

Product Datasheet

www.leinco.com



ADAPT-3D™ Decalcification Buffer

Product Information

Product No.: B670

Product Description

Background:

Effective 3D fluorescence imaging of biological specimens often requires rendering tissues optically transparent, a process broadly known as tissue clearing. In many clearing workflows, soft tissues (e.g., brain, liver, intestine) are treated to remove lipids and other light-scattering components. However, when working with hard or calcified tissues—such as bone, teeth, or mineralized cartilage—additional steps must be taken to eliminate calcium deposits that would otherwise prevent uniform clearing and obscure fluorescence signals. The ADAPT-3D™ Decalcification Buffer addresses this challenge by gently solubilizing mineral content without damaging the underlying tissue architecture or quenching fluorophores.

During the decalcification step, specimens are immersed in the ADAPT-3D™ Decalcification Buffer, which contains chelating agents and mild acids designed to dissolve calcium salts. This process typically occurs prior to lipid removal, ensuring that the dense mineral matrix is removed first so that subsequent permeabilization and delipidation steps can proceed more evenly. By preserving cellular and extracellular structures—including collagen networks, vascular channels, and embedded antigens—this buffer prepares hard tissues for downstream immunostaining, delipidation, and refractive index matching.

Once decalcification is complete, the tissue is washed to eliminate any remaining buffer components, then subjected to the rest of the ADAPT-3D™ clearing protocol (e.g., partial delipidation, full clearing, immunostaining). Because mineralized tissues tend to scatter light more than soft tissues, failing to decalcify can lead to uneven transparency, reduced antibody penetration, and poor imaging depth. In contrast, properly decalcified samples achieve improved optical clarity, allowing researchers to visualize cellular architecture and protein localization in three dimensions—whether examining bone marrow niches, osteocyte lacunae, or neural pathways that traverse mineralized regions.

By integrating the ADAPT-3D™ Decalcification Buffer into the workflow, researchers can confidently include hard tissues in their 3D imaging studies, unlocking new opportunities to study developmental biology, pathologies of the skeletal system, and the interface between soft and hard tissues.

Storage and Stability

Store the buffer at room temperature in a dry environment, ensuring it is protected from moisture and temperature fluctuations. Do not freeze the product; when stored as directed, it maintains full potency and stability for up to six months.

Products are for research use only. Not for use in diagnostic or therapeutic procedures.

410 Axminister Dr, St. Louis, MO 63026

(800) 538-1145

leincoglobal@leinco.com

Product Datasheet

www.leinco.com

Country of Origin
USA



Products are for research use only. Not for use in diagnostic or therapeutic procedures.

410 Axminister Dr, St. Louis, MO 63026

(800) 538-1145

leincoglobal@leinco.com