



# LeviPrep Nuvo User Guide

Automated Tissue Prep System

# TABLE OF CONTENTS

|                                                    |    |
|----------------------------------------------------|----|
| Legal Notices .....                                | 3  |
| General Information .....                          | 4  |
| Safety And Compliance.....                         | 5  |
| Symbols .....                                      | 5  |
| Safety Warnings.....                               | 6  |
| About The Nuvo System .....                        | 7  |
| Introduction .....                                 | 7  |
| Specifications .....                               | 9  |
| System Installation .....                          | 10 |
| Installation Requirements.....                     | 10 |
| Power Requirements.....                            | 11 |
| Unpacking the System.....                          | 11 |
| System Maintenance.....                            | 12 |
| System Operation .....                             | 13 |
| Sample Preparation and Instrument Set-Up .....     | 13 |
| Tissue Dissociation .....                          | 19 |
| Cell Suspension Collection .....                   | 21 |
| Nuclei Extraction & Collection .....               | 22 |
| Appendix A – Program Parameters And Controls.....  | 24 |
| Preheating the System .....                        | 24 |
| Preset and Customized Program Parameters.....      | 25 |
| Viewing Multi-step Preset Programs.....            | 26 |
| Viewing Single-step Preset Programs.....           | 26 |
| Viewing Custom Programs .....                      | 27 |
| Setting Up Customizable Single-Step Programs ..... | 28 |
| Deleting a Program .....                           | 29 |
| Pausing a Program .....                            | 30 |
| Manually Terminating a Run .....                   | 31 |
| Appendix B – Tissue Dissociation Kits .....        | 32 |
| Catalog Numbers .....                              | 32 |
| Product Composition and Storage .....              | 32 |
| Appendix C – Preset Program Parameters.....        | 33 |
| Contact Information .....                          | 34 |

## LEGAL NOTICES

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The LeviPrep<sup>®</sup> Nuvo Automated Tissue Prep System is developed and manufactured for LevitasBio, Inc. This device and its methods of use are protected by one or more issued patents and pending applications owned or licensed by LevitasBio, Inc.

Use of this product is subject to the LevitasBio Sales Terms and Conditions available at <https://levitasbio.com/terms-and-conditions/>. It is your responsibility to review, understand, and comply with these Terms and Conditions.

The system, along with its dissociation units and reagents, may not be used for any other purpose, nor transferred to third parties, resold, manufactured, or modified for resale without prior written consent from LevitasBio, Inc.

This manual provides information on using the LeviPrep Nuvo Automated Tissue Prep System. LevitasBio disclaims liability for any errors contained herein and shall not be responsible for direct, incidental, or consequential damages arising from the furnishing, performance, or use of this document or the device, including loss of samples processed.

The information contained in this document is subject to change without notice.

## GENERAL INFORMATION

This user guide contains proprietary information protected by copyright laws. All rights reserved. No part of this user guide may be copied, reproduced, translated, photocopied, or modified in any form without the company's prior written consent.

Deviation from the procedures outlined in this user guide may result in improper use of the LeviPrep Nuvo Automated Tissue Prep System potentially leading to damage to the system, loss of reagents or samples, or personal injury.

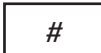
LevitasBio shall not be liable for actual or consequential, damages, or losses resulting from:

1. Operation of the system outside the environmental conditions specified in this user guide.
2. Non-compliance with the operational requirements provided in this user guide.
3. Forceful handling, improper operation, or other forms of misuse by the user.
4. Improper moving, transportation, or installation using methods not approved by LevitasBio.
5. Unauthorized disassembly, reconfiguration, or modification of any system components.
6. Repairs or maintenance performed by individuals not authorized by LevitasBio, or failure to conduct maintenance as specified.
7. Failure to replace consumables or components that have exceeded their recommended lifespan.
8. Use of hardware, software, or ancillary products not provided by LevitasBio.
9. Exposure to corrosive gases or environments that may result in circuit corrosion or premature aging of system components.

