Amplite® Colorimetric Tyrosine Assay Kit

Catalog number: 11331
Unit size: 100 Tests

Component	Storage	Amount (Cat No. 11331)
Component A: Tyrosine Enzyme	Freeze (< -15 °C), Minimize light exposure	2 Vials (Lyophilized powder)
Component B: Tyrosine Assay Buffer	Freeze (< -15 °C), Minimize light exposure	1 Bottle (20 mL)
Component C: Tyrosine Standard	Freeze (< -15 °C), Minimize light exposure	1 Vial (Lyophilized powder)

OVERVIEW

The Amplite™ Colorimetric Tyrosine Assay Kit provides a sensitive and efficient method for quantifying tyrosine levels in biological and biochemical samples. The assay utilizes a colorimetric reaction to produce a chromogenic product proportional to tyrosine concentration, enabling reproducible measurements for applications in amino acid metabolism, enzymology, and nutritional science.

The assay features a straightforward mix-and-read protocol with a total assay time of less than 60 minutes, making it suitable for high-throughput applications. It is compatible with sample types such as plasma, serum, and tissue lysates and includes a tyrosine calibration standard to support accurate quantification. The assay is optimized to minimize interference from endogenous components, ensuring reliable performance.

Tyrosine is a non-essential aromatic amino acid with roles in neurotransmitter synthesis, thyroid hormone production, and melanin biosynthesis. Abnormal tyrosine levels are associated with metabolic disorders such as phenylketonuria, tyrosinemia, and albinism, making its accurate quantification critical for research in metabolic and physiological processes.

AT A GLANCE

Protocol Summary

1. Prepare and add standards and samples (50 µL)
2. Prepare and add Tyrosine working solution to the standards and samples wells (50 µL)
3. Incubate the plate at room temperature for 30 to 60 minutes
4. Monitor the absorbance at 510 nm

Important: Bring all kit components to room temperature before starting the experiment.

KEY PARAMETERS

Absorbance microplate reader

Absorbance	510
Recommended plate	White plate/Clear bottom

PREPARATION OF STOCK SOLUTIONS

Unless otherwise noted, all unused stock solutions should be divided into single-use aliquots and stored at -20 °C after preparation. Avoid repeated freeze-thaw cycles

Tyrosine standard solution (100 mM)

1. Add 100 µL Assay Buffer (Component B) to Tyrosine Standard (Component C) and mix well to prepare a 100 mM tyrosine standard solution.

   Note: Store any unused Tyrosine stock solution at -20 °C.

Tyrosine Enzyme Stock Solution (25X)

1. Add 500 µL ddH_2O to Tyrosine Enzyme (Component A) and mix well to prepare a 50X Tyrosine Enzyme stock solutions

   Note: Store any unused Tyrosine Enzyme stock solution at -20 °C.

PREPARATION OF STANDARD SOLUTIONS

For convenience, use the Serial Dilution Planner:
https://www.aatbio.com/tools/serial-dilution/11331

Preparation of Standard Curve
Add 10 µL of 100 mM Tyrosine Standard solution to 990 µL Tyrosine Assay Buffer (Component B) to prepare a 1 mM Tyrosine solution (Tyr7). Take 300 µL of the Tyr7 solution and perform 1:2 serial dilutions in the Tyrosine Assay Buffer (Component B) to prepare the remaining Tyrosine Standards (Tyr6 to Tyr1), resulting in a concentration range from 500 µM to 15.6 µM.

PREPARATION OF WORKING SOLUTION

Tyrosine working solution

1. Make a 1:50 dilution by adding 20 µL Tyrosine Enzyme Stock Solution (50X) to 1 mL of Tyrosine Assay Buffer (Component B) and mix well.

   Note: Tyrosine working solution should be prepared immediately before use. We recommend using the working solution within 2 hours.

SAMPLE EXPERIMENTAL PROTOCOL

Table 1. Layout of Tyrosine standards and test samples in a clear bottom 96- wells microplate. Tyrosine standards (Tyr7-Tyr1 = 1000 µM to 15.6 µM), TS = Test Samples, BL = 0 µM Tyr.

Tyr7	Tyr7	TS	TS				
Tyr6	Tyr6						
Tyr5	Tyr5						
Tyr4	Tyr4						
Tyr3	Tyr3						
Tyr2	Tyr2						
Tyr1	Tyr1						
BL	BL						

The following protocol can be used as a guideline and should be optimized accordingly.

1. Prepare the standards and test samples according to the

recommended protocol. Add 50 µL of each into the wells of a microplate.

2. Add 50 µL Tyrosine working solution to each well containing standards and samples.
3. Incubate the reaction at room temperature for 30 to 60 minutes.
4. Monitor the absorbance with an absorbance plate reader at 510 nm.

EXAMPLE DATA ANALYSIS AND FIGURES

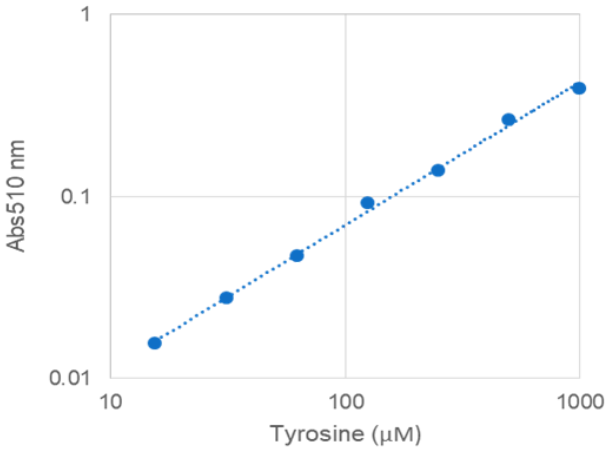

Figure 1. Tyrosine dose response was measured with Amplite® Colorimetric Tyrosine Assay Kit in a 96-well white plate using a SpectraMax microplate reader (Molecular Devices). The signal was acquired at 510 nm.

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