Applications

The versatile Prepmaster 5100 offers a wide range of applications for TEM, SEM, and light imaging, but not restricted to histocytomorphology, neuronal, muscle, epithelial, and stem cell biology research.

Prepmaster™ 5100 Specimen Preparation Robot

Specifications

Ordering Information

The Prepmaster™ 5100 Specimen Preparation Robot System Includes:

- Prepmaster™ 5100 Specimen Preparation Robot chassis
- Ventilated 99% UV blocking fume containment and evacuation enclosure
- Thermally Controlled (RT–60°C) Agitation Station™
- 12-position Reagent Reservoir
- Cooled (5°C–RT) 12-position Reagent Reservoir
- Windows laptop computer controller with power supply
- USB cable
- (1) 4-position bulk reagent reservoir with 1 set of (4) reusable reservoirs
- (1) 96-well reservoir for heavy metals and other toxic reagents
- (1) 96-well reservoir for toxic reagent waste
- (1) 1-well reservoir for non-toxic waste
- 1 squeeze bottle for phosphate buffer refilling
- 1 squeeze bottle for ethanol refilling
- 1 squeeze bottle for water refilling
- 2 boxes of 96-well 300μl pipette tips
- 10 specimen prep plates
- (10) 1ml graduated transfer pipettes
- (10) X-pierce vinyl plate covers
- (10) aluminum plate seals
- (10) pipette tips

Applications

Mouse Ear
Wistar Institute of Science

Plast Root
Wistar Institute of Science

Liver Biopsy
Ellman UV protocol

Cancerous Nodules
Ben August, UW-Madison

Cardiac Muscle
Ben August, UW-Madison, Ellisman rOTO Protocol

Astrocytes on Coverslips
Ben August, UW-Madison

Electron Microscopy
Sciences

More research, less prep
Prepmaster 5100 Specimen Preparation Robot

Overview

The Prepmaster 5100 is a fully automated system that uses advanced robotics and liquid handling to prepare biological specimens for TEM and SEM. It reliably accomplishes your nephropathology tasks, increasing consistency in specimen preparation and giving you peace of mind in your results needed to standardize processing.

Features

• Hosts 81-40'-22' Agitation Station™: extend process provides gentle, constant shaking movement for rapid and thorough post-fixation and staining.
• 81-40'-22' agitated reservoir for enhanced post-fixation with no heavy multi-faceted or other reagents.
• Cool-Tec™-cooled reagent reservoir for cold dehydration or cold reduction.
• Temperature: liquid-cooled controller for easy control of temperature for cold or heated processes.
• UV light protected ventilated enclosure keeps noxious fumes contained and enclosed removed.

Benefits

• Easy to set up and clean.
• Versatile — can process most biological samples.
• Use one reservoir in less than 1 hour.
• Modular design in an all-inclusive kit for 40 specimen prep.
• 8-12 replicate blocks or groups.
• Flexible unlimited oversight options.
• High quality, consistent processing.

Example Protocols

The Prepmaster 5100 computer controller comes pre-loaded with example protocols for typical specimen preparations that can be run out of the box and without additional cost. These protocols can be edited and modified to meet the needs of your laboratory.

Load Reagents

Add/retrieve reagents with loading features that contain each and other hazardous reagents. Light, weight, and order are checked in sequence and logged daily.

Load Specimen

Detect specimen size, shape, and other parameters prior to starting the run to ensure optimal processing.

Select Protocol

Select your preprogrammed protocol and press Start.

Prepmaster Advantages

Cost-effective for lab budgets.

• Use disposable shapes, especially consumable reagents.
• Up to 40% less reagent on save purchase, shipping, and disposal cost.
• Uninterrupted operation free from time on other projects for greater accuracy.

Ensures repeatability and reproducibility

• A typical harvesting preparation manual process takes 4 hours on hands-on time.
• A Prepmaster run takes <5 minutes to load and start and <1 minute on hands-off time on average.

