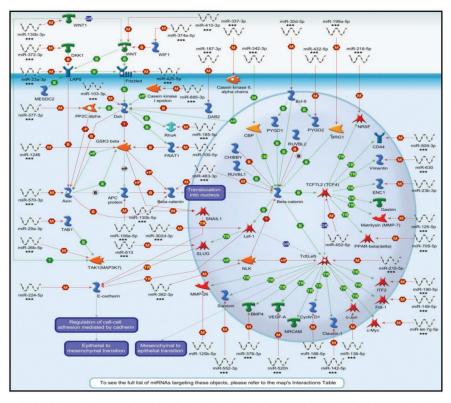
WNT signaling pathway



Wingless-type MMTV integration site family (WNT) signalling components are a family of secreted glycoproteins, and 19 human Wnt genes have been identified to date. WNT regulates a variety of biological processes including embryonic development, body patterning, tissue morphogenesis, epithelial-to-mesenchymal transition (EMT) and tumorigenesis. WNT ligands bind to the 'frizzled' seven-transmembrane receptors (Frizzled) and the Low density lipoprotein receptor-related protein 5 and 6 (LRP-5 and LRP-6) in the canonical WNT pathway.

In the canonical WNT pathway, WNT binding to Frizzled and LRP receptors induces phosphorylation of Dishevelled proteins (Dsh) by Casein kinases, which in turn causes inhibition of Glycogen synthase kinase 3 beta (GSK-3 beta). In the absence of WNT signaling, active GSK-3 beta phosphorylates Beta-catenin, resulting in its ubiquitination and proteasomal degradion. In the presence of WNT signal, GSK-3 beta is inhibited and the unphosphorylated Beta-catenin is stable in the cytosol and travels into the nucleus where it acts as a co-activator with Tcf (Lef) transcription factors. Beta-catenin - Tcf (Lef) transcriptional activity regulates expression of a number of target genes such as Cyclin D1, c-Jun, c-Myc, E-cadherin, and matrix metalloproteinases (MMP), including MMP-7 and MMP-2 and MMP-2.

MIRXES has 234 miRNAs targeting 73 proteins on this signalling cascade, indicating that most proteins involved in the WNT pathway are miRNA targets and may therefore be affected by miRNA action.

Hi-resolution Pathway Map



Full pathway summary & Citations



Relevant microRNA and gene transcripts



Interactions Table

