



MILESTONE

H E L P I N G
P A T I E N T S



**BOOSTING BONE MARROW QUALITY WITH
OPTIMIZED FIXATION AND DECALCIFICATION**



LeanDECAL
Automated Bone Marrow
Decalcification System

REFINING BONEMARROW DECALCIFICATION PROCESSES

Decalcification is a crucial step that must be performed before processing to **remove the calcium component** and **optimally prepare the bone tissue** for the subsequent stages. Bone marrow specimens are the most analyzed type of bone specimens in AP labs, and since they have a composition completely different from normal bone, they require specialized protocols and dedicated gentle reagents to perform decalcification without altering their quality and integrity. This is where LeanDECAL comes in: an innovative tool that **automates both the fixation and decalcification processes**. **By streamlining these processes**, LeanDECAL not only expedites the workflow but also improves consistency and standardization, offering a **faster, standardized, and more reliable alternative to traditional manual techniques**.





AUTOMATIC PROCESS

ENHANCED SPECIMEN SAFETY

FAST PROCEDURE

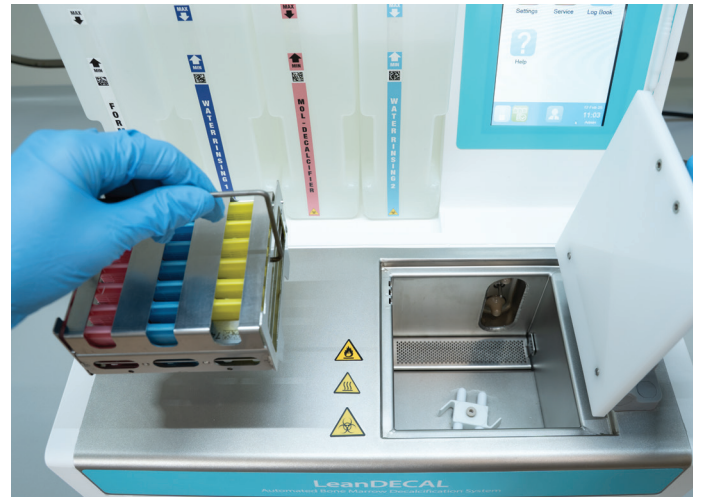
OPTIMAL QUALITY

FULL DOCUMENTATION

| AUTOMATIC PROCESS

LeanDECAL offers an automated and standardized approach to fixation and decalcification. Its setup includes a **temperature-controlled cavity with an integrated magnetic stirrer**, ensuring uniform reagent temperature distribution and consistent flow across the bone marrow surface.

The system operates autonomously, dispensing reagents into the cavity and returning them to their designated tanks upon completion of each step. The operator only needs to select the most appropriate protocol for the specimens, guaranteeing reliable and standardized results with each cycle.



| ENHANCED SPECIMEN SAFETY

LeanDECAL guarantees specimen safety through a comprehensive range of built-in features*:

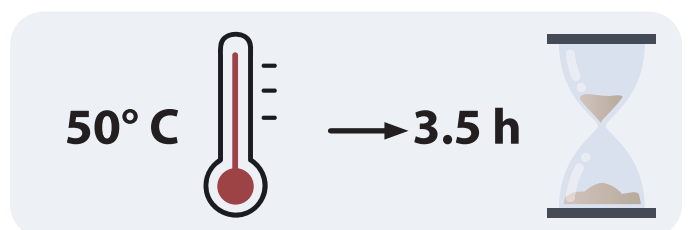
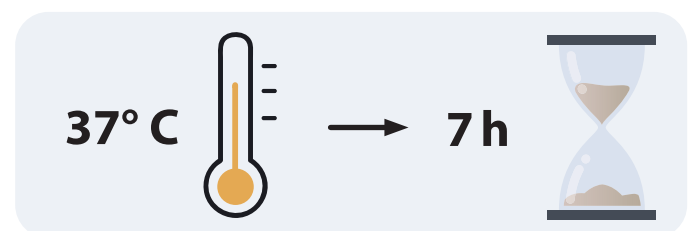
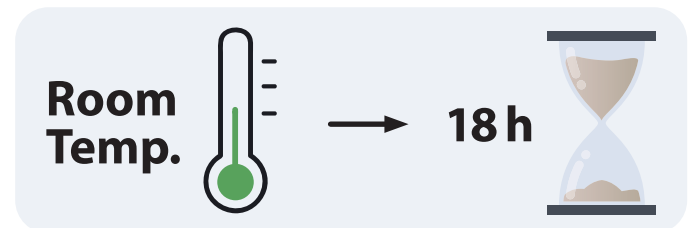
- » **Temperature sensor:** continuously monitors the reagent temperature
- » **Reagent level sensors:** control the reagent volume in the cavity
- » **Cover sensor:** monitors the secure closure of the cavity during runs.
- » **Specimen cavity filter:** collects any potential residue.
- » **Spillage tray:** located beneath the system, it collects any potential reagent spillages.

