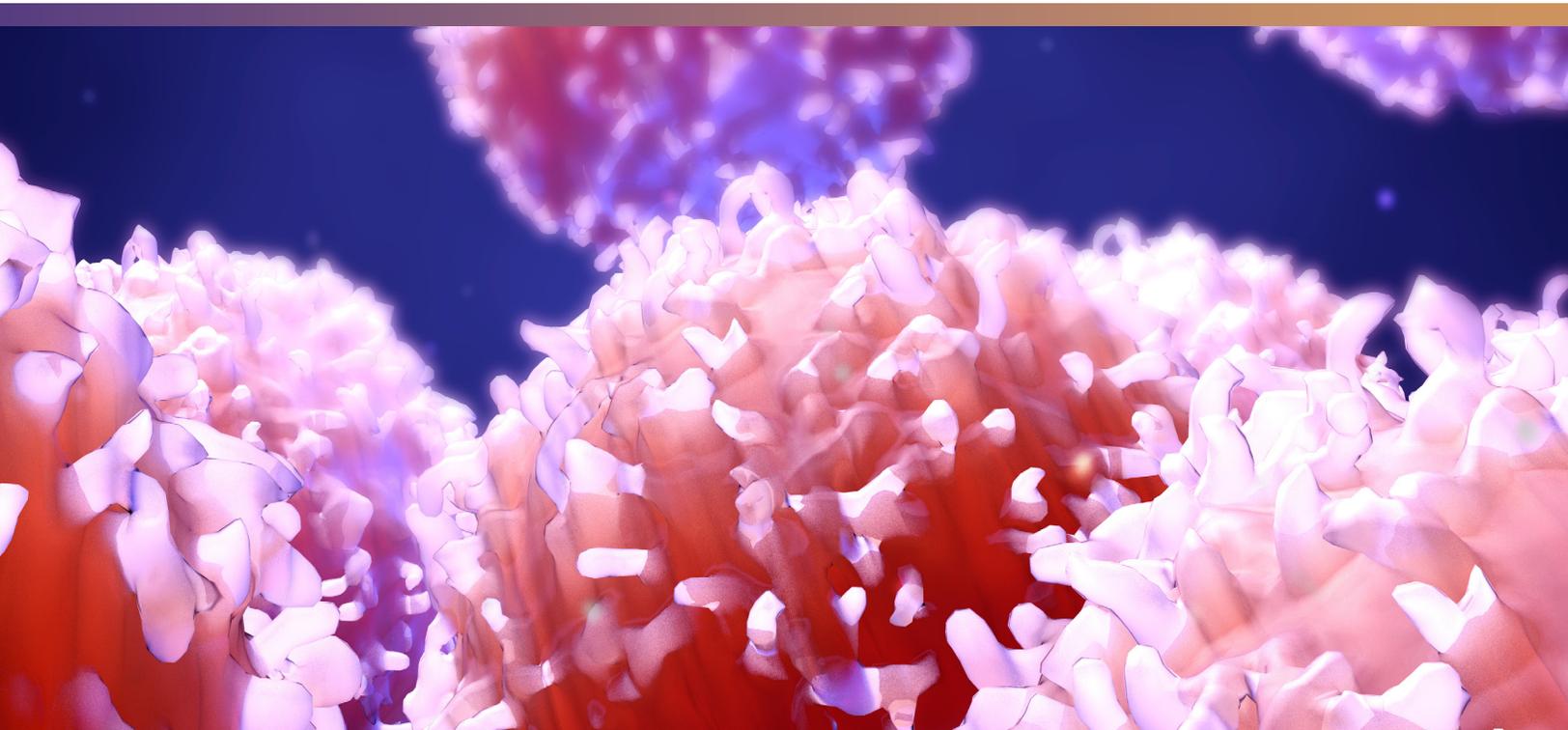


# EPIGENETICS IN IMMUNOLOGY RESEARCH

a practical reference guide of current publications highlighting  
recent epigenetic advancements in immunology



# Epigenetics in Immunology Research

Epigenetic regulatory mechanisms have been identified to play significant roles in immune cell normal function and disease as well as hematopoietic stem cell maintenance and differentiation. Epigenetic modifications are heritable changes not related to DNA sequence that control gene activity and expression. These modifications include DNA methylation, histone modifications, and non-coding RNAs and represent an important link between our external environment and our genome.

