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Product Information

FSL-biotin

Catalog Number **F9182**
Storage Temperature –20 °C

Synonym: FSL-CONJ(1Biotin)-SC2-L1

Product Description
Molecular formula: $C_{91}H_{149}N_{17}NaO_{32}PS$
Molecular weight: 2079.28

FSL-biotin is a KODE™ technology construct designed to label hydrophobic surfaces including living cells with biotin. All KODE FSL constructs consist of three essential designable features:

- functional component (F)
- spacer (S)
- diacyl lipid (L)

FSL-biotin is comprised of a monomer of biotin (vitamin B7) representing F, conjugated to a maleimide-bearing carboxymethylglycine based linker (SC2) in turn conjugated to an activated adipate derivative of dioleoylphosphatidylethanolamine (L1). All FSL constructs disperse in biocompatible media, and spontaneously and stably incorporate into cell membranes. Cells modified with KODE constructs are known as kodecytes[1] and usually maintain their normal vitality and functionality.

FSL-biotin has been specifically designed to insert into the membranes of live cells, labeling the membrane with biotin. The FSL constructs will remain in active cell membranes for up to 12 hours and indefinitely in inactive membranes (such as red cells) in serum-free medium.

FSL-biotin can also be used to modify other hydrophobic surfaces including fixed cells and solid phase surfaces. Biotinylated kodecytes can be reacted with a variety of biotin binding protein constructs[2] including fluorescent labeled avidin and avidinylated beads/solid surfaces.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
A Stock Solution is prepared by reconstituting the product at a concentration of 2 mg/ml in saline or PBS. Buffered solutions are preferred for long-term storage. The product should not be reconstituted in water, unless used immediately as the product is unstable when stored in water.

The 2 mg/ml Stock Solution can be frozen in aliquots for later usage. Thawed product should be briefly sonicated before use. The Stock Solution can be diluted in buffers containing protein. The Stock Solution should not be diluted in buffers containing lipids (e.g., serum) or other hydrophobic components as the FSL will associate with this material and insertion into cells will be reduced.

Storage/Stability
Store unopened product at –20 °C. Store the Stock Solution in aliquots at –20 °C. Avoid repeated freezing and thawing of solutions. Solutions in PBS, pH 7, can be stored at 2–8 °C for up to 2 weeks.

Procedure

Cell labeling – Add 1 volume of FSL-biotin Working Solution (10–100 μg/ml diluted in PBS) to 1 volume of cells. Incubate for ~1 hour (incubation range 5 minutes to 24 hours) at a temperature of 37 °C (temperature range 4–37 °C) to allow molecules to spontaneously insert into cell membranes. Wash with PBS or other appropriate buffer (may be optional). Store kodecytes in serum free medium.

Note: Rate of FSL insertion is primarily determined by FSL concentration, incubation time, and temperature.

To avidinylate cells add an excess of avidin diluted in appropriate buffer. Wash cells with PBS or other appropriate buffer.

References

1. Henry, S.M., Modification of red blood cells for laboratory quality control use. Curr. Opin. Hematol., **16**, 467-472 (2009).
2. Henry, S., and Bovin, N., The development of synthetic peptidolipids, glycolipids and other lipid-linked structures to create designer red cells. Transfusion, **48** (Supplement s2), 203A (2008).
3. Frame, T. et al., Synthetic glycolipid modification of red blood cell membranes. Transfusion, **47**, 876-82 (2007).

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