TECHNOLOGY

Construction of a Strain of E. coli That Can be Used to Select DNA Methyltransferase Clones

OVERVIEW

Escherichia coli contains several genes, designated mcrA, mcrB and mmr, that are able to destroy DNA that has been methylated at specific sequences. Currently identified known methylase-producing strains have limited commercial value due to their low levels of enzyme production. One solution is to cloning and overexpressing the methylase genes in E. coli. However, a limiting factor in the successful cloning of these enzymes is the identification of the cloned genes.

Researchers at the University of Maryland, Department of Microbiology, and the Maryland Biotechnology Institute Medical Biotechnology Center, have constructed a new strain of Escherichia coli that can be used to select DNA methyltransferase clones. This "mutant strain" can be used to identify any piece of DNA that has been methylated. Since restriction systems tend to be linked to modification systems, it also allows for the rapid identification of restriction enzymes. Thus, this strain enables efficient random screening of gene banks for the presence of DNA methyltransferases. Through the use of this strain, University researchers have already identified four different DNA methylase clones from two different bacterial strains.

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CONTACT INFO

UM Ventures
0134 Lee Building
7809 Regents Drive
College Park, MD 20742
Email: umdtechtransfer@umd.edu
Phone: (301) 405-3947 | Fax: (301) 314-9502

Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

U.S. Patent # 5,491,060 has issued.

LICENSE STATUS

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EXTERNAL RESOURCES

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