

Amplite® Colorimetric Tyrosinase Assay Kit

Catalog number: 11311
Unit size: 100 Tests

Component	Storage	Amount (Cat No. 11311)
Component A: Tyrosinase Standard	Freeze (< -15 °C), Minimize light exposure	1 vial
Component B: Assay Buffer	Freeze (< -15 °C)	1 bottle (20 mL)
Component C: Tyrosinase Substrate	Freeze (< -15 °C), Minimize light exposure	1 vial
Component D: Tyrosinase Enhancer	Freeze (< -15 °C), Minimize light exposure	1 vial (100 µL)

OVERVIEW

Amplite® Colorimetric Tyrosinase Assay Kit is a simple, one-step assay optimized for the reliable detection of tyrosinase activity in biological samples. Tyrosinase plays a critical role in melanin biosynthesis and is a key target in drug discovery, cancer research, and cosmetic science. This assay utilizes a proprietary colorless substrate that, upon enzymatic reaction with tyrosinase, generates a chromogenic product with strong absorbance at 510 nm. The increase in absorbance is directly proportional to tyrosinase activity, allowing sensitive quantification using a standard microplate reader. The kit is ideal for screening tyrosinase inhibitors, studying melanoma-related illnesses, and assessing enzyme activity in pigment-related pathways across pharmaceutical and food industries.

AT A GLANCE

Protocol Summary

1. Prepare and add standards and samples (50 µL)
2. Prepare and add Tyrosinase Substrate 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 480 nm

Important Note

Bring all the kit components at room temperature before starting the experiment.

KEY PARAMETERS

Absorbance microplate reader

Absorbance 480 nm
Recommended plate Clear plate or 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

Tyrosinase stock solution (2000 U/mL)

Add 120 µL Assay Buffer (Component B) into Tyrosinase Standard (Component A) and mix well.

Note: Store the unused Tyrosinase stock solution at -20 °C in single use aliquots.

Tyrosinase Substrate stock solution (50X)

Add 100 µL ddH₂O into Assay Substrate (Component C) and mix well.

Note: Store the unused Tyrosinase Substrate stock solution at -20 °C in single use aliquots.

PREPARATION OF STANDARD SOLUTIONS

For convenience, use the Serial Dilution Planner:
<https://www.aatbio.com/tools/serial-dilution/11311>

Tyrosinase standard

Use Tyrosinase stock solution (2000 U/mL) and Assay Buffer to generate 400 U/mL final concentration of Tyrosinase Standard solution (T1). Then perform 1:2 serial dilutions to get remaining serially diluted Tyrosinase Standards (T2-T7). Note: The final in well concentration of the standards will be 2X. Note: With provided standard, 2 standard curves can be performed in duplicates if using at suggested concentrations.

PREPARATION OF WORKING SOLUTION

Tyrosinase Substrate working solution

Make a 1:50 dilution by adding 20 µL Tyrosinase Substrate stock solution (50X) and 20 µL Tyrosinase Enhancer (Component D) into 1 mL Assay Buffer (Component B) and mix well.

Note: Tyrosinase Substrate working solution should be made immediately upon use. We recommend using working solution within several hours.

SAMPLE EXPERIMENTAL PROTOCOL

Table 1. Layout of Tyrosinase standards and test samples in a white-clear bottom 96- wells microplate. Tyrosinase standards (T1-T7= 400 to 6.25 U/mL), TS= Test Samples, BL= Blank samples

T1	T1	TS	TS
T2	T2		
T3	T3		
T4	T4		
T5	T5		
T6	T6		
T7	T7		
BL	BL		

The following protocol can be used as a guideline and should be optimized according to the needs.

1. Prepare the standards and test samples as per recommendations in assay buffer and add 50 µL of each in a microplate.
2. Add 50 µL Tyrosinase Substrate working solution to the wells of 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 480 nm.

EXAMPLE DATA ANALYSIS AND FIGURES

The reading (A480 nm) obtained from the blank standard well is used as a negative control. Subtract this value from the other standards' readings to obtain the base-line corrected values. Then, plot the standards' readings to obtain a standard curve and equation. This equation can be used to calculate Tyrosinase samples. We recommend using the Online Linear Regression Calculator which can be found at:

<https://www.aatbio.com/tools/linear-logarithmic-semi-log-regression-online-calculator>

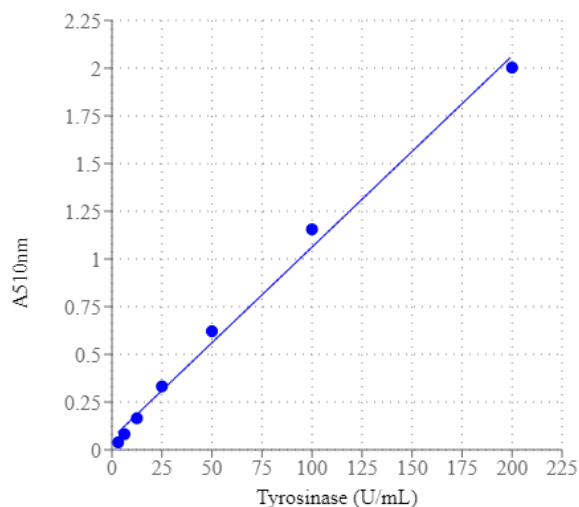


Figure 1. Tyrosinase dose response was measured with Amplite® Colorimetric Tyrosinase Assay Kit in a 96-well white plate using a SpectraMax microplate reader (Molecular Devices). Equal volume of Tyrosinase standards and Tyrosinase Substrate with enhancer were added and incubated for 30 minutes at room temperature. The signal was acquired at 480 nm.

DISCLAIMER

AAT Bioquest provides high-quality reagents and materials for research use only. For proper handling of potentially hazardous chemicals, please consult the Safety Data Sheet (SDS) provided for the product. Chemical analysis and/or reverse engineering of any kit or its components is strictly prohibited without written permission from AAT Bioquest. Please call 408-733-1055 or email info@aatbio.com if you have any questions.