

Tissue/cell	Modified gene	Altered histone level	Effect on keratinocyte/epidermal growth and differentiation	Ref.
Mouse epidermis	Setd8 knockout ¹	H3K20me1 ↓	Inhibition of progenitor cell proliferation; Impaired differentiation	[10]
Mouse epidermis	Ezh2 knockout ¹	H3K27me3 ↓	Inhibition of proliferation; Premature differentiation	[15]
Mouse epidermis;	Hdac1/Hdac2 knockout ¹	acH3 ↓	Enhanced proliferation; epidermal hyperplasia; disturbed hair follicle differentiation	[19]
Primary human keratinocytes	Jmjd3 knockdown	H3K27me3 ↑	Blocked differentiation	[16]
	Jmjd3 overexpression	H3K27me3 ↓	Enhanced expression of differentiation markers	
Dog nasal epidermis	Suv39H2 Missense mutation (inactive enzyme)	H3K9me3 ↓	Aberrant terminal differentiation	[18]
HaCaT cells	Suv39H1 knockout	H3K9me3 ↓	Increased expression of some differentiation genes	[17]
HaCaT cells; reconstituted epidermis	Jarid1b knockdown	H3K4me3 ↑	Delayed differentiation	[20]
	Jarid1b overexpression	H3K4me3 ↓	Reduced proliferation; Enhanced differentiation	
Mouse epidermis	Ash1l Mutation (reduced expression)	H3K36me3 ↓	Hyperproliferation; Disturbed differentiation	[21]

Table S1. Effect of knockout/down, overexpression or mutation of histone modifying enzymes on keratinocyte/epidermal growth and differentiation

¹ – conditional knockout in the basal epidermal layer (Cre recombinase expressed under keratin 14 gene promoter); ↓- decrease in modified histone level; ↑- increase in modified histone level.