Active Motif provides an extensive portfolio of products for epigenetic research, including antibodies, kits, reagents and services, to help immunologists looking to transition into, or expand their studies of, epigenomic processes related to the immune cell function.

To aid in the introduction and understanding of the impact that epigenetic discoveries have made in this field, this reference piece presents a selection of recently published, high-impact articles focused on various aspects of immune cell research.

## GENERAL REVIEWS

Chatterjee A *et al.* (2018) Epigenetic drivers of tumorigenesis and cancer metastasis. *Semin Cancer Biol.* 51:149-159.

Jones PA *et al.* (2019) Epigenetic therapy in immune-oncology. *Nat Rev Cancer.* 19(3):151-161.

Henning AN *et al.* (2018) Epigenetic control of CD8+ T cell differentiation. *Nat Rev Immunol.* 18(5):340-356.

## LYMPHOCYTE BIOLOGY & DISEASE

Ott CJ *et al.* (2018) Enhancer Architecture and Essential Core Regulatory Circuitry of Chronic Lymphocytic Leukemia. *Cancer Cell.* 34(6):982-995.

Pace L *et al.* (2018) The epigenetic control of stemness in CD8+ T cell fate commitment. *Science.* 359(6372):177-186.

Miao F *et al.* (2014) Evaluating the role of epigenetic histone modifications in the metabolic memory of type 1 diabetes. *Diabetes.* 63(5):1748-62.

Johnson JL *et al.* (2018) Lineage-Determining Transcription Factor TCF-1 Initiates the Epigenetic Identity of T Cells. *Immunity.* 48(2):243-257.

Tao Y *et al.* (2019) Aging-like Spontaneous Epigenetic Silencing Facilitates Wnt Activation, Stemness, and BrafV600E-Induced Tumorigenesis. *Cancer Cell.* 35(2):315-328.

Satpathy AT *et al.* (2018) Transcript-indexed ATAC-seq for precision immune profiling. *Nat Med.* 24(5):580-590.

Xiong Y *et al.* (2014) Differential coupling of KLF10 to Sin3-HDAC and PCAF regulates the inducibility of the FOXP3 gene. *Am J Physiol Regul Integr Comp Physiol.* 307(6):R608-20.

## MONOCYTES & MACROPHAGES

Cheng Q *et al.* (2019) Sequential conditioning-stimulation reveals distinct gene- and stimulus-specific effects of Type I and II IFN on human macrophage functions. *Sci Rep.* 9(1):5288.

Park SH *et al.* (2017) Type I interferons and the cytokine TNF cooperatively reprogram the macrophage epigenome to promote inflammatory activation. *Nat Immunol.* 18(10):1104-1116.

An J *et al.* (2015) Acute loss of TET function results in aggressive myeloid cancer in mice. *Nat Commun.* 6:10071.

## HEMATOPOIETIC STEM & PROGENITOR CELLS

Bahr C *et al.* (2018) A Myc enhancer cluster regulates normal and leukaemic haematopoietic stem cell hierarchies. *Nature.* 553(7689):515-520.

Sun D *et al.* (2014) Epigenomic profiling of young and aged HSCs reveals concerted changes during aging that reinforce self-renewal. *Cell Stem Cell.* 14(5):673-88.

Goode DK *et al.* (2016) Dynamic gene regulatory networks drive hematopoietic specification and differentiation. *Dev Cell.* 36(5):572-87.