FACS Blue LacZ beta Galactosidase detection kit
ab189815

1 References

Overview

Product name
FACS Blue LacZ beta Galactosidase detection kit

Product overview
Although chromogenic assays of β-galactosidase activity (i.e. X-Gal) have use, application of the fluorogenic substrate 3-carboxyumbelliferyl β-D-galactopyranoside (CUG) (blue fluorescence) combined with Fluorescence Activated Cell Sorting (FACS) analysis has been shown to be several orders of magnitude more sensitive. In addition, because of its high water solubility and detection limits, the CUG substrate has found extensive use in automated ELISA type assay systems. Abcam’s FACS Blue LacZ beta Galactosidase detection kit (ab189815) is especially useful for dual-labeling experiments where the cells to be analyzed are also labeled with a fluorescein based probe (FITC-labeled antibody, fluorescein-based substrate, etc.).

Emission: 460 nm.
Excitation: 390 nm.

Notes
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 β-galactosidase in vivo. Since this enzyme is generally absent in normal mammalian, yeast, some bacterial and even plant 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 β-galactosidase per cell by FACS analysis.

Abcam’s FACS Blue LacZ beta Galactosidase detection kit (ab189815) provides reagents and protocol to perform up to 500 tests (10 x 96 well microtitre plates).

Platform
Flow cytometer

Properties

Storage instructions
Store at -20°C. Please refer to protocols.

<table>
<thead>
<tr>
<th>Components</th>
<th>500 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhibitor</td>
<td>1 x 1ml</td>
</tr>
<tr>
<td>Reference Standard</td>
<td>1 x 0.5ml</td>
</tr>
<tr>
<td>Substrate Reagent</td>
<td>1 x 0.5ml</td>
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</tbody>
</table>
Relevance

Beta galactosidase is a hydrolase enzyme that cleaves beta-linked terminal galactosyl residues from gangliosides, glycoproteins, and glycosaminoglycans. Beta galactosidase is an essential enzyme in the human body. Deficiencies in the protein can result in galactosialidosis or Morquio B syndrome. Senescent cells display senescence-associated expression of beta galactosidase activity.

Cellular localization

Isoform 1: Lysosome. Isoform 2: Cytoplasm, perinuclear region. Note=Localized to the perinuclear area of the cytoplasm but not to lysosomes.

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