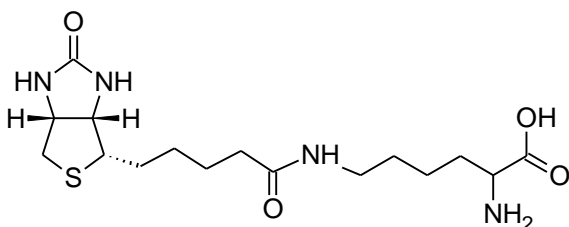


Biocytin

Ordering Information	Storage Conditions
Product Number: 3080 (100 mg)	Store at 2 °C to 8 °C. Expiration date is three years from the date of receipt.

General Properties



CAS Number: 576-19-2
Molecular Weight: 372.48
Appearance: white crystal
Solvent: water

Biological Applications

Biocytin is a molecule consisting of biotin conjugated to the epsilon amine of lysine (see Figure) and is formally referred to as (ϵ -N-[*d*-biotinyl]-L-lysine). Biocytin is a naturally occurring molecule that can be found in serum and urine. Apparently it serves to transport and recycle biotin through the body. Biocytin has high binding affinity for avidin and streptavidin and can also be used as an intermediate in the synthesis of biocytinyl peptides. Biocytin has been used as an intracellular labeling reagent for neurons.²⁻¹²

Advantages of using biocytin include its high solubility in aqueous solutions and small molecular weight, and both of them facilitate its injection using micropipettes. Lucifer yellow, a fluorescent dye which has been used for labeling neurons, can clog microelectrodes much more readily than biocytin. Horseradish peroxidase has also been used as an intracellular marker, however, broken or beveled microelectrodes tips are needed to avoid clogging. Biocytin can easily be injected from non-beveled microelectrode tips. Biocytin also can be injected by pressure or iontophoretically.

Biocytin can be transported by neurons. Anterograde transport is predominant in rats. Both retrograde and anterograde transports occur in primates. There are additional advantages of biocytin over other intracellular labeling reagents, such as *Phaseolus vulgaris* lectin (PHA-L). PHA-L can be used as a marker to reveal the fine detail of axonal and dendritic processes. However, it is expensive in comparison to biocytin and can only be used in certain animal species. Lucifer yellow labeling observed only through its fluorescent response is prone to fading and cannot be used to provide a permanent record.

A variety of avidin or streptavidin conjugates can be used to incorporate biocytin, providing detection flexibility. Conjugates with alkaline phosphatase, horseradish peroxidase, colloidal gold, fluorescein, rhodamine, and Texas Red have been used. Substrates can be chosen for use with the enzymes that produce insoluble colored precipitates and indicate the presence of biocytin. Therefore, detection can be achieved at the light, fluorescence, or electron microscope level. Biocytin can be used in conjunction with histochemical staining procedures. Biocytin has also been used with rhodamine-labeled latex microspheres in a double labeling application.

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