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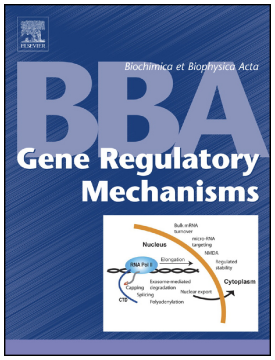

HDAC11 is a regulator of diverse immune functions

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HDAC11 is a regulator of diverse immune functions

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Histone deacetylases deacetylate histone and non-histone protein targets. Aberrant HDAC expression and function have been observed in several diseases, which makes these enzymes attractive treatment targets. Here, we summarize recent literature that addresses the roles of HDAC11 on the regulation of different immune cells including neutrophils, myeloid derived suppressor cells and T-cells. HDAC11 was initially identified as a negative regulator of the well-known anti-inflammatory cytokine IL-10. Hence, antagonizing HDAC11 activity may have anti-tumor potential, whereas activating HDAC11 may be useful to treat chronic inflammation or autoimmunity. However, to anticipate biological side-effects of HDAC11 modulators, more molecular insights will be required.

Keywords: HDAC11, epigenetics, immune system, HDACi

Abbreviations: APC, antigen presenting cell; CTCL, cutaneous T-cell lymphoma; DAMP, damage associated molecular pattern; DC, dendritic cell; FDA, U.S. food and drug administration; GVHD, graft versus host disease; HAT, histone acetyltransferase; HDAC, histone deacetylase; HDACi, histone deacetylase inhibitor; HEK293, human embryonic kidney cells 293; IFN, interferon; IL, interleukin; miR145, microRNA 145; MDSC, myeloid derived suppressor cell; GO, gene ontology; PAMP, pathogen associated molecular pattern; PTCL, peripheral T-cell lymphoma; SAHA, suberoylanilide hydroxamic acid; siRNA, small interfering RNA; TcR, T cell receptor; Treg, regulatory T cell; TNF-α, tumor necrosis factor α; UTR, untranslated region.