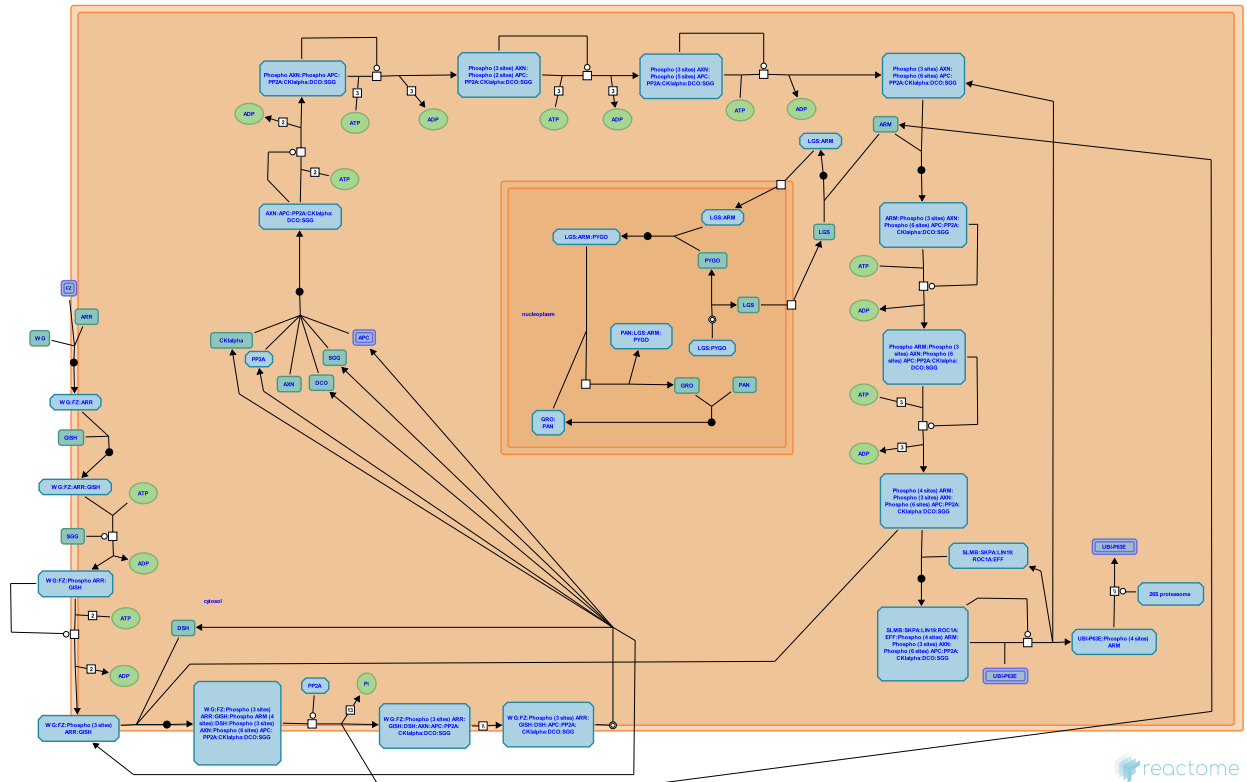


# Wingless pathway



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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](https://reactome.org).