Error reductions

• Like many protocols up to 8% specimen processing failure rates may be less or non-existent.
• A comprehensive review is a 10% failure rate process 3 to 6 biological samples in 1 day, get all the way through the process.
• The Prepmaster eliminates sampling error and makes sure the specimen is properly placed in the required area.
• Manual processing requires a 10% error rate for cold fixation.

Heated Agitation Station™

Because preservation of tissue marker and other post-fixatives into biological specimens can be slow and may result in several failures, gentle agitation promotes consistent fixation. The Prepmaster 5100 computer controller enables autoclave temperature settings. The Prepmaster’s agitated agitation provides for even heat exchange, while also reducing reflux. The Prepmaster 5100 computer controller provides for even heat exchange and reduces reflux.

Thermally-Controlled Reagent Reservoir

For temperature regulation of samples and reagents.

With appropriate models 40°C-90°C and 5°C-25°C per position, the Prepmaster 5100 easily allows reagents to achieve optimal conditions. Control stations allow the control of the temperature of the reagent reservoirs to a specific temperature setting. If required, the reagent reservoirs can be set for any temperature setting, and in several increments.

Computer Controller

The Prepmaster 5100 computer controller comes pre-loaded with standard protocols for all biological specimen preparations. The Prepmaster 5100 computer controller is designed to be user-friendly and intuitive.

Select your preprogrammed protocol and press Start.

Hazardous waste

The limited automated solutions available are unregulated ‘harm’ style units which can run out of reagent or cause contamination. The Prepmaster 5100 computer controller can be programmed to run the solution, and the user will be asked to replace the solution at that time. Other solutions well which require costly consumables which customers can use to remain consistent in the lab look and feel per sample. The Prepmaster is the ONLY IVT&IVM AVAILABLE for safe medical waste.

Expandable modular design future innovation and flexibility

8-channel head rapidly prepares batches of cell or tissue, providing precise tips as and when needed for optimal fixation.

Stopwatch-like visual configuration

Optional 8-channel head rapidly prepares batches of cell or tissue, providing precise tips as and when needed for optimal fixation.

Precision meets efficiency with a 1-2-3 size

Load Reagents

Add/retrieve reagents with loading features that contain each and other hazardous reagents. Light, weight, and order are checked in sequence and logged daily.

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Detect specimen size, shape, and other parameters prior to starting the run to ensure optimal processing.

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Prepmaster vs. the Competition

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Select your preprogrammed protocol and press Start.
**Prepmaster™ 5100** Specimen Preparation Robot

**Overview**

The Prepmaster™ 5100 is a fully automated system that uses advanced robotics and liquid handling to prepare biological specimens for TEM and SEM. It reliably accomplishes your repetitive tasks, increasing consistency in specimen preparation and giving you peace of mind in your results managed in manual processing.

**Features**

- **High quality, consistent processing.**
- **Reliable unattended overnight operation.**
- **Up to 24 unique reagents or rinses.**
- **Excellent choice to run Ellisman rOTO protocol for vEM specimen prep.**

**Examples**

- **Load Reagents**: Add wash reagent with heated (RT–60°C) agitation to ensure gentle agitation promotes uniform post-staining.
- **Select Protocol**: The Prepmaster will alert you when it's finished running. Prepmaster sample processing plate.
- **Transfer biological samples**: Can be run or easily modified to fit your needs.
- **Connectivity**: The Protocol Developer is designed for real-time online performance, robustness, and compliance.

**Benefits**

- **Easy to set up and clean up.**
- **Versatile** – can process most biological samples.
- **Minimized hazardous waste** in less than 1 hour.
- **Flexible** – can be used for as many steps as needed.

**Example Protocols**

The Prepmaster 5100 computer controller comes pre-loaded with example protocols for the standard BioEM protocols. These include protocols for staining and imaging and reduced time.

**Prepmaster Advantages**

**Cost-effective for lab budgets.**

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**Example Protocols**

The Prepmaster 5100 computer controller comes pre-loaded with example protocols for the standard BioEM protocols. These include protocols for staining and imaging and reduced time.

**Thermally-Controlled Reagent Reservoir**

For temperature regulation of samples and reagents.

