

Product Data Sheet

Product Name: Biotin-tyramide

Cat. No.: GC13376

Chemical Properties

Cas. No. 41994-02-9

Chemical Name N-(4-hydroxyphenethyl)-5-((3aS,4S,6aR)-2-oxohexahydro-1H-thieno[3,4-d]imidazol-4-yl)pentanamide

SMILES O=C1N[C@@]([H])([C@]([H])(CS2)N1)[C@@H]2CCCCC(NCCC3=CC=C(O)C=C3)=O

Formula $C_{18}H_{25}N_3O_3S$ M.Wt 363.47

Solubility $\geq 72.6\text{mg/mL}$ in DMSO, $\geq 8.18\text{mg/mL}$ in EtOH with ultrasonic Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice All other available size: ship with RT, or blue ice upon request.

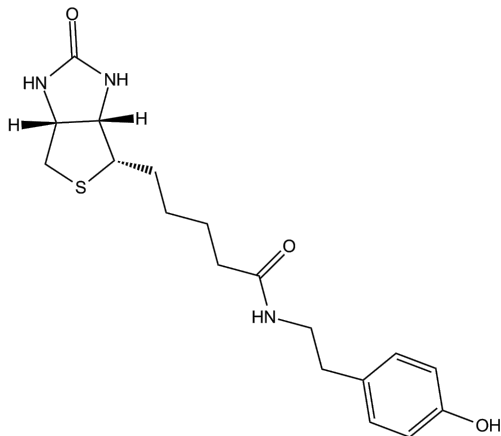
Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

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Structure



Protocol

Cell experiment [1]:

Tissue Brain tissue from Long–Evans rats

Brain tissue from six animals was processed in one run to fluorescently co-label Preparation Method ARs and NeuN, with and without Biotin-tyramide, as well as ARs and GFAP, with and without Biotin-tyramide.

Reaction Conditions Biotin-tyramide for 30min

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Applications

Biotin-tyramide signal amplification (TSA) dramatically increases AR immunoreactivity in the rat brain, including critical regions of the PFC such as the medial PFC (mPFC) and orbitofrontal cortex (OFC). Biotin-tyramide signal amplification is useful for AR detection with both chromogenic and immunofluorescent immunohistochemistry.

References:

[1]. Low KL, Ma C, et al. Tyramide Signal Amplification Permits Immunohistochemical Analyses of Androgen Receptors in the Rat Prefrontal Cortex. J Histochem Cytochem. 2017 May;65(5):295-308. doi: 10.1369/0022155417694870. Epub 2017 Mar 1. PMID: 28438093; PMCID: PMC5407533.

Background

Biotin-tyramide is a biotin-labeled tyramine derivative and is the core reagent of the Tyramide Signal Amplification (TSA) technology. Biotin-tyramide can be oxidized to phenolic radicals under catalysis of HRP/H₂O₂ and covalently bind to tyrosine residues of target proteins for in situ deposition of biotin, while signal amplification is achieved through the streptavidin system. Biotin-tyramide can be used in studies detecting low-abundance targets such as IHC, IF, ISH^[1-4].

References:

- [1] Speel EJ, Hopman AH, Komminoth P. Tyramide signal amplification for DNA and mRNA in situ hybridization. Methods Mol Biol. 2006;326:33-60.
- [2] Niotis AE, Mastichiadis C, Petrou PS, et al. Dual-cardiac marker capillary waveguide fluoroimmunosensor based on tyramide signal amplification. Anal Bioanal Chem. 2010 Feb;396(3):1187-96.
- [3] Ganapathy US, Bai L, Wei L, et al. Compartment-Specific Labeling of Bacterial Periplasmic Proteins by Peroxidase-Mediated Biotinylation. ACS Infect Dis. 2018 Jun 8;4(6):918-925.
- [4] Li X, Chen B, He M, et al. Gold nanoparticle labeling with tyramide signal amplification for highly sensitive detection of alpha fetoprotein in human serum by ICP-MS. Talanta. 2018 Jan 1;176:40-46.

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