## SAFETY AND COMPLIANCE

### Symbols

The following symbols are used throughout this user guide and on Nuvo system component labels. They indicate important information and highlight specific details related to the safe and proper use of the product.

|                                                                                     |                                                                                                                      |                                                                                     |                                                                                                                                                          |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Attention or Caution symbol</b><br>Indicates that the accompanying message contains important safety information. |    | <b>Biohazard</b><br>Indicates the presence of biological hazards. Follow appropriate safety procedures.                                                  |
|    | <b>Note symbol</b><br>Highlights important information to be aware of.                                               |    | <b>Tip symbol</b><br>Provides helpful guidance or recommendations.                                                                                       |
|   | <b>Operating temperature range</b><br>Specifies the allowable temperature range for system operation.                |   | <b>Operating humidity range</b><br>Specifies the allowable humidity range for system operation.                                                          |
|  | <b>Model number</b><br>Denotes the product's model number.                                                           |  | <b>Serial number</b><br>Denotes the product's unique serial number.                                                                                      |
|  | <b>Date of manufacture</b><br>Indicates when the product was manufactured.                                           |  | <b>Manufacturer of record</b><br>Identifies LevitasBio as the manufacturer responsible for the product.                                                  |
|  | <b>Do not reuse</b><br>Indicates that the product is intended for single use only.                                   |  | <b>Do not discard in unsorted waste</b><br>Indicates that the product must not be disposed of with general waste. Follow local regulations for disposal. |
|  | <b>This way up</b>                                                                                                   |  | <b>Handle with care</b>                                                                                                                                  |
|  | <b>Keep dry</b>                                                                                                      |  | <b>Max stack number</b>                                                                                                                                  |

**Table 1.** Symbols and their descriptions used in this guide. These symbols may be found within this guide and on LeviPrep Nuvo system labels

## SAFETY WARNINGS

- **Use as directed:** Operate the LeviPrep® Nuvo only as instructed by LevitasBio. Using the system in any manner not specified, such as removing any cover or enclosure part while powered on, may pose a risk of personal injury or equipment damage.
- **Power connection:** Plug the Nuvo AC adapter only into properly grounded outlets, using the main power cable provided.
- **In case of fault:** If the system malfunctions, switch it off using the mains switch on the left side of the instrument and disconnect the power cable.
- **Consumable disposal:** Dispose of used consumables in accordance with your institution's approved laboratory guidelines.
- **Indoor use only:** The Nuvo system is intended for indoor operation only and is not rated for exposure to precipitation.
- Refer to the Specifications section for additional details.
- **Contact support:** For assistance, reach out to LevitasBio Technical Support at +1-650-204-1185 or [support@levitasbio.com](mailto:support@levitasbio.com)



**BIOSAFETY:** Biohazardous materials may be present within the Nuvo system or in the surrounding laboratory environment during operation. All users must adhere to relevant biosafety protocols, including the use of Universal Precautions when handling potentially infectious materials. Treat all instruments and surfaces within BSL-classified laboratories as if contaminated to that designated biosafety level. Always observe the appropriate containment and decontamination procedures required for the BSL rating of the laboratory.

## ABOUT THE NUVO SYSTEM

### Introduction

The LeviPrep Nuvo Automated Tissue Prep System (Catalogue number: 1005011) is an automated instrument that combines mechanical and enzymatic dissociation to efficiently and reproducibly convert tissue samples into high-viability single-cell suspensions. Its fully adjustable dissociation parameters allow optimization for a wide range of tissue types. Additionally, the system can be used to extract high-quality nuclei from tissues.



**Figure 1:** LeviPrep Nuvo components.

The LeviPrep Nuvo Prep System operates with consumables from the LeviPrep Nuvo Series Tissue Dissociation Kit (24 rxn, Catalogue number: 1005020) which includes tissue dissociation reagents, as well as the LeviPrep Nuvo Nuclei Kit II (16 rxn, Catalogue number: 1005059) for nuclei extraction protocols.



