

## DAB-Stained Sample Preservation Solution (For Plant)

Cat. No.: D1511471 | Pack size: 500ml | Storage: Room temperature

### Product Description

Plant tissues produce various reactive oxygen species (ROS) under stress conditions. Due to their high reactivity and poor stability, ROS are typically analyzed by detecting their downstream products. Hydrogen peroxide is a common ROS. Catalyzed by catalase, it can rapidly react with DAB (3,3'-Diaminobenzidine tetrahydrochloride) to produce a brownish-red product, enabling the localized detection of hydrogen peroxide in tissues. This method is also known as the DAB staining method and is suitable for in situ staining of hydrogen peroxide in living plant tissues.

The DAB Staining Sample Preservation Solution (for Plant) is specifically designed for preserving plant samples after localized hydrogen peroxide staining. It allows stained samples to be stored stably at room temperature for one week and is primarily suitable for whole-mount staining samples of materials such as young root tips and leaves. Areas with hydrogen peroxide accumulation appear brown to dark brown after staining. This product is for research use only and not intended for clinical diagnosis or other non-research purposes.

### Materials to Be Prepared by User

Fresh plant leaves or roots, tap water, distilled water, 95% ethanol.

Ultrasonic cleaner, magnetic stirrer, electronic balance, filter paper, camera.

DAB Staining Solution (for Plant Use).

### Procedure (For Reference Only)

**Sample Preparation:** Collect stressed (e.g., by heavy metals) plant seedlings or root tips. Rinse briefly with tap water and place on filter paper to remove excess moisture.

**Staining:** Immerse the plant seedlings or root tips in the DAB Staining Solution. Stain at room temperature, protected from light, for 2~6 hours, until positive areas develop a dark brown color, while other areas remain nearly colorless or retain the plant's natural color. (Adjust staining time based on plant tenderness and degree of color development.)

**Destaining (Chlorophyll Removal):** Carefully remove the seedlings or leaves with forceps. Rinse by immersing and agitating in distilled water 3~5 times. Place on filter paper to remove excess water, then immerse in 95% ethanol and treat at 40°C for 3~16 hours. The purpose is to remove the

chlorophyll from the seedlings or leaves. Replace with fresh 95% ethanol several times during this process.

**Observation and Preservation:** Remove the seedlings or leaves with forceps. Rinse by immersing and agitating in distilled water 3~5 times. Place on filter paper to remove excess water. Transfer the sample to an adequate amount of DAB Sample Preservation Solution and soak for 30 minutes. Subsequently, the sample can be removed for photography. The sample can be stored in this preservation solution at room temperature for up to one week.

## Notes

Once prepared, the DAB staining working solution should be stored at 4°C, protected from light, and used within one week. Prolonged storage may affect color development.

Since hydrogen peroxide is prone to decomposition and any external factors may stimulate its stress-induced production in plants, plant samples should be freshly collected and stained as soon as possible. It is recommended to include negative and positive control groups.

Photograph the stained samples as soon as possible after staining to preserve the results. DAB may be carcinogenic. Handle with care and avoid direct contact.

For the staining and destaining steps, the following alternative procedure is also recommended: Place the tissue in the staining solution, apply vacuum to -0.1 MPa, maintain the negative pressure for 20~30 minutes, then let it stain at room temperature for 60 minutes. Discard the staining solution. Add 95% ethanol and destain in a water bath at 70~80°C, changing the 95% ethanol every 10 minutes. Destaining can be stopped once the green color of the sample has completely faded.

For your safety and health, please wear a lab coat and disposable gloves during operation. Use the reagents as soon as possible after opening to avoid affecting subsequent experimental results.

## Recommended DAB Staining Solution Product Numbers:

D1509200 DAB Staining Solution (1.0 mg/mL, pH 3.8, for Plant Use).

D1509202 DAB Staining Solution (1.0 mg/mL, pH 5.5, for Plant Use).

