

专论与综述

## 组蛋白赖氨酸甲基化在表观遗传调控中的作用

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上海交通大学附属瑞金医院, 上海血液学研究所, 医学基因组学国家重点实验室, 上海 200025

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摘要

组蛋白赖氨酸的甲基化在表观遗传调控中起着关键作用。组蛋白H3的K4、K9、K27、K36、K79和H4的K20均可被甲基化。组蛋白H3第9位赖氨酸的甲基化与基因的失活相关连; 组蛋白H3第4位赖氨酸和第36位赖氨酸的甲基化与基因的激活相关连; 组蛋白H3第27位赖氨酸的甲基化与同源盒基因沉默、X染色体失活、基因印记等基因沉默现象有关; 组蛋白H3第79位赖氨酸的甲基化与防止基因失活和DNA修复有关。与此同时, 组蛋白的去甲基化也受到更为广泛的关注。

关键词: 组蛋白赖氨酸甲基转移酶; 组蛋白赖氨酸甲基化; 组蛋白去甲基化

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分类号

### The roles of histone lysine methylation in epigenetic regulation

*State Key Laboratory of Medical Genomics, Shanghai Institute of Hematology, Rui-Jin Hospital, Shanghai Jiao Tong University, Shanghai 200025, China*

#### Abstract

<P>Histone lysine methylation plays a key role in epigenetic regulation. There are five lysines within histone H3(K4, K9, K27, K36, K79). Besides, one lysine within histone H4(K20) has been shown to be methylated by specific histone lysine methyltransferase. Methylation at H3-K9 is associated with transcriptional repression, while methylation at H3-K4 and H3-K36 is associated with transcriptional activation. The methylation of histone H3-K27 was proved to be linked to several silencing phenomena including homeotic-gene silencing, X inactivation and genomic imprinting. H3-K79 methylation plays a role in DNA repair and transcriptional activation, and the extent and biological significance of histone de-methylation will surely attract great attention.</P>

**Key words** [histone lysine methyltransferases](#) [histone lysine methylation](#) [histone demethylation](#)

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通讯作者 黄秋花 [shep8279@hotmail.com](mailto:shep8279@hotmail.com)

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