## Specifications

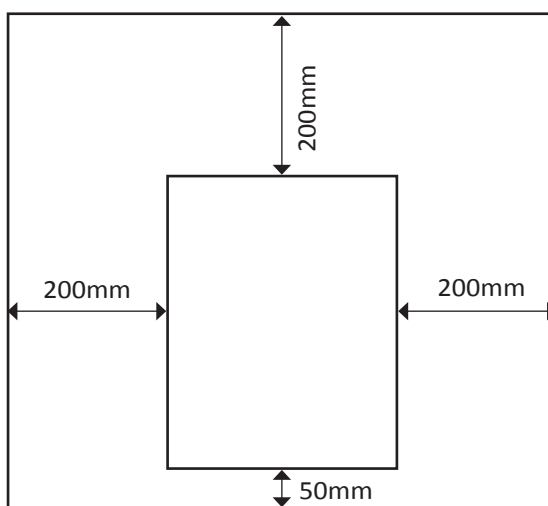
| Performance Specification        | Value                                                                                                  |
|----------------------------------|--------------------------------------------------------------------------------------------------------|
| Throughput                       | 2 channels; up to 2 different tissue samples can be processed simultaneously                           |
| Sample mass range                | 10-500 mg (tissue for dissociation)<br>10-100 mg (tissue for nuclei extraction)                        |
| Operating temperatures           | 37°C (active heating), ambient, and able to operate in 4 °C environment                                |
| Rotor Speed                      | 30-300 rpm, bidirectional (forward and reverse rotations); multi-step programming based on tissue type |
| Available programs               | Preset and adjustable programs, up to 90 programs can be stored                                        |
| Instrument Specification         | Value                                                                                                  |
| Instrument dimensions            | 163 mm x 152 mm x 253 mm (length × width × height)                                                     |
| Instrument weight                | 3.25 kg                                                                                                |
| Voltage requirements             | 100-240 VAC, 3.0 A, 50/60 Hz; reliable grounding                                                       |
| Environmental Specification      | Value                                                                                                  |
| Ambient temperature requirement  | 10-35°C                                                                                                |
| Ambient humidity requirement     | 10-80% relative humidity (non-condensing)                                                              |
| Atmospheric pressure requirement | 700-1060 hPa                                                                                           |

**Table 2.** Technical and environmental specifications for the LeviPrep Nuvo system

## SYSTEM INSTALLATION

### Installation Requirements

1. **Environment:** Place the system in a clean, dust-free, and vibration-free area with good ventilation and no direct sunlight. Ensure the location is well protected from environmental contaminants.
2. **Proximity to other equipment:** Do not install the system near machines that produce mechanical vibrations at high frequencies (such as centrifuges, compressors, or heavy industrial equipment), as these can interfere with system performance.
3. **Atmospheric conditions:** Atmospheric pressure should be maintained between 700 and 1060 hPa. The installation site should be below 1200 meters in altitude.
4. **Surface requirements:** Install the system on a level surface with a slope less than 1/200. The supporting surface must have a minimum load-bearing capacity of 50 kg/m<sup>2</sup>.
5. **Temperature and humidity:** When the system is powered on, the ambient temperature must be between 10°C and 30°C (50-86°F) with fluctuations no greater than  $\pm 2^{\circ}\text{C}$ . Relative humidity should be maintained between 10% and 80% (non-condensing). If temperature stability cannot be ensured, use air conditioning to maintain consistent operating conditions.
6. **Ventilation and spacing:** The system generates heat during operation, which can raise the surrounding temperature. To ensure proper ventilation and easy access to the rear power switch, leave sufficient clearance behind and around the system as shown in Figure 2.



**Figure 2:** Dimension requirements for installation



**CAUTION:** The system must be installed correctly in accordance with the installation requirements specified in this handbook.

## Power Requirements

The instrument requires the following power specifications. The power outlet should be located within 2 m of the instrument.

