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PRMT1通过精氨酸甲基化作用修饰剪接因子SF2/ASF

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摘要：

目的:探讨蛋白质精氨酸甲基转移酶1 (protein arginine methyltransferase 1，PRMT1)对剪接因子SF2/ASF (spli
or) 的甲基化修饰位点。方法：构建SF2/ASF野生型和Arg93/97/109突变体质粒，在体外表达和纯化GST标签的PRMT1、
基化活性实验检测PRMT1对SF2/ASF的甲基化作用及其甲基化修饰位点，以免疫荧光实验观察甲基化修饰对SF2/ASF亚细胞
有明显的甲基化修饰作用；当Arg93/97/109突变为赖氨酸后，PRMT1对SF2/ASF突变体的甲基化修饰程度明显降低，其中
明显。甲基化修饰不影响SF2/ASF的亚细胞定位。结论：发现SF2/ASF是PRMT1新的底物蛋白，Arg93/97/109均为PRMT
饰位点；PRMT1对于SF2/ASF的甲基化修饰并不改变后者细胞内的定位。

关键词：蛋白质精氨酸甲基转移酶1（PRMT1） SF2/ASF 甲基化作用 精氨酸 细胞内定位 选择性剪接

Protein arginine methyltransferase 1 methylates SF2/ASF at arginine

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Abstract:

Objective:To investigate the arginine (Arg) sites in splicing factor 2/alternative splicing factor (SF2/AS
methyltransferase 1 (PRMT1). Methods: Wild type and Arg93, Arg97, Arg109 mutant SF2/ASF plasmids w
GST SF2/ASF and arginine mutant GST SF2/ASF fusion proteins were induced and purified. Methylation ac
mutant SF2/ASF protein and methylated sites of SF2/ASF were examined by methylation assay. The effec
subcellular localization was analyzed by immunofluorescence assay.Results: PRMT1 induced methylation
did not methylate SF2/ASF when SF2/ASF was mutant at Arg93, Arg97 or Arg109, with Arg97 mutation s
effect. Methylation of SF2/ASF did not affect its subcellular localization.Conclusion: SF2/ASF is a newly ide
Arg97 and Arg 109 are the three methylation sites in SF2/ASF, and Arg97 is the main methylation site. M
affect its subcellular localization.

Keywords:protein arginine methyltransferase 1(PRMT1) SF2/ASF methylation arginine subcellular loca