Additionally, the system keeps users informed about the lifespan of reagents, providing timely alerts for replacements when necessary. Users can follow a guided procedure that includes scanning tank barcodes, ensuring full control and traceability.



| FAST PROCEDURE

Temperature control plays a crucial role in the decalcification process. LeanDECAL is a tool that combines temperature and automation to accelerate the procedure and achieve superior performance compared to manual methods carried out at room temperature.



The reported times were obtained from a decalcification process using pure EDTA on a 1.5 mm-thick bone marrow biopsy.

*To ensure complete safety during operations, LeanDECAL must be used in accordance with Milestone's instructions, found in the operating manual.

| FULL DOCUMENTATION

Every process is documented and can be transferred to a USB stick and printed for quality assurance and compliance purposes. This includes:

- **Saved Runs**
 - » Fixatives/decalcification solutions used
 - » Time and date of fixation/decalcification run
 - » Duration and temperature of fixation/decalcification phase
- **Events log**
- **Reagents log**



| THE PERFECT MATE

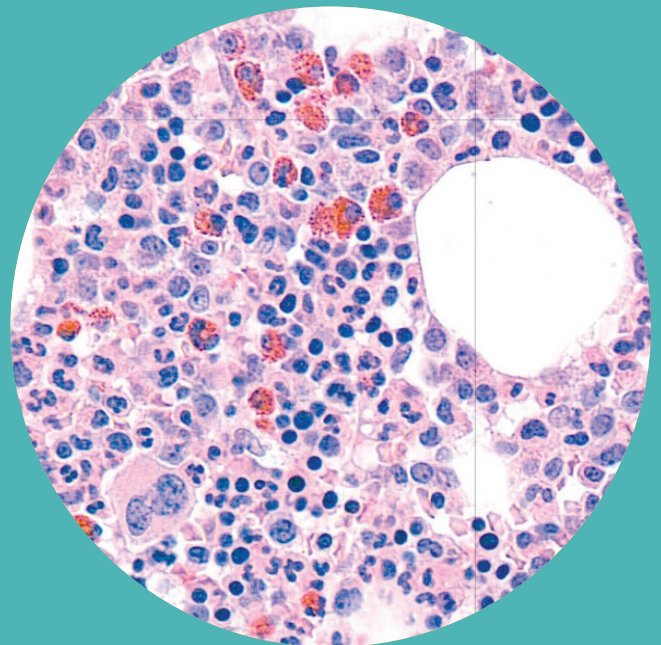
Milestone has developed its own EDTA solution MoL-DECALCIFIER, based on a stoichiometric mixture of bibasic and tribasic EDTA to achieve a pH of 7.2-7.4 — the optimal range for faster decalcification — without requiring an acid/base buffer.

MoL-DECALCIFIER perfectly complements LeanDECAL, as its interaction with controlled temperature and stirring of LeanDECAL facilitates the fixation and decalcification of bone marrow samples within a few hours.



| OPTIMAL QUALITY

Through the use of standardized protocols and reagents specifically designed, optimal results are achieved **without compromising tissue morphology or immunohistochemical analysis**. Furthermore, even in molecular studies—which are now a cornerstone of diagnostic workflows—the use of EDTA- and other soft acid-based decalcifying agents has been shown to **enhance both the quantity and quality of nucleic acids**, preserving essential material for biomarker-targeted therapies and gene expression profiling. ("Analysis of the effect of various decalcification agents on the quantity and quality of nucleic acid (DNA and RNA) recovered from bone biopsies" - Veena M. Singh et al. 2013).



Representative H&E-stained section of bone marrow.

ENHANCED
DECALCIFICATION,
EVEN FOR MOLECULAR
STUDIES

| OTHER MILESTONE SOLUTIONS FOR DECALCIFICATION



DecalMATE

Automated Fixation and
Decalcification System
for Bone Tissues



BoneSTATION

Advanced System
for Fixation
and Decalcification
of Bone Tissues



KOS

Multifunctional
Tissue Processor

MILESTONE HELPING PATIENTS

Milestone is a company headquartered in Northern Italy and was founded in 1988 as a corporation specializing in advanced microwave instrumentation for analytical and organic chemistry labs. As the technology leader in pre-analytical instrumentation, Milestone supports a worldwide installed

base of over 25.000 systems. In 1994, Milestone established a separate Medical Division to expand our expertise in the crucial pre-analytical phase to the world of histopathology. We pioneered the first microwave rapid tissue processor for same-day diagnosis and the first macro-digital system to enhance the grossing step. Today, our rapid tissue processors, macro-digital imaging systems, and pre-analytical instrumentation are used every day in the most renowned clinical and research laboratories around the world. But we never stop. We continue to lead the industry with constant innovation and improvement. Driven by the leading principle we live by, Helping patients.

Specifications are subject to change without notice

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