- Voltage: 100-240 VAC
- Electric current: 3.0 A
- Frequency: 50/60 Hz
- Power: 60 W

## Unpacking the System

Upon receiving the product, please verify that all items listed in the packing list are included and in good condition. If you notice any damage or abnormalities, contact our technical support team at [support@levitasbio.com](mailto:support@levitasbio.com) or reach out to your LevitasBio sales representative.

| Packlist Items                    | Quantity |
|-----------------------------------|----------|
| Nuvo Automated Tissue Prep System | 1        |
| AC-DC Power Adaptor               | 1        |
| Power cord                        | 1        |

**Table 3.** Packing List. Items included with the system and their quantities upon delivery.

After unpacking, carefully lift the system and place it at the designated installation site, ensuring it meets the requirements outlined in [Installation Requirements](#).

### Guidelines for safe lifting:

- Ensure a secure and comfortable grip.
- Keep your spine in a neutral position.
- Avoid twisting your torso while lifting.

## System Maintenance

Tools and Reagent Preparation:

1. 70% ethanol
2. Ultrapure water
3. Dust-free cloths
4. Medical cotton swabs (optional)

### Cleaning Procedure:

After each experiment:

- Use 70% ethanol and dust-free clothes (or medical cotton swabs) to wipe down any areas where samples contacted the system carrier or housing.
- Use ultrapure water to clean other external surfaces of the system housing.



## SYSTEM OPERATION

### Sample Preparation and Instrument Set-Up

Please read this user guide carefully before operating the system. For users performing single cell sequencing experiments, we strongly recommend establishing a dedicated clean workstation for all pre-PCR steps, including tissue dissociation. Operators should wear masks and lab gloves to minimize contamination and RNA degradation.

#### Reagents required:

- LeviPrep Nuvo Series Tissue Dissociation Kit (24 rxn, cat. no.: 1005020)

#### User Supplied:

- Sterile forceps
- Chilled PBS
- Sterile, nuclease-free petri dish
- Electronic scale
- Tissue sample

#### Estimated time:

- 15 minutes incubation
- 15 minutes hands-on pipetting

#### Handling of the Tissue Dissociation Mix:

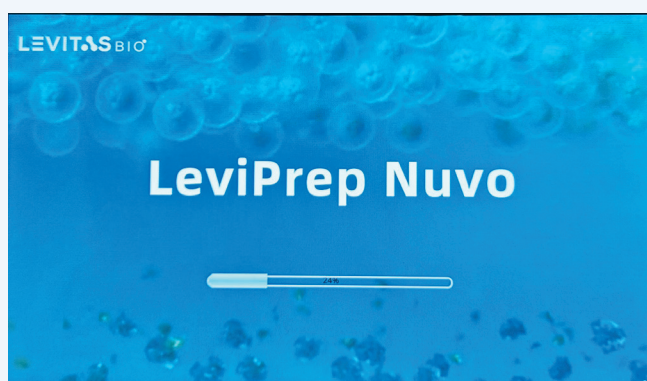
Avoid thawing more than twice. Prepare aliquots if necessary. Thaw the Tissue Dissociation Mix on ice (see table 5 for the appropriate volume) and ensure it is completely thawed before use. Keep the reagent on ice until needed.

#### Power connection and startup:

Connect the power cord to the AC-DC adapter, then plug the adapter into an outlet. Attach the round connector from the adapter to the Nuvo unit, ensuring the keyed alignment is correct. Use the switch on the side of the system to turn on the power. The power indicator and display (Figure 3) will illuminate, and the user interface will appear.

**Please follow the steps to use the Nuvo System:****Steps:**

1. Once switched on, allow the self-check to complete. After powering on, the system runs an automatic self-check. Wait for this process to finish.
2. After self-checking and initialization (Figure 3), the display switches to the Operation Interface (Figure 4). This interface provides access to program settings, multi-step program setup, and operational controls. On the left-hand side of the display, a vertical menu provides quick access to different functions. Oper., opens the main operation interface for running and monitoring programs. Para. 1 and Para. 2 provide access to parameter settings for configuring and saving different programs.



**Figure 3:** Initialization of the system



**Figure 4.** Operation Interface elements. This figure shows an overview of the key interface components, including main menu, program indicators, sample tray controls, and temperature status indicators.



**NOTE:** Two samples can be processed simultaneously, with each channel operating independently. To preheat the system, click the Dissociation Unit illustration for the corresponding channel (see Appendix A for details). For customized dissociation programs, refer to Appendix A. Keep samples on ice.

