

The Use of Bioluminescent Reporter Genes for RNAi Optimization

ABSTRACT

The psiCHECK™ Vectors provide a quantitative and rapid approach for the optimization of RNA interference (RNAi). The vectors enable changes in expression of a target gene to be determined by monitoring the activity of a fused reporter gene. In the psiCHECK™ Vectors, Renilla luciferase is used as the reporter gene. A target gene of interest can be cloned into the multiple cloning region located downstream of the Renilla translational stop codon. Initiation of RNAi toward the target gene results in cleavage and subsequent degradation of the fusion mRNA including the Renilla luciferase RNA sequence. This RNA degradation results in decreased Renilla luciferase activity. The decrease in activity can be monitored and used as a convenient indicator of the RNAi effect on the target gene. Thus, the psiCHECK™ Vectors allow quantitative measurements of RNAi activity and can be easily adapted for use in high-throughput applications.

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