Reactome Textbook.

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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


Reactome database release: 83

This document contains 1 pathway and 1 reaction (see Table of Contents)

https://reactome.org
Impaired BRCA2 binding to PALB2

Stable identifier: R-HSA-9709603

Compartment: nucleoplasm

Diseases: cancer

This pathway describes BRCA2 missense mutations that affect the N-terminus of BRCA2 and impair the ability of BRCA2 to bind PALB2, which is a crucial step in homologous recombination repair (HRR) of DNA double-strand breaks (DSBs) (Xia et al. 2006).

Literature references

Defective recruitment of BRCA2 and RAD51 due to loss of BRCA2 function in PALB2 binding

**Location:** Impaired BRCA2 binding to PALB2

**Stable identifier:** R-HSA-9709601

**Type:** transition

**Compartments:** nucleoplasm

**Diseases:** cancer

The extreme N-terminus of BRCA2, involving amino acid residues 10-40, is necessary and sufficient for PALB2 binding (Xia et al. 2006). Several germline BRCA2 missense mutations identified in breast cancer patients map to this region and impair the ability of BRCA2 recombinant constructs that include the first 60 amino acids of BRCA2 to bind to PALB2:

- **BRCA2 G25R** (severely diminished binding to PALB2, Xia et al. 2006)
- **BRCA2 W31R** (complete loss of PALB2 binding, Xia et al. 2006)
- **BRCA2 W31C** (complete loss of PALB2 binding, Xia et al. 2006)

**Literature references**


**Editions**

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