3. Select a preset program following the steps below:
  - a. Click the “Para.” button to view available programs for the channel to be used (Figure 5).

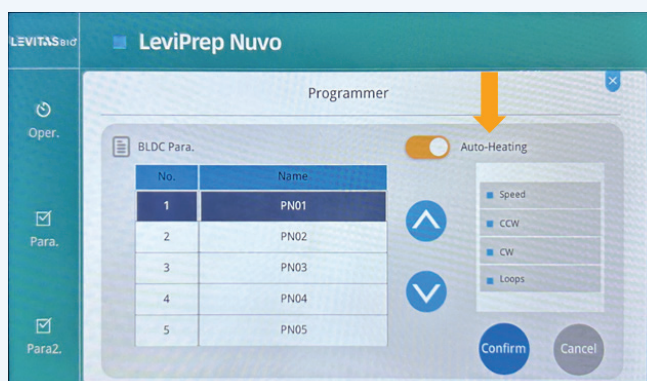


**Figure 5.** Selecting a program for each channel



**NOTE:** The Auto-Heating function is enabled in this view by default. When active, the system will preheat to 37°C. To disable this feature, slide the toggle button. Programs 1–5 are preset multi-step programs. Refer to Appendix C for detailed parameter settings. Programs 6–10 are preset single-step programs, with their parameters displayed directly in this view. For customized programs, please refer to Appendix A.

- b. The Programmer Interface will display a list of programs along with their parameters (Figure 6). Use the up/down arrows to scroll through the available programs.



**Figure 6.** The Programmer Interface display for selecting a program.

- c. LeviPrep Nuvo has 10 preset dissociation programs described in the table below. Select the program that corresponds to your tissue type.

| Program | Description                              | Detail                                                             |
|---------|------------------------------------------|--------------------------------------------------------------------|
| PN-01   | Tumor dissociation program               | Human lung cancer/liver cancer/breast cancer/stomach cancer/tumors |
| PN-02   | Hard tissue program I                    | Human/mouse hard tissue                                            |
| PN-03   | Large input mass program                 | Human/mouse large tissue volumes (100 - 500 mg))                   |
| PN-04   | Small input mass program I               | Low tissue input (10 - 50 mg)                                      |
| PN-05   | Soft tissue stirring digestion program I | Stirring function - soft                                           |
| PN-06   | Soft tissue dissociation program         | Human liver, intestine, lymph node, brain tissue                   |
| PN-07   | Normal tissue dissociation program       | Mouse brain, kidney, liver, testis, thymus, heart                  |
| PN-08   | Fast dissociation program                | Mouse spleen, lung                                                 |
| PN-09   | Stirring digestion program II            | Mouse ovary, uterus, stomach                                       |
| PN-10   | Intestinal dissociation program II       | Mouse intestinal tissue                                            |

**Table 4.** Preset dissociation and extraction programs. This table lists the available preset programs on the Nuvo system, including their typical tissue applications. For detailed parameters and customization guidance, see Appendix A.

- d. Click the “Confirm” button at the bottom right of the screen to apply the selected program. To select a preset dissociation program for the other chamber, repeat steps a to d.

- e. After setting the program, the selected program name will be displayed on the corresponding channel (orange arrow, Figure 7).



**Figure 7.** Operation Interface after selecting a program.



**NOTE:** The incubation time is the total of both grinding and enzymatic digestion times. For most tissue types, the recommended incubation time is 5-15 minutes.

- f. Place the tissue in a sterile petri dish and wash it 3-5 times with pre-chilled PBS.
- g. Weigh 10-500 mg of tissue and transfer it into a labeled 1.5 mL tube. Keep the tube on ice.



**Figure 8.** LeviPrep Nuvo Dissociation Unit.

- h. Unpack a LeviPrep Nuvo Dissociation Unit (Figure 8)
- i. Gently disassemble the Dissociation Unit by removing the lid with grinding palms from the collection tube. Turn the upper part of the unit slowly to detach it (Figure 9).



