
Plant Tissue Clearing Solution (Medium Speed)

Cat. No.: P1525486 | Pack size: 100ml | Storage: Room temperature

Overview

In botanical experiments, traditional methods fail to observe multi-layered structures of plant tissues. This is because pigments in specimens absorb light waves and varying refractive indices across different parts of the sample lead to light scattering, which hinders microscopic observation. To better visualize internal structures of plant tissues, numerous tissue clearing techniques have been developed and applied to plant tissue imaging over the past two decades, enabling observation of endophytic and epiphytic pathogens as well as fluorescent proteins.

Common plant tissue clearing approaches fall into two categories: organic solvent-based and aqueous solvent-based methods. Chloral hydrate is the most widely used option, yet it has a pungent odor and poses poor user experience.

This product adopts an aqueous solvent-based clearing strategy optimized and improved on the basis of the ClearSee clearing method to resolve tissue browning. It is suitable for whole-mount clearing of delicate young leaf tissues with a moderate processing period, achieving complete transparency within 3 to 5 days while preserving tissue structure relatively intact. It is not recommended for highly lignified plant samples. This reagent is exclusively for scientific research and must not be used for clinical diagnosis or other purposes.

Materials to Be Prepared by User:

1. Vacuum pumping device, tweezers, microscope, glass slides.
2. 4% Paraformaldehyde Fixative (4% PFA) or 10% Neutral Buffered Formalin Fixative (10% NBF), 1×PBS, distilled water, Plant Tissue Preservation Solution, Dilute Aniline Blue Staining Solution, Glycerol Mounting Medium, graded ethanol, xylene or eco-friendly dewaxing clearing solution, Canada Balsam.

Operating Procedures (For Reference Only):

1. Collect fresh tissues and immerse them in 4% PFA or 10% NBF fixative. Apply negative pressure to sink the tissues to the bottom and fix for 12–24 hours.
2. Use tweezers to transfer tissues into 1×PBS and rinse twice, 2–3 minutes per wash.
3. Take out the tissues with tweezers and submerge them in Medium-speed Plant Tissue Clearing Solution for room-temperature incubation and clearing over 3–5 days.

4. Retrieve tissues, rinse with distilled water, and store in Plant Tissue Preservation Solution.
5. (Optional) Place rinsed tissues on a glass slide, add dilute aniline blue stain for 1–3 hours, apply glycerol mounting medium and cover with a coverslip for observation.
6. For permanent slide preparation, perform dehydration with graded ethanol followed by treatment with xylene or dewaxing clearing solution, then mount and seal with Canada Balsam.

Precautions:

1. Tissues must undergo thorough degassing and fixation; insufficient pretreatment will impair subsequent penetration and clearing effects.
2. This reagent delivers optimal clearing performance on young and thin leaf tissues, whereas mature tissues require a longer clearing duration.
3. Adjust clearing duration according to tissue type. Vacuum negative pressure treatment can shorten processing time. Replace the clearing solution with a fresh batch if the liquid turns visibly discolored to continue clearing.
4. Use the reagent promptly after opening to avoid compromised experimental results.
5. Wear a lab coat and disposable gloves throughout operation to protect personal safety and health.

Specifications

Item	Information
Synonyms	Plant Tissue Transparent Solution (Medium)
Specifications & Purity	BioReagent
Stability And Storage	Store at room temperature long term (12 months).
Storage	Room temperature
Shipped In	Normal

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

- 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 kit 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 kit 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 would be reviewed and reissued.