With separate heated (RT–60°C) and cooled (5°C–RT) reagent reservoirs, the Prepmaster 5100 provides an excellent solution for samples requiring temperature control.

**Heated Agitation Stations™**

For accelerated, enhanced tissue preparation.

Because preparation of electron microtomes and other post-fixation into biological specimens can be slow and time consuming, gentle agitation promotes optimal processing. The Prepmaster 5100 utilizes the agitation stations to provide fast, efficient agitation of specimens and reagents. The Heating Station of the Prepmaster automatically adjusts the temperature of the reagents and facilitates the tissue processing. The Prepmaster’s innovative design helps to remove the specimens and proceed to the next step resulting in a 75% decrease in total time and a 66% decrease in hands-on time.

**Hazardous waste**

- **Easy** – can be run or easily modified to fit your needs.
- **Cost-effective for lab budgets.**

**Comparison**

**Prepmaster vs. the Competition**

The limited automated solutions available are inadequate for lab budgets. Prepmaster will alert you when it's finished running. Prepmaster sample processing plate.

**Computer Controller**

**Prepmaster™ 5100**

The computer controller comes pre-loaded with example protocols for cell culture procedures.

**Select your preprogrammed protocol and press Start.**
More research, less prep

**Prepmaster™ 5100 Specimen Preparation Robot**

**Overview**

The Prepmaster™ 5100 is a fully automated system that uses advanced robotics and liquid handling to prepare biological specimens for TEM and SEM. It reliability accomplishes your specimen preparation and gives you confidence in your results compared to manual processing.

**Features**

- **Variable 8-40°C Agitation Station™**: Broad temperature range allows for precise control and optimization.
- **Up to 24 unique reagents or rinses**.
- **Prepare up to 8 kidney specimens**.
- **Vents under the UV light protected ventilated enclosure keeps noxious fumes contained and the work area safe.**
- **8 kidney specimens are stored in bulk reservoirs for easy handling.**
- **Cooled (5°C–RT) reagent reservoir for cold dehydration or cold reduced osmium in the Ellman rOTO protocol for example.**
- **Heated (RT–60°C) Agitation Station™ specimen dock provides gentle, thermally-controlled tissue processing.**
- **Small (60 x 60cm) footprint enables convenient in-hood option with easy load and unload.**
- **Precision meets efficiency**.
- **Total time to prepare identical specimens to be incubated at low temperature or a minimum 15% in most cases.**
- **Hazardous waste disposal cost.**
- **Cost of unit.**
- **Cost-effective for lab budgets.**

**Benefits**

- **Easy to set up and clean up.**
- **Versatile — can process most biological samples.**
- **Robust design reduces maintenance costs in less than 1 hour.**
- **Excellent return on investment.**
- **High-quality, consistent processing.**

**Example Protocols**

The Prepmaster™ 5100 computer controlled system can be tailored with example protocols from validated samples. The Prepmaster™ 5100 system allows you to create, store, and load your own protocols for easy and consistent batch processing. The Prepmaster™ 5100 also allows easy loading of cell seeded-on-coverslips.

**Electron Microscopy Sciences**

**Prepmaster Advantages**

- **Cost-effective for lab budgets.**
- **Versatile — can process most biological samples.**
- **Up to 8 kidney specimens are stored in bulk reservoirs for easy handling.**
- **Unattended operation has the time to work on other projects for greater efficiency.**

**Prepmaster vs. the Competition**

**Headed Application Staining™**

Because preparation of specimen matrices for electron microscopy can be slow and result in variable failures, gentle agitation provides optimal consistency. The Prepmaster™ 5100 System with integrated computer-controlled reagents is designed to enable 100% confidence in staining protocols.

<table>
<thead>
<tr>
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**Heated Agitation Station™**

For accelerated, enhanced tissue preparation.

