

# PRODUCT INFORMATION



## Dityrosine (hydrochloride)

Item No. 27657

**CAS Registry No.:** 2716849-01-1  
**Formal Name:**  $\alpha^3, \alpha^{3'}$ -diamino-6,6'-dihydroxy-[1,1'-biphenyl]-3,3'-dipropionic acid, dihydrochloride

**Synonyms:** Bityrosine, *o,o*-Dityrosine

**MF:**  $C_{18}H_{20}N_2O_6 \cdot 2HCl$

**FW:** 433.3

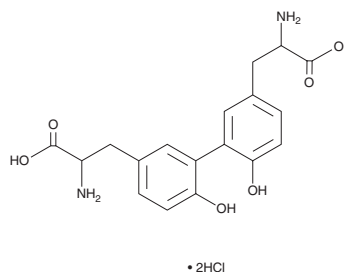
**Purity:**  $\geq 95\%$

**UV/Vis.:**  $\lambda_{max}$ : 288 nm

**Supplied as:** A solid

**Storage:**  $-20^\circ C$

**Stability:**  $\geq 4$  years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Dityrosine (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the dityrosine (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Dityrosine (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of dityrosine (hydrochloride) in these solvents is approximately 15, 10, and 5 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of dityrosine (hydrochloride) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of dityrosine (hydrochloride) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Dityrosine is a protein oxidation product that is formed by intermolecular cross-linking of two tyrosyl radicals generated from the interaction between reactive oxygen species (ROS) and tyrosine.<sup>1,2</sup> Intragastric administration of dityrosine (320  $\mu g/kg$  per day) decreases hippocampal expression of the NMDA receptor subunits *Nr1*, *Nr2a*, and *Nr2b* and induces memory impairments in a novel object recognition test in mice.<sup>2</sup> It increases fasting blood glucose levels and decreases plasma insulin levels and pancreatic expression of the insulin synthesis-related genes *Ins2*, *Pdx1*, and *MafA* in mice.<sup>3</sup> Increased levels of dityrosine are positively correlated with various diseases, including autism spectrum disorder, cataracts, Alzheimer's disease, Parkinson's disease, atherosclerosis, and cystic fibrosis.<sup>4,5</sup>

### References

1. Amadò, R., Aeschbach, R., and Neukom, H. *Methods Enzymol.* **107**, 377-388 (1984).
2. Ran, Y., Yan, B., Li, Z., et al. *Physiol. Behav.* **164(Pt A)**, 292-299 (2016).
3. Ding, Y.Y., Li, Z.Q., Cheng, X.R., et al. *Amino Acids* **49(8)**, 1401-1414 (2017).
4. Anwar, A., Abruzzo, P.M., Pasha, S., et al. *Mol. Autism* **9**, 3 (2018).
5. DiMarco, T. and Giulivi, C. *Mass Spectrom. Rev.* **26(1)**, 108-120 (2007).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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