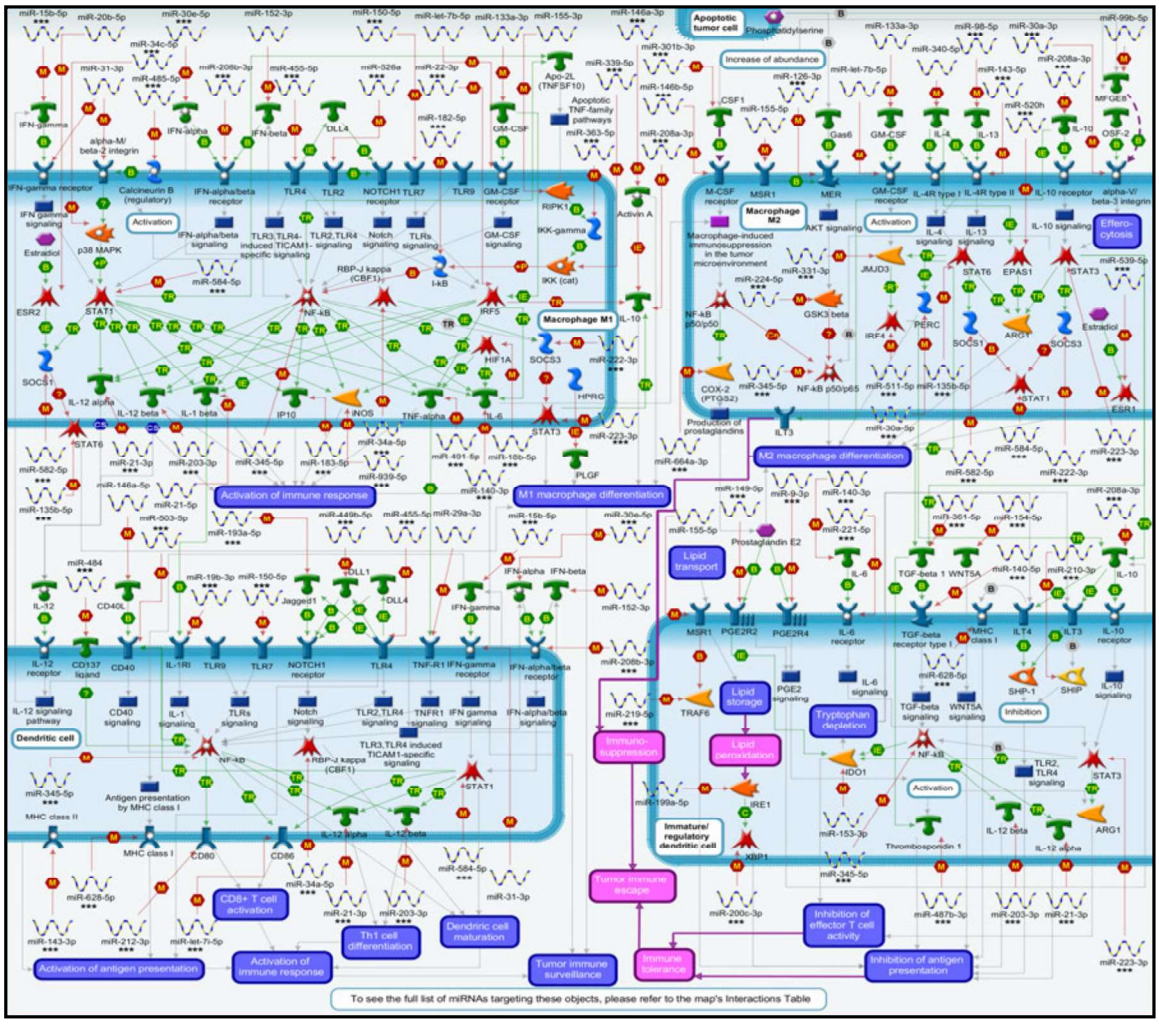
Macrophage and dendritic cell phenotype shift in cancer



Tumour-associated macrophages (TAMs) and dendritic cells (DCs) play an important role in the regulation of tumour immune responses. During tumour progression, circulating monocytes and macrophages are actively recruited into tumours where they alter the tumour microenvironment. Based on their function, macrophages are divided broadly into two phenotypes: M1 macrophages, which are involved in the inflammatory response, pathogen clearance, and antitumor immunity, and M2 macrophages, which influence an anti-inflammatory response, and pro-tumorigenic properties. TAMs shift their functional phenotypes in response to various microenvironmental stimuli generated from tumour and other cells, and polarize into immunosuppressive M2-like macrophages. Mature DCs have the ability for antigen cross-presentation and promotion of the activation of effector T cells that target tumour cells. However, the tumour microenvironment can polarize DCs, either inhibiting DCs maturation, or transforming them into immunosuppressive regulatory DCs, a tolerogenic phenotype which limits the activity of effector T cells and supports tumour growth and progression.

MiRXES has 210 miRNAs targeting 93 proteins on this signalling cascade, indicating that most proteins involved in Macrophage and dendritic cell phenotype shift in cancer 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