25/04/2024

## 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).

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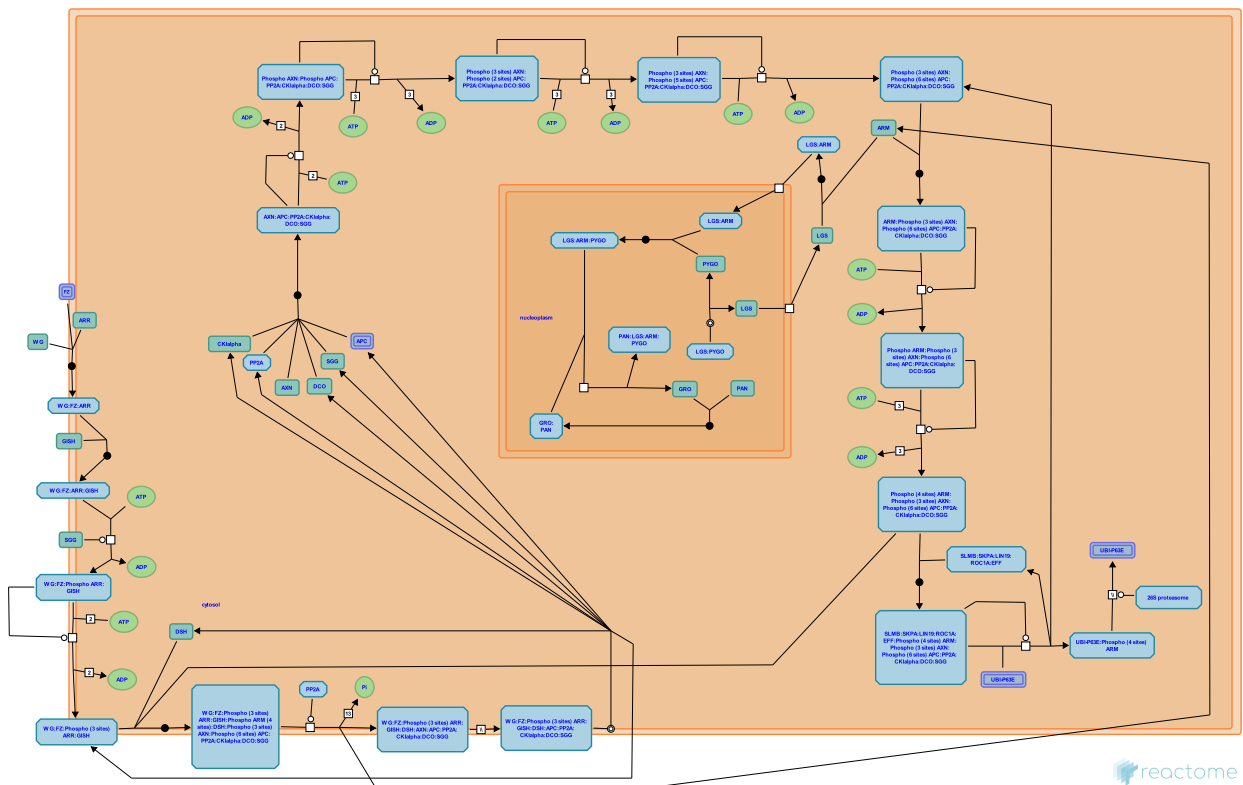
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Reactome database release: 88

This document contains 3 pathways ([see Table of Contents](#))

# Wingless pathway ↗

Stable identifier: R-DME-209412



The canonical Wingless signalling pathway consists of two main branches. One of these is active when Wingless (WG) ligand is bound to Frizzled (FZ/FZ2) receptors and the other is active when there is no binding. The default pathway is with no WG ligand bound to the FZ/FZ2 receptor. Armadillo (ARM) is sequestered to the 'destruction complex', is phosphorylated and ubiquitinated, and then degraded by the proteasome. The ARM concentration in the cytoplasm is depleted so there is no complex formed with Pangolin (PAN) in the nucleus and gene transcription is inactivated. However, when WG binds with FZ/FZ2, a plasma membrane receptor complex with Arrow (ARR) is formed. ARR is in turn phosphorylated by the membrane-anchored kinase Gish (GISH) and membrane localised Shaggy (SGG). The molecules Dishevelled (DSH) and Axin (AXN) are recruited to ARR and FZ/FZ2 respectively, the former along with its interaction partners in the 'destruction complex'. The binding of DSH to AXN, deactivates SGG and leads to the degradation of AXN. This, along with dephosphorylation of the 'destruction complex' leads to the release of ARM and the disassembly of the 'destruction complex'. The levels of cytoplasmic AXN drop and ARM increase with the result that sufficient ARM transports from the cytoplasm to the nucleus to form a complex with PAN which leads to transcriptional activation.

