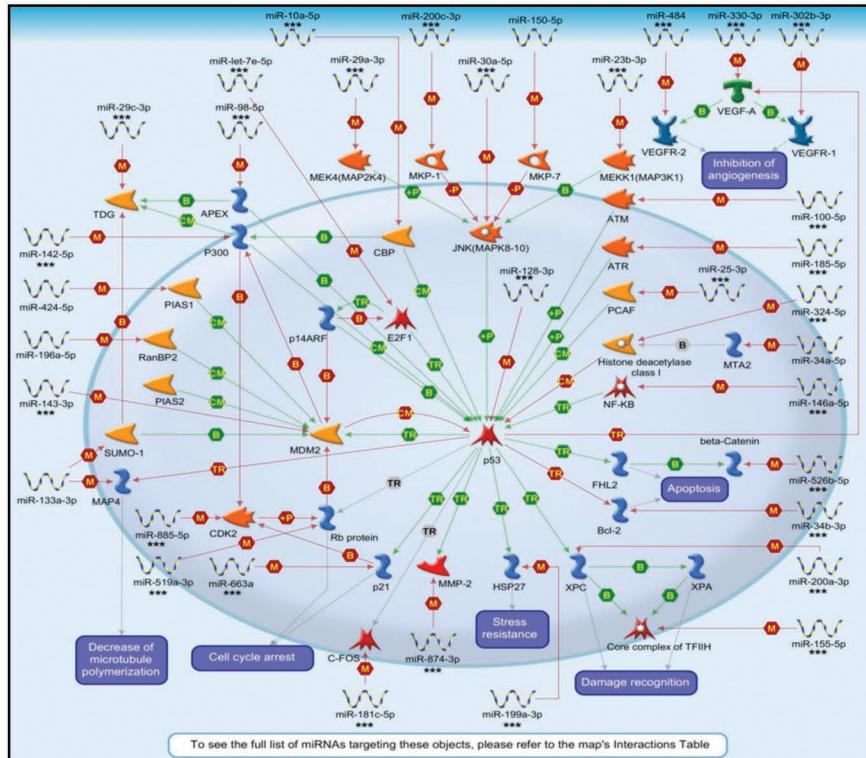


# p53 signalling pathway



The Tumour protein p53 (p53) plays a critical role in safeguarding the integrity of the genome. Upon activation, p53 binds to the enhancer/promoter elements of downstream target genes and regulates their transcription, through which it initiates cellular programs that account for most of its tumour-suppressor functions. The signal transduction circuit of p53 consists of the upstream mediators, the core regulation components and the downstream effectors.

The core regulatory circuitry consists of Mdm2 p53 binding protein homolog (MDM2), Cyclin-dependent kinase inhibitor 2A (p14ARF) and E2F transcription factor 1 (E2F). p53 activates MDM2 transcription. MDM2 in conjunction with Proteasome 26S subunit non-ATPase 10 (PSMD10 (Gankyrin)) mediates p53 ubiquitination and degradation. E2F1 activates transcription of p53 and p14ARF. p14ARF facilitates proteolytic degradation of E2F1 and MDM2-mediated p53 ubiquitination. Transcription of p53 is also mediated by nuclear factor kappaB (NF-KB) in a response to stress.

MIRXES has 234 miRNAs targeting 50 proteins on this signalling cascade, indicating that most proteins involved in the p53 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