- **Heat your specimens to an optimal temperature for optimal staining.**
- **Reduce staining time.**
- **Improve staining consistency.**
- **Less hassle.**

**Computer Controller**

Cost-effective for lab budgets.**

- **Ease of use.**
- **Simple operation.**
- **High-quality, consistent processing.**

**Thermal probes**

Temperature-controlled on-board temperature probes and reagents.**

- **Temperature regulation over each workspace and reagents for complete control and application.**

**Extended-Use Protocol Configuration**

- **8-channel load rapidly prepares hundreds at a time.**
- **Prepared protocols are available for use.**

**Stopgap-Top Plastic Configuration**

- **8-channel load rapidly prepares hundreds at a time.**
- **Prepared protocols are available for use.**

**Prepmaster Brochure**

The limited automated solutions available are inadequate. The Prepmaster™ 5100 System provides a cost-effective, high-quality, reliable solution for your specimen preparation needs.**

**Prepmaster™ 5100**

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**Select your preprogrammed protocols and press Start.**

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**Prepmaster™ 5100**

The Prepmaster™ 5100 System provides a cost-effective, high-quality, reliable solution for your specimen preparation needs.
Applications

The versatile Prepmaster 5100 offers a wide range of applications for TEM, SEM, and light microscopy, including, but not limited to:

- Tissue/biopsies (1mm dia. x 1–3mm length)
- Cells seeded-on-coverslips
- Organoids
- Retinas
- Most other biological samples

Cacodylate buffer with reduced osmium tetroxide shows beautifully preserved Golgi apparatus membranes, low cytoplasmic background, and easily visible microtubules.

The laboratory robot enabled us to easily test 4 variables in one simple experiment with close to zero possibility of pipetting error.

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More research, less prep

Prepmaster™ 5100 Specimen Preparation Robot

Specifications

Dimensions (W x D x H): 63 x 57 x 66 cm (25 x 22.5 x 26 in.)

Operating Environment:
- Temperature: Recommended 20-24°C
- Relative Humidity: Recommended 40-60%

Power Requirements:
- Robot Power Input: 36 VDC, 6.1 A
- Power Adapter Input: 100-240 VAC, 50/60 Hz, 4.0 A/115 VAC, 2.0 A/230 VAC

Minimum Operating System Requirements:
- 1.7 GHz processor, 4GB Memory, 256 GB SSD and Win 10 Pro.

System Requirements:
- Connectivity: WiFi 2.4 GHz IEEE 802.11b/g/n, USB 2.0

Certifications:
- CE, FCC, NRTL, CB, ISO 9001

Pipette Configurations:
- 8-channel 300 μl pipetting head

Pipette Volumes:
- 8-channel: 1-300 μl

Ordering Information

The Prepmaster™ 5100 Specimen Preparation Robot System includes:

Robot:
- • Prepmaster 5100 Specimen Preparation Robot chassis
- • Ventilated 99% UV blocking fume containment and evacuation enclosure
- • Thermally Controlled (RT–60°C) Agitation Station™

Sample Dock:
- • Heated (RT–60°C) 12-position Reagent Reservoir
- • Cooled (5°C–RT) 12-position Reagent Reservoir
- • Windows laptop computer controller with power supply
- • USB cable

Labware:
- • (1) 4-position bulk reagent reservoir with 1 set of (4) reusable reservoirs
- • (1) 96-well reservoir for heavy metals and other toxic reagents
- • (1) 96-well reservoir for toxic reagent waste
- • (1) 96-well reservoir for dehydration reagents
- • 1 Squeeze bottle for phosphate buffer refilling
- • 1 Squeeze bottle for ethanol refilling
- • 1 Squeeze bottle for water refilling

Consumables:
- • 2 boxes of 96-well 300μl pipette tips
- • 10 specimen prep plates
- • (10) 1ml graduated transfer pipettes
- • 10 X-pierce vinyl plate covers
- • 10 aluminum plate seals

Applications

The versatile Prepmaster™ 5100 offers a wide range of applications for TEM, SEM, and light imaging, but not radioactive, toxic substances (1 μm dia. x 1–3mm length), tissue/biopsies (1 mm dia. x 1–3 mm length), samples seeded-on-coverslips, organoids, retinas, and most other biological samples.