



## ANTI-LUCIFERASE

From Rabbit  
IgG Fraction of Antiserum

Product Number **L 0159**

### Product Description

Anti-Luciferase is developed in rabbits using firefly (*Photinus pyralis*) luciferase as immunogen. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum which is essentially free of other rabbit serum proteins.

Analysis of gene expression is most commonly assayed by transient transfection. These systems are usually based on the use of fusion genes which are inserted into cells, and expression of the gene is assayed within 48 hours after introduction of DNA. Usually the fusion consists of the promoter binding site or enhancer sequence under study which is attached to a reporter gene. The amount of the reporter protein synthesized under the experimental conditions, is presumed to reflect the ability of the sequences studied to direct or promote transcription. Several enzymes are commonly used as reporter proteins, among them are chloramphenicol acetyl transferase (CAT),  $\beta$ -galactosidase, human growth hormone (hGH), and luciferase. Luciferase has become one of the more widely used reporter enzymes. The reporter plasmid contains the gene from the firefly *Photinus pyralis*. The enzyme catalyzes a bioluminescent reaction which requires the substrate luciferin as well as  $Mg^{+2}$  and ATP. Mixing these reagents with the cell extract containing luciferase, results in a flash of light that decays rapidly. This light can be detected by a luminometer. The total light emission is proportional to the luciferase activity of the sample. The luciferase assay is fast and sensitive and does not require a radioactive substrate as is in the CAT assay. A disadvantage of the luciferase assay is that it requires a rather expensive instrument, the luminometer, to measure enzyme activity. In addition, this assay lacks reproducibility between samples, largely due to the rapid kinetics of the emission.

### Reagents

The product is provided as a solution in 0.01 M phosphate buffered saline, pH 7.4, with 15 mM sodium azide as a preservative.

## Product Information

### Precautions and Disclaimer

Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

### Storage/Stability

For continuous use, store at 2-8 °C for a maximum of one month. For extended storage freeze in working aliquots. Repeated freezing and thawing is **not** recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

### Product Profile

The use of an antibody to detect luciferase can provide an alternative detection assay. This assay directly detects luciferase protein levels, and thus has the advantage that it does not require luciferase activity and is not dependent on rapid kinetics. Moreover, antibodies can detect the luciferase enzyme expression *in situ*, providing a means to study the localized signal sequences using luciferase as a reporter gene.

A working concentration of 10  $\mu$ g/ml is obtained on methanol-acetone fixed transfected\* cells using FITC conjugated secondary antibody in an immunofluorescence assay.

\* Transfected with a reporter plasmid containing the gene for luciferase.

To obtain best results, it is recommended that each user determine the optimal working dilution for individual applications by titration assay.

### References

1. De Wet, J. R., Wood, K.V., et al., Mol. Cell Biol. **7**, 725 (1987).

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