D1509203 DAB Staining Solution (2.0 mg/mL, pH 3.8, for Plant Use).

## Product Information

| Item         | Information                                                                                         |
|--------------|-----------------------------------------------------------------------------------------------------|
| Cat. No.     | D1511471                                                                                            |
| Product Name | DAB-Stained Sample Preservation Solution (For Plant) - BioReagent, for microscopy, Biological Stain |

| Item        | Information                                                             |
|-------------|-------------------------------------------------------------------------|
| Synonyms    | Plant Section Preservation Solution (Post-DAB Staining)                 |
| Storage     | Room temperature                                                        |
| Shipped In  | Normal                                                                  |
| Application | Research use applications described in the Product Description section. |

## Specifications

| Parameter               | Specification                                           |
|-------------------------|---------------------------------------------------------|
| Synonyms                | Plant Section Preservation Solution (Post-DAB Staining) |
| Specifications & Purity | BioReagent, for microscopy, Biological Stain            |
| Stability And Storage   | Store at room temperature long term (12 months).        |
| Storage                 | Room temperature                                        |
| Shipped In              | Normal                                                  |

## Safety & Precautions

- Read the current Safety Data Sheet (SDS) before use and follow local laboratory safety and EHS requirements.
- Wear appropriate personal protective equipment, including lab coat, gloves, and eye protection.
- Use only for research and laboratory applications. Do not use for human or animal diagnostics, therapeutics, food, household, or cosmetic applications.

## Quality Control

| QC Item                             | Method                       | Acceptable Range                                                                                 |
|-------------------------------------|------------------------------|--------------------------------------------------------------------------------------------------|
| Appearance                          | Visual inspection            | Solution should be clear and free from visible contamination unless otherwise stated on the COA. |
| Product identity and specifications | Lot-specific quality testing | Conforms to the approved product specification and certificate of analysis.                      |

| QC Item               | Method                         | Acceptable Range                                                                              |
|-----------------------|--------------------------------|-----------------------------------------------------------------------------------------------|
| Storage and packaging | Label and packaging inspection | Pack size, storage condition, lot number, and expiry information are verified before release. |

## Troubleshooting

| Issue                                 | Possible Causes                                                   | Corrective Action                                                                                                                    |
|---------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Product performance below expectation | Suboptimal sample preparation or incompatible workflow conditions | Review the Product Description and optimize reagent amount, incubation time, and sample handling.                                    |
| Inconsistent results                  | Variation in sample type, storage, or operator technique          | Use consistent sample preparation, follow the recommended storage condition, and validate the workflow for the intended application. |
| Storage deviation                     | Temperature or light exposure outside labeled conditions          | Consult the SDS and COA before use. Discard material if performance or safety is uncertain.                                          |

## Recommended Applications

Research use applications described in the Product Description section.

## Contact & Global Offices

Whether you have a technical question, need help with a quotation, or want to inquire about an order, our regional teams are ready to assist. Please contact the office for your region; for general inquiries, the North American office is the corporate primary.

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## Limitations & Disclaimer

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- For Research Use Only (RUO). Not for use in human or animal diagnostics, therapeutics, or in vivo applications. Not for food, cosmetic, or household use.
- This product is not a CE-marked in vitro diagnostic device under IVDR (EU) 2017/746 and is not an FDA-cleared device under 21 CFR. Use is restricted to verified businesses, institutions, and qualified professionals for research and development purposes.
- Where any component is classified as hazardous under CLP (EC) 1272/2008 or OSHA HCS (29 CFR 1910.1200), the product Safety Data Sheet (SDS) takes precedence over this document for handling, storage, and disposal information.
- Performance depends on sample type, sample condition, handling, and operator technique. Users are responsible for validating the product for their specific application.
- Aladdin product labels, SDS, COA, and approved specifications take precedence over this document. If product formulation, label, SDS, storage conditions, pack size, or quality specifications change, this document should be reviewed and reissued.