

NEWSLETTER



THE COMPLETE PATHOLOGY LAB WORKFLOW: FROM SPECIMEN TO DIAGNOSIS

Every diagnostic conclusion in histopathology **depends on what happened before the microscope**. A tissue sample passes through a precisely ordered sequence of preparation steps — each one affecting section quality, staining fidelity, and ultimately the accuracy of the diagnosis.

When any step is poorly controlled, the consequences cascade: Distorted cells, uneven stain uptake, torn sections, or misplaced slides that delay or compromise patient care.

Torontech's pathology equipment portfolio is designed as a coordinated workflow system rather than isolated instruments.

Each product family addresses a specific stage in the histology pipeline, and together they give hospitals, research institutes, and teaching laboratories a single-supplier solution for the complete specimen-to-slide journey.

4 STEPS TO DIAGNOSTIC CONFIDENCE



STEP 1

Processing and Embedding



STEP 2

Precision Sectioning



STEP 3

Treatment and Staining



STEP 4

Secure Archiving

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STEP 1

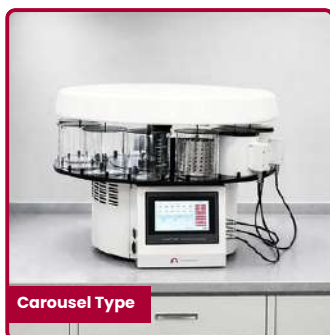
PROCESSING AND EMBEDDING

Before a tissue block can be sectioned, it must be chemically fixed, dehydrated, cleared, and infiltrated with paraffin wax — then precisely embedded in a mold for cooling and stabilization. The ToronTP™ Tissue Processor and ToronTES™ Embedding System handle this critical preparation stage.

Tissue Processor ToronTP™ Series



Linear Closed Type



Carousel Type

Automates the full tissue preparation sequence:
Fixation → Dehydration → Clearing → Paraffin Infiltration.
Eliminates manual reagent changes and overnight processing errors.

Features/Advantages:

- **Two System Styles:** ToronTP™ 1500 uses 14 stations (10 reagent + 4 paraffin) in a compact closed format that reduces evaporation; ToronTP™ 2300 uses a 12-station carousel for flexible batch loading.
- **Dual-basket Support:** Both models support two baskets running simultaneously with independent programmable control — maximizing throughput without sacrificing flexibility.
- **Optional Vacuum & Fume-control Hood:** ToronTP™ 2300 supports vacuum-assisted infiltration and a fume-exhaust hood for safer operator environments.
- **Safety Automation:** Obstacle protection, audible alarms, error codes, and password-protected access for reliable unattended overnight processing.

Tissue Embedding System ToronTES™ Series



From Basic System



to High-Throughput Workstations

Positions processed tissue in paraffin-filled molds on a heated working surface, then cools the block solid for sectioning. Precision here determines block quality and section ribbon quality.

Features/Advantages:

- **Scalable Workstation Platform:** Five configurations are available, ranging from compact single-user systems to high-throughput workstations with advanced cooling and temperature-controlled embedding capabilities.
- **Dual-basket Support:** Both models support two baskets running simultaneously with independent programmable control — maximizing throughput without sacrificing flexibility.
- **Optional Vacuum & Fume-control Hood:** ToronTES™ 2300 supports vacuum-assisted infiltration and a fume-exhaust hood for safer operator environments.
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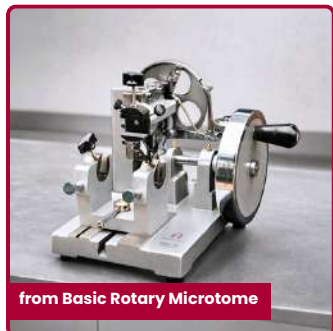
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STEP 2

PRECISION SECTIONING

Sectioning converts a solid paraffin block — or a freshly frozen specimen — into ribbons of 2–10 μm thin slices, thin enough for light to pass through for microscopic examination. The ToronTome™ Microtome handles paraffin sections; the ToronCryo™ Cryostat handles frozen tissue.