*Lid with grinding palms*



*Collection tube*

**Figure 9.** *Disassembled LeviPrep Nuvo Dissociation Unit.*

- j. Using sterile forceps, pick up the prepared tissue sample and place it in the collection tube.
- k. Pipette the appropriate volume of the fully thawed Tissue Dissociation Mix on top of the tissue in the collection tube. Refer to the table below for guidance.
- l. Close the Dissociation Unit by tightening the lid onto the collection tube.

| Tissue weight | Volume of Tissue Dissociation Mix |
|---------------|-----------------------------------|
| 10 - 50 mg    | 1 mL                              |
| 50 - 100 mg   | 1 – 2 mL                          |
| 100 - 500 mg  | 2 – 3 mL                          |

**Table 5.** *Recommended volumes of Tissue Dissociation Mix based on tissue weight. This table provides guidance on selecting the appropriate volume of Tissue Dissociation Mix according to the mass of the tissue sample.*



**NOTE:** Ensure that the tissue is fully submerged in the Tissue Dissociation Mix. For larger or hard tissue types we recommend cutting the tissue in advance to the size of a green pea in Dissociation Mix. A wide-open tip will help transfer the tissue to the collection tube. Extend the dissociation time as necessary.

## TISSUE DISSOCIATION

### Materials:

- Assembled and loaded LeviPrep Nuvo Dissociation Unit (prepared in the previous section)

### Estimated time:

- 20 minutes incubation
- 5 minutes hands-on pipetting

### Steps:

- Click the “Open” button to open the sample tray. The tray will move to the open position (see Section 5.1).
- Place the assembled Dissociation Unit into the sample tray, ensuring the recesses are aligned with the sides of the tray.
- Gently twist to confirm the components are fully engaged.
- Click the “Close” button. The tray will retract into the instrument and the “Start” button will turn blue (orange arrow, Figure 10).

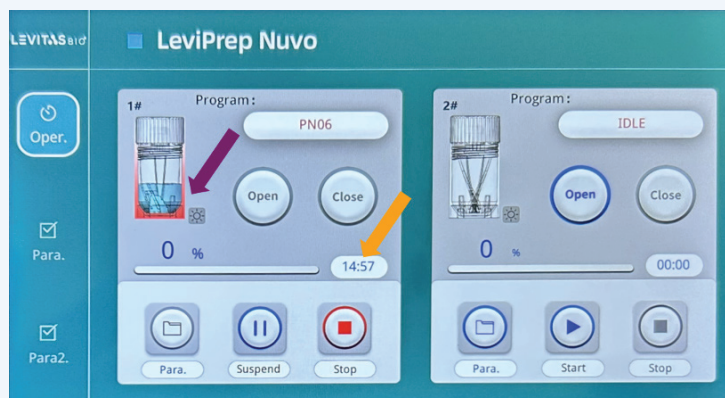


**NOTE:** Ensure that the Dissociation Unit is properly inserted into the corresponding sample holder by gently rotating it until the locking grooves align. If the Dissociation Unit cannot be rotated, it is correctly positioned. If it rotates freely, remove the unit and reposition it.



**Figure 10.** Operation Interface of system ready to start the run.

- Click the “Start” button to begin the dissociation program. During the run, the inside of the collection tube in the display will turn blue (purple arrow, Figure 11), and the remaining time will be displayed on the right side of the progress bar (orange arrow, Figure 11).



**Figure 11.** Operation Interface during the run.



**NOTE:** To pause the program during the dissociation, press the “Suspend” button. Click the “Stop” button to stop the dissociation, the tray will open automatically.

- Upon completion of the run, the timer will display 00:00 (orange arrow, Figure 12) and the instrument will emit a beep. If two dissociation programs are running simultaneously, a beep will sound at the end of each program. The corresponding tray will open automatically.



**Figure 12.** Operation Interface at the end of the dissociation program.

- Remove the Dissociation Unit from the Nuvo instrument.

