



**L-Tyrosine, from non-animal source**  
**Cell culture tested, meets EP & USP testing specifications**

## Product Information

Product Number **T8566**  
Store at Room Temperature

### Product Description

Molecular Formula:  $C_9H_{11}NO_3$   
Molecular Weight: 181.2  
CAS Number: 60-18-4  
pI: 5.63<sup>1</sup>  
pK<sub>a</sub>: 2.20 (-COOH), 9.21 ( $\alpha$ -NH<sub>2</sub>),  
10.46 (phenolic OH)<sup>1</sup>  
 $\lambda_{max}$ : 223 nm, 274.5 nm (0.1 M HCl); 240 nm,  
293.0 nm (0.1 M NaOH)<sup>2</sup>  
Extinction coefficient:  $E^{mM} = 8.2$  (223 nm),  
1.4 (274.5 nm), in 0.1 M HCl; 11.05 (240 nm), 2.33  
(293 nm), in 0.1 N NaOH<sup>2</sup>  
Specific rotation: -10.6° (40 mg/ml, 1 M HCl, 22 °C),  
-13.2° (40 mg/ml, 3 N NaOH, 18 °C)<sup>3</sup>  
Synonyms: Tyr, Y,  $\beta$ -(*p*-hydroxyphenyl)alanine,  
*p*-tyrosine,  $\beta$ -amino-*p*-hydroxyhydrocinnamic acid,  
(*S*)- $\alpha$ -amino-4-hydroxybenzenepropanoic acid<sup>3</sup>

This product is cell culture tested (0.02 mg/ml) and is tested for endotoxin levels.

L-Tyrosine is one of the three aromatic amino acids, and is formed from the hydroxylation of phenylalanine. It was originally isolated from cheese, and the name tyrosine derives from tyros, the Greek word for cheese.<sup>4</sup> Tyrosine is a precursor for the synthesis of thyroid hormones and neurotransmitters such as dopamine and norepinephrine. The hydroxyl group on the aromatic side chain makes tyrosine less hydrophobic than phenylalanine. Tyrosine is degraded *in vivo* to fumarate and acetoacetate via the sequential enzymatic formation of *p*-hydroxypyruvate, homogenistate, 4-maleylacetoacetate, and 4-fumarylacetoacetate.<sup>5,6</sup>

L-Tyrosine is used in cell culture media and is a component of MEM amino acids solution (Product No. M 5550). L-Tyrosine has been used in a cell culture study of the amino acid transport system b<sup>0,+</sup> in epithelial cells isolated from chicken jejunum.<sup>7</sup>

A protocol for the on-line analysis of tyrosine containing peptides that combines electrochemistry and electrospray mass spectrometry has been reported. This procedure and the specificity of the conditions for tyrosine site cleavage also allow for distinguishing between phosphorylated and unphosphorylated tyrosine residues in peptides.<sup>8</sup>

### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

### Preparation Instructions

This product is soluble in 1 M HCl (25 mg/ml), yielding a clear, colorless solution.

### References

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2. Data for Biochemical Research, 3rd ed., Dawson, R. M. C., et al., Oxford University Press (New York, NY: 1986), pp. 30-31.
3. The Merck Index, 12th ed., Entry# 9970.
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5. Biochemistry, 3rd ed., Stryer, L., W. H. Freeman (New York, NY: 1988), pp. 18, 511-512.
6. Textbook of Biochemistry with Clinical Correlations, 5th ed., Devlin, T. M., ed., Wiley-Liss (New York, NY: 2002), pp. 97, 797-799.
7. Angelo, S., et al., Epithelial cells isolated from chicken jejunum: an experimental model for the study of the functional properties of amino acid transport system b<sup>0,+</sup>. Comp. Biochem. Physiol. A Mol. Integr. Physiol., **132(3)**, 637-644 (2002).
8. Permentier, H. P., et al., Electrochemical oxidation and cleavage of peptides analyzed with on-line mass spectrometric detection. Rapid Commun. Mass Spectrom., **17(14)**, 1585-1592 (2003).

GCY/RXR 3/07

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