

Soil Leucine Aminopeptidase (S-LAP) Activity Assay Kit**Product code:** 67056**Method:** Spectrophotometric method**Size:** 50T**Product Introduction**

Soil leucine aminopeptidase (S-LAP) is a class of enzymes secreted by soil microorganisms that hydrolyze peptide chains with N-terminal leucine. Changes in S-LAP activity are closely related to certain pathological states of the body.

S-LAP breaks down L-leucyl-p-nitroanilide to produce p-nitroaniline, which has a maximum absorption peak at 405 nm. S-LAP activity is calculated by measuring the rate of increase in absorbance.

Package Contents

Code	Component	Quantity
67056.1	Reagent I	1 bottle
67056.2	Reagent II	1 bottle
67056.m	Instructions	1 copy

Quality Standards and Safety Information

Raw Material or Packaging Name	Quality Standard	Main Toxicity
Reagent I	--	--
Reagent II	--	--

Transportation and Storage

Transportation	Transport with ice packs.
Storage	Store Reagent I at 4°C and Reagent II at -20°C.
Shelf Life	180 days

Instructions for Use**1. Reagent Preparation**

1. Add 30 mL of Reagent I to the Reagent II bottle and dissolve thoroughly.
2. If dissolution is difficult, heat in a 60°C water bath for about 30 min to promote dissolution.
3. Place the prepared reagent in a 37°C water bath for mammals, or a 25°C water bath for other species, for 10 min or longer before use.
4. Aliquot any unused reagent and store at -20°C. Do not freeze and thaw repeatedly.

2. Assay Procedure

1. Preheat the spectrophotometer for 30 min or longer. Set the wavelength to 405 nm and zero with distilled water.

2. Add samples according to the table below.

Component	Control Tube	Assay Tube
Fresh soil sample (g)	0.2	0.2
Reagent I (μL)	1200	-
Reagent II (μL)	-	1200

3. Mix well and incubate with shaking at 37°C for 1 h.

4. Centrifuge at 8000 g and 4°C for 10 min.

5. Transfer 1 mL of supernatant into a cuvette and measure the absorbance at 405 nm.

6. Calculate $\Delta A = A_{\text{assay}} - A_{\text{control}}$. Set one control tube for each assay tube.

3. S-LAP Activity Calculation

Unit definition: The amount of enzyme in 1 g soil sample that generates 1 μmol p-nitroaniline per day is defined as one unit of enzyme activity.

$$\text{S-LAP activity } (\mu\text{mol/d}\cdot\text{g}^{-1}, \text{ soil sample}) = \Delta A \times V_{\text{total reaction}} \div (\epsilon \times d) \times 10^6 \div W \div T = 14.8 \times \Delta A$$

Symbol	Description	Value
$V_{\text{total reaction}}$	Total volume of the reaction system	$1.2 \times 10^{-3} \text{ L}$
ϵ	Molar extinction coefficient of p-nitroaniline	$9.72 \times 10^3 \text{ L/mol}\cdot\text{cm}^{-1}$
d	Optical path length of the cuvette	1 cm
T	Reaction time	1 h = 1/24 d
W	Sample mass	0.2 g

Precautions

- This 50T kit can test 24 samples.