DATA SHEET

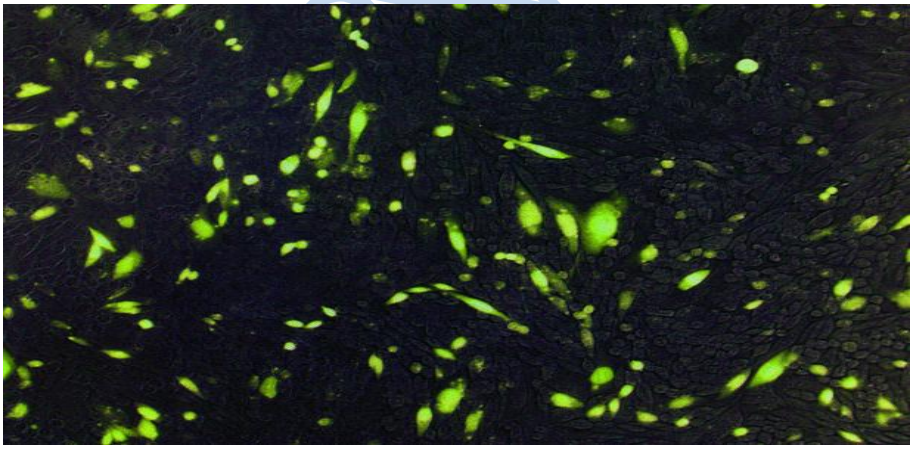
M0259 - MarkerGene™ *in vivo lacZ* β-Galactosidase Intracellular Detection Kit

Description:
Allows ultra-sensitive detection of β-galactosidase activity in live mammalian, yeast, bacterial, or plant cells. Especially useful for FACS analysis.

Application:
One of the most common reporter genes used in molecular biology applications is the *E.Coli lacZ* gene that codes for an active subunit of beta-galactosidase *in vivo*. Since this enzyme is generally absent in normal mammalian cells, it can be detected at very low levels, and since the enzyme has a wide substrate specificity, monitoring lacZ expression (and therefore co-expressed genes or promoter efficiency) has become routine to the point of detection of as few as 5 copies of beta-galactosidase per cell.

Although chromogenic assays of beta-galactosidase activity (i.e. X-Gal) have use, the recent application of the fluorogenic substrate fluorescein di-β-D-galactopyranoside (FDG) combined with fluorescence microscopic analysis (confocal microscopy) analysis has been shown to be several orders of magnitude more sensitive. In addition, because of its improved detection limits, the FDG substrate has found extensive use in automated ELISA type assay systems .

This kit uses the beta-galactoside analog fluorescein di-β-D-Galactopyranoside (FDG) in a protocol that sensitively distinguishes lacZ+ vs. lacZ- cells. See also Product M0250 for more information and references.



References:

- Zeisberg EM, Tarnavski O, Zeisberg M, Dorfman AL, McMullen JR, Gustafsson E, Chandraker A, Yuan X, Pu WT, Roberts AB, Neilson EG, Sayegh MH, Izumo S, Kalluri R.(2007)"Endothelial-to-mesenchymal transition contributes to cardiac fibrosis." Nature Medicine 13: 952-961.

Gentaur Molecular Products
Voortstraat 49
1910 Kampenhout, Belgium

- Roederer M, Fiering S, Herzenberg LA. (1991) "FACS-Gal: Flow cytometric analysis and sorting of cells expressing reporter gene constructs." Methods: Companion to Meth Enzymol 2: 248.

- Nolan GP, Fiering S, Nicolas JF, Herzenberg LA. (1988) "Fluorescence-activated cell analysis and sorting of viable mammalian cells based on beta-D-galactosidase activity after transduction of Escherichia coli lacZ." Proc Natl Acad Sci U S A 85: 2603-2607.

- Krasnow MA, Cumberledge S, Manning G, Herzenberg LA, Nolan GP. (1991) "Whole animal cell sorting of Drosophila embryos." Science 251: 81-85.

- Fiering S, Nolan G, Herzenberg LA. (1988) "Inhibitors of endogenous mammalian beta-Galactosidase (B-Gal) or transduced E. coli B-Gal improve the sensitivity and versatility of the FACS-FDG fluorogenic Assay for E. coli lacZ expression in viable mammalian cells." Cytometry (Suppl 2) 1.

- Guo W, Wu H, (2008) "Detection of lacZ expression by FACS-Gal analysis" Nature Protocols DOI: 10.1038/nprot.2008.163
http://www.natureprotocols.com/2008/08/06/detection_of_lacz_expression_b.php

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