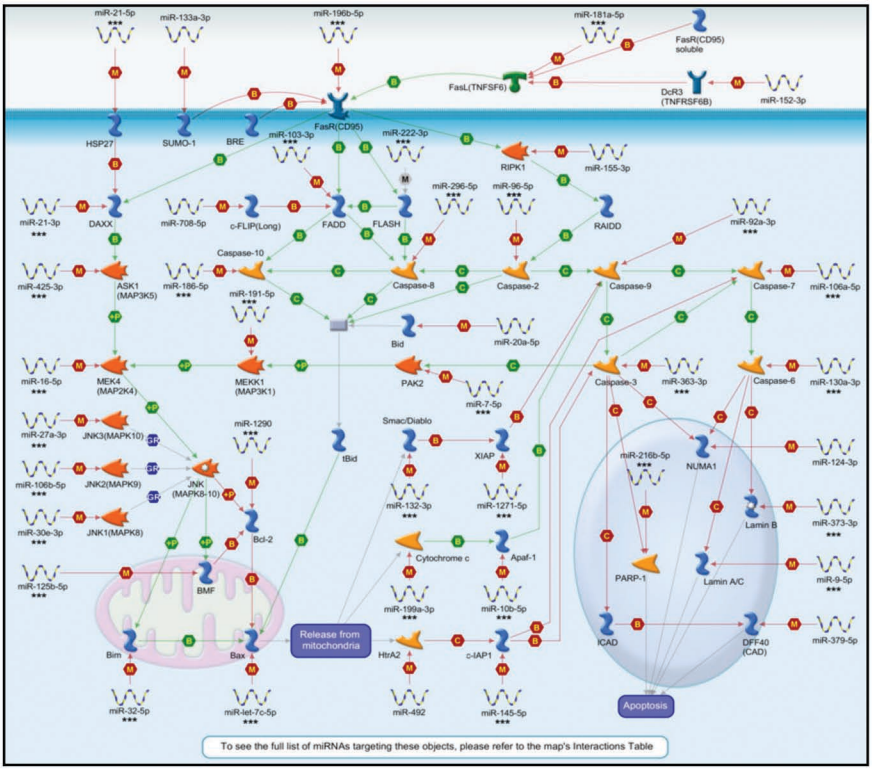
FAS signalling cascade



Death receptors such as FasR belong to a Tumour Necrosis Factor (TNF) superfamily of receptors involved in proliferation, differentiation and apoptosis. FasR is ubiquitously expressed in various tissues, but its ligand FasL is expressed mainly in activated T lymphocytes and natural killer cells. The binding of ligands to receptor induces receptor trimerisation. Clustering on the plasma membrane is required to initiate apoptosis in cells.

FasR have some splice variants and isoforms. Isoforms which are missing the transmembrane domain (soluble form), or the intracellular domain, (sFasR), can sequester FasL and inhibit apoptosis. In addition to death receptors, there are decoy receptors (DcR). DcR3 is a soluble receptor secreted by cells and binds with Fas ligand (FasL). Decoy receptors possess functional extracellular ligand binding domains but do not contain intracellular death domains and cannot recruit adaptor proteins required for apoptosis. The principle function of decoy receptors is modulating the sensitivity to death-receptor-mediated apoptosis in vivo. DcR3 sequesters and inactivates the membrane-bound Fas ligand on adjacent cells and prevents activation of Fas receptor (FasR). Activation of FasR lead to stimulation of several signal cascades: activation of caspase cascade, activation of intrinsic apoptotic pathway mediated by mitochondria, and activation of JNK-cascade.

MiRXES has 157 miRNAs targeting 41 proteins on this signalling cascade, indicating that most proteins involved in the FAS 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