Tissue Processor ToronTP™ Series



from Basic Rotary Microtome



to Fully Automatic Microtome

Cuts paraffin-embedded tissue into precise ribbon-forming sections for routine diagnostic histology, research, and teaching. Section thickness accuracy directly affects staining and cellular visibility.

Features/Advantages:

- **Scalable Range:**
 - ToronTome™ 200 suits teaching;
 - ToronTome™ 530 adds touchscreen, stepper motor, and rocking mode;
 - ToronTome™ 550 provides fully motorized dual-control sectioning with remote and foot-switch options.
- **Specimen Retraction:** Pulls the sample away from the blade during return travel — reducing smearing, blade wear, and section artifacts on all motorized models.
- **Memory Positioning + Rocking Mode:** One-touch return to saved position and short-stroke rocking accelerates block-facing and reduces tissue waste
- **Paraffin clamp cooling (500/550):** Keeps block temperature stable during cutting — critical for consistent ribbon formation in warm ambient conditions

Cryostat ToronCryo™ Series



Dual Compressor Cryostat



Fully Automatic Cryostat

Sections of fresh or snap-frozen tissue at controlled sub-zero temperatures — essential for intraoperative frozen-section diagnosis where results are needed within 30 minutes of biopsy.

Features/Advantages:

- **Three System Levels:**
 - ToronCryo™ 200 adds frozen-section capability to an existing microtome;
 - ToronCryo™ 400 is a standalone automatic cryostat with multi-point refrigeration for up to 12 specimens;
 - ToronCryo™ 500 adds dual compressors, Peltier quick-freeze stations, and UV sterilization.
- **Touchscreen + Intelligent Temperature Management:** Real-time display of chamber, object, and anti-roll temperatures with automatic recovery after defrost cycles.
- **UV sterilization (500):** Built-in UV lamp for chamber decontamination — important in clinical intraoperative environments between specimen types.
- **Rapid Specimen Freezing:** Peltier quick-freeze stations reduce wait time during urgent intraoperative cases.

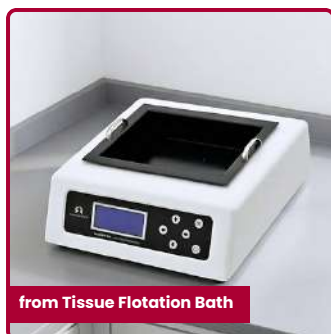
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STEP 3

TREATMENT AND STAINING

Before staining, thin sections on glass slides must be flattened, dried, and adhered. The staining sequence — typically H&E, special stains, or immunohistochemistry — then reveals cellular structures and pathological changes visible under the microscope. The ToronTFB™ and ToronTSS™ manage this two-part stage.

Tissue Flotation Bath ToronTFB™ Series



from Tissue Flotation Bath



to Fully Automatic Microtome

Floats freshly cut paraffin sections on warm water to relax wrinkles and allow clean pickup onto glass slides. Temperature accuracy here directly affects section adhesion quality.

Features/Advantages:

- **Scalable Range:** Available as water baths, slide warmers, and integrated flotation-processing stations, allowing laboratories to select the level of automation and workflow integration that best matches their workload.
- **Illuminated bath (180):** Automatic brightness adjustment makes section spreading and picking easier to observe in routine workflows.
- **Combined Flotation + Baking Models:** 2-in-1 and 3-in-1 units integrate flotation, baking, and drying in one station — reducing bench space and handling steps between floating and staining.
- **Corrosion-Resistant Construction:** Tempered glass and resistant coatings ensure long service life in daily-use lab environments.

Tissue Slide Stainer ToronTSS™ Series



High Capacity Tissue Slide Stainer



Fully Automatic Slide Stainer

Automates slide rack movement through timed staining, washing, dehydration, and clearing reagents — replacing variable manual staining with repeatable, programmable results.