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## Editions

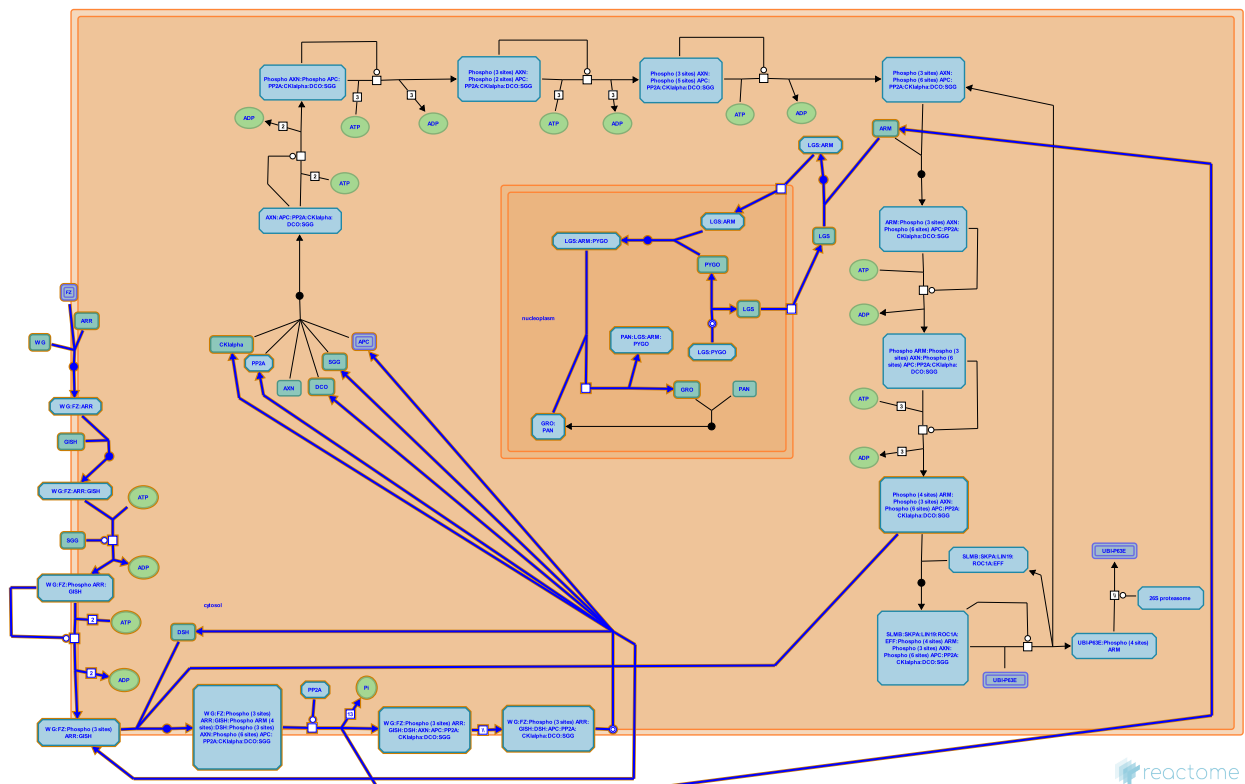
2006-06-28	Edited	Williams, MG.
2006-07-26	Authored	Williams, MG.
2008-01-19	Reviewed	Nusse, R.



## WG ligand bound to FZ receptors ↗

Location: [Wingless pathway](#)

Stable identifier: R-DME-209469



Spatzle (SPZ) dimer binding leads to Toll (TL) receptor homodimerisation and activation.

## Literature references

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## Editions

2006-07-26	Authored, Edited	Williams, MG.
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