## Cell Suspension Collection

### Materials:

- Dissociation Unit with dissociated samples (from previous section)

### User Supplied:

- 15 mL or 50 mL conical tube
- Pre-chilled PBS
- 70% ethanol
- Cell strainer (40  $\mu$ m, 70  $\mu$ m, or 100  $\mu$ m)

### Estimated time:

- 5 min incubation
- 5 minutes hands-on pipetting

### Steps:

1. Gently rotate the lid of the Dissociation Unit to detach the rotor from the collection tube.
2. Use a microscope and hemocytometer to assess the cell suspension and determine viability. If tissue dissociation is incomplete, repeat the Tissue Dissociation procedure in Section 5.2.
3. Prime the cell strainer with 1-3 mL of pre-chilled PBS. Click the “Open” button to open the sample tray if necessary.
4. Transfer the cell suspension from the collection tube and filter it through the cell strainer into a conical tube (15 mL or 50 mL).



**NOTE:** Use a 40  $\mu$ m or 70  $\mu$ m cell strainer based on the tissue type. For larger target cells, choose a 100  $\mu$ m or larger filter. Do not exceed a total volume of 20 mL for the cell suspension after filtration.

5. Rinse the lid with the grinding palms and the collection tube 2-3 times with 1 mL of pre-chilled PBS to recover the cells adhering to the tube surfaces and filter into the same conical tube used in step 4. We recommend using wide orifice tips (e.g. for a 1mL pipette) for a gentle and more efficient cell recovery.
6. Rinse the bottom of the collection tube with an additional 1 mL of pre-chilled PBS and filter the cells into the same conical tube (from step 4).
7. Rinse the cell strainer twice with 1 mL of pre-chilled PBS to maximize cell recovery.

8. Examine the final cell suspension under a microscope using a hemocytometer to assess dissociation efficiency and cell viability.



**NOTE:** Further clean up steps might be necessary, depending on the cell suspension condition and intended use.

9. Keep the single cell suspension on ice and proceed according to your experimental requirements.
10. Clean the system carrier and housing, as detailed in the System Maintenance section of this document.
11. Close the tray and use the switch on the side of the system to turn the power off.

## Nuclei Extraction & Collection

For protocols related to nuclei extraction and post-processing on the Nuvo System, such as straining, washing, and collection, please refer to the Product Data Sheet (PDS) for the LeviPrep Nuvo Nuclei II Kit (16 reactions, Cat. No. 1005059). This document includes detailed instructions and Nuvo system settings validated for specific tissue types.

You can access the PDS here: <https://levitasbio.com/documents/>





## APPENDIX A – PROGRAM PARAMETERS AND CONTROLS

### Preheating the System

1. To preheat the tube holder before the dissociation, click on the illustration of the Dissociation Unit (orange arrow, Figure 13).



**Figure 13:** Operation Interface before preheating

2. The tube outline will turn red to indicate activation, and a “Preheat” message will appear on the display (purple and orange arrows, respectively, Figure 14). Preheating can be started either before or after selecting the program.



**Figure 14:** Operation Interface during preheating

- Once the tube holder reaches the target temperature (approximately 3 minutes), the heat symbol next to the tube icon will turn red (orange arrow, Figure 15).



**Figure 15:** Operation Interface after preheating completion.  
The heat symbol is illuminated in red.

## Preset and Customized Program Parameters

The LeviPrep Nuvo system includes:

- 10 preset dissociation programs (Programs 1-10). These are pre-configured for standard tissue dissociation workflows. Original parameter settings are listed in Appendix C.
- Up to 80 customizable program slots (Programs 11-90). Users can create and save protocols tailored to specific needs.