Features/Advantages:

- **Three Throughput Tiers:**
 - ToronTSS™ 1000 multiple racks simultaneously for continuous batch staining;
 - ToronTSS™ 550 1-4 frames at once with embedded PC control;
 - ToronTSS™ 2700 staining and coverslipping at 400+ slides/hour.
- **Intelligent Reagent Management (2700):** Low-level tank detection, overflow alarm with auto water shutoff to minimize reagent waste and prevent spills.
- **Fully Automatic Coverslipping (2700):** Combines H&E staining and mounting sealing in one continuous workflow — reducing handling between stained and finished slide.

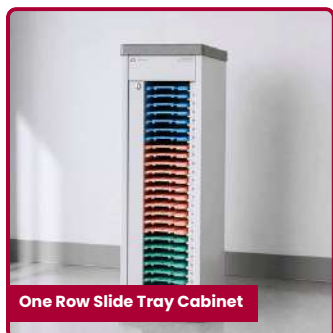
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STEP 4

SECURE ARCHIVING

Finished stained slides are permanent diagnostic records — they may be retrieved for case review, second opinions, medico-legal purposes, or research for decades after the original diagnosis. The ToronSTC™ Slide Tray Cabinet provides organized, accessible, and mobile long-term storage.

Slide Tray Cabinet ToronSTC™ Series



Organized tray-based microscope slide storage for pathology archives, active histology labs, teaching collections, and research repositories. Designed for both daily access and long-term retention.

Features/Advantages:

- **Two Capacity Options:** ToronSTC™ 500 — 25 plastic trays × 20 slides (500 total) and ToronSTC™ 1000 — 50 plastic trays × 20 slides (1,000 total) in a dual-cabinet layout.
- **Tray-Based Organization:** Slides are grouped into trays rather than open racks — easier to manage case lots, date groups, or stain series in defined retrieval order.
- **Wheeled Mobile Base with Lockable Casters:** Both models reposition easily; ToronSTC™ 1000 includes lockable wheels for stable placement after positioning.
- **Compact Vertical Storage Footprint:** Tray-stacking design maximizes slide capacity per unit of floor space — practical for space-constrained lab environments.

Did You Know?



Histology slides are not temporary laboratory records. In many jurisdictions, slides from surgical pathology cases **must be retained for 10 years or longer**, while certain cancer-related cases may be preserved indefinitely.

A large hospital pathology department can generate more than 100,000 slides annually, meaning an archive may grow to **over one million slides within a decade**.

This makes organized slide storage not only a regulatory requirement, but also an important part of efficient case retrieval and patient care.



TORONTECH

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Why Choose Torontech for Your Pathology Lab

- **Complete Workflow — One Supplier, Every Step:** Tissue processor to slide cabinet — every stage of the histology pipeline is covered by a coordinated Torontech product family, eliminating integration gaps between instruments from different manufacturers.
- **Designed for Real Lab Conditions:** Timed paraffin station startup, automatic temperature memory, handwheel locking, anti-stuck protection, and UV sterilization address real daily workflow needs — not just specification points. consistency.
- **Scalable Equipment at Every Stage:** From entry-level systems to fully automated platforms, each product family grows with your laboratory's workflow and throughput requirements, allowing you to expand capabilities without changing suppliers.
- **Standards-Aligned for Regulated Environments:** Instruments reference IEC 62366, ISO 13485, and ISO 14971 — supporting quality management requirements in hospital, clinical, and regulated research laboratory settings.

Complete Your **Pathology Workflow** with Torontech

Torontech's pathology equipment portfolio helps hospitals, research labs, and teaching institutions build reliable, complete histology workflows — from automated tissue processing through precision sectioning, consistent staining, and organized long-term slide archiving. **Explore the full lineup:** <https://www.torontech.com/product/pathology-equipment/>

For expert guidance on configuring the right workflow: sales@torontech.com

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