
Citrate Decalcifying Solution

Cat. No.: C1525465 | Pack size: 500 mL | Storage: Room temperature

Overview

During tissue sectioning, tissues containing bone or calcified foci are not suitable for direct paraffin embedding and sectioning. This is because the density difference between calcium and paraffin makes it difficult to obtain intact sections. For calcium-containing tissues, it is best to perform decalcification after fixation or carry out fixation and decalcification simultaneously, followed by downstream procedures such as dehydration, clearing, wax infiltration, embedding and sectioning. There are many reagents available for decalcification, including organic acids, inorganic acids, ethylenediaminetetraacetic acid (EDTA) and electrolytic decalcification methods. Citrate Decalcification Solution is a buffered decalcifying solution and belongs to the category of slow decalcifying solutions. It is mainly composed of citric acid, citrate salts, zinc sulfate and other components, with a pH value of approximately 4.5. Its advantages are as follows: ① It yields excellent tissue staining results; ② It causes minimal damage to tissue structure. Its disadvantages include: ① The decalcification speed is very slow, making it unsuitable for decalcification of routine specimens; ② Tissues will harden slightly after decalcification. This reagent is only for scientific research use and is not suitable for clinical diagnosis or other purposes.

Required Materials to Be Prepared by the User:

1. PBS, distilled water.
2. Heating device or microwave oven, dedicated glass containers for decalcification.

Operating Procedures (For Reference Only):

1. When decalcifying bone tissue, do not take overly thick samples; the recommended thickness is approximately 5 mm.
2. After tissue fixation, rinse the tissue with PBS 3 times, 20 minutes each time.
3. Wash the tissue with distilled water 3 times, 20 minutes each time.
4. Transfer the tissue into 20~30 times its volume of Citrate Decalcification Solution for decalcification for 15~30 days or longer. If you want to accelerate the decalcification speed, you can place the tissue at 37°C for decalcification. If necessary, replace with fresh Citrate Decalcification Solution to continue decalcification. Most tissues can be completely decalcified within 2 weeks to 3 months, and the solution should be replaced once a week until the decalcification endpoint is reached. Microwave-assisted rapid decalcification is also available: set the microwave to about 200W, heat for 5 minutes each time, repeat the heating for 3~5 minutes according to the thickness and density of the tissue, with an interval of 3~5 minutes between each heating cycle.
5. Rinse the tissue several times with distilled water.

6. Perform routine dehydration and embedding.

Precautions:

1. For a 5 mm-thick bone tissue block, the decalcification time is generally 10~30 days, and most of them can be completely decalcified within 14~60 days.
2. Moderate heating can accelerate the decalcification speed, but the temperature should not exceed 37~40°C. Excessively high temperature is likely to cause bone tissue to loosen and disintegrate, and the temperature must never exceed 60°C.
3. Decalcification should be thorough to prevent insufficient or excessive decalcification. The degree of decalcification should be controlled to ensure that it does not affect tissue sectioning while shortening the decalcification time as much as possible, so as to avoid tissue damage caused by prolonged decalcification.
4. Avoid using metal containers for decalcification; glass containers are preferred.
5. For bone tissue decalcification, fixation should be performed first followed by decalcification, or fixation and decalcification can be carried out simultaneously. Decalcification before fixation is not allowed to reduce tissue damage.
6. Check the degree of decalcification at regular intervals. Excessive decalcification will increase tissue damage and affect staining results.
7. For your safety and health, wear a lab coat and disposable gloves during operation.

Appendix:

Determination of Decalcification Endpoint (Physical Method): Use methods such as needle puncture, manual pinching, and forceps clamping. Terminate decalcification when the bone tissue softens or no resistance is felt during needle puncture. The physical detection method may cause certain damage to the tissue structure, so avoid using excessive force or repeated detection.

Specifications

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

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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.
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