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Expression, purification and characterization of the GpC methyltransferase M.CviPI V.1

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We use this protocol and it's working

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Abstract

Methylation footprinting can be used to map protein-DNA contacts at the resolution of individual DNA molecules¹. Enzymes with various nucleotide specificities have been successfully used to footprint genomes including GpC, CpG and A methyl-transferases²⁻⁷. Among these M.CviPI methylate DNA in GpC context, that is distinct from CpGs that are endogenously methylated in mammals. This feature has been leveraged to profile nucleosome occupancy^{8,9}; the binding of General Transcription Factors and RNA Pol II⁶; the co-occupancy of Transcription Factors (TFs)¹⁰ and the relation between TF binding and endogenous DNA methylation¹¹. Here, we present a protocol for the production and purification of M.CviPI in *E. coli*. Our protocol routinely yields milligrams of protein at a quality and a concentration compatible with DNA footprinting applications. We characterize the purity and the activity of the purified enzyme, providing a benchmark for future production.

Attachments

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