Each program (preset or custom) uses the following parameters:

| Parameter Name    | Parameter Description                | Allowable Range          |
|-------------------|--------------------------------------|--------------------------|
| Speed (rpm)       | Speed of the rotor                   | 30-350                   |
| CCW Time (s)      | Time with counterclockwise motion    | Max protocol time: 40min |
| CW Time (s)       | Time with clockwise motion           |                          |
| Loops (n)         | Number of iterations of a given step |                          |
| Stop Time(s)      |                                      |                          |
| (Only Multi-step) | Hold time between steps              |                          |

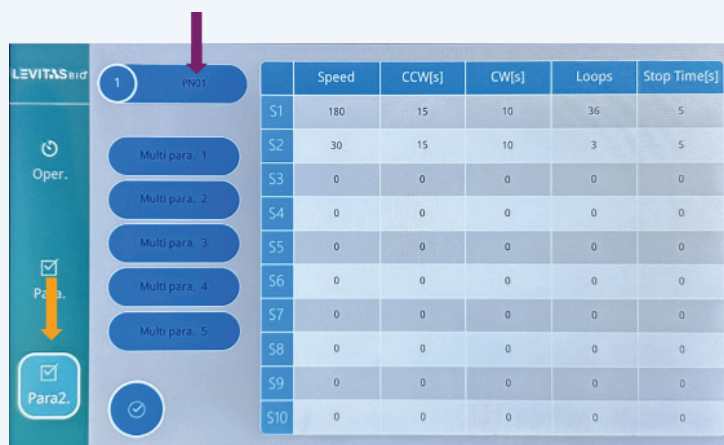
**Table 6.** Program parameters and their descriptions.

## Viewing Multi-step Preset Programs

**These multi-step programs are factory-set and should not be modified.**

Steps to view the Multi-step Preset Programs 1-5 Parameters

1. Click the “Para2.” button in the menu bar on the left side of the display (orange arrow, Figure 16). The multi-step program interface appears.
2. The selected program (e.g. PN01) is shown at the top of the list (purple arrow, Figure 16).
3. Click one of the “Multi para. 1-5” options to select a different program of the 5 available.



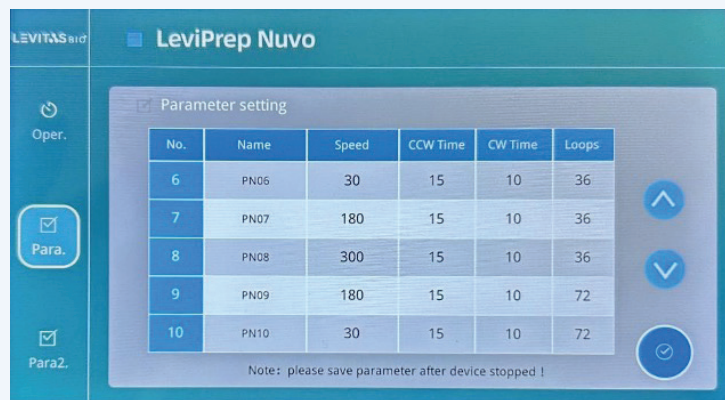
**Figure 16:** Multi-step program interface

## Viewing Single-step Preset Programs

**These single-step programs are factory-set and should not be modified.**

Steps to view the Single-step Preset Programs 6-10

1. Click the “Para.” button on the left menu (Figure 17).
2. The Programmer Interface appears, listing Programs 6-10 along with any existing custom programs (11-90). The Program parameters are shown alongside the list.



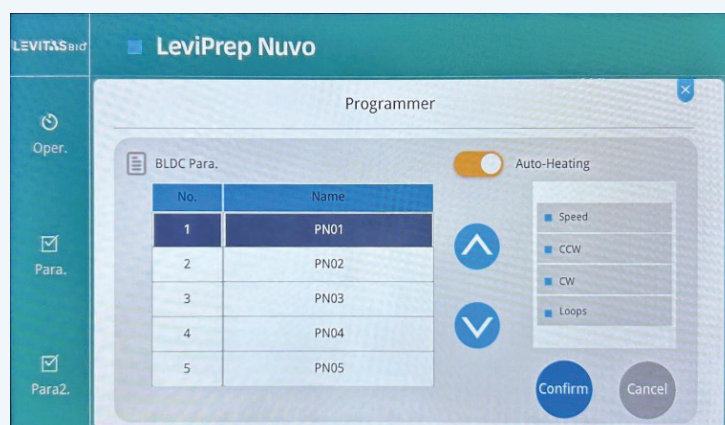
**Figure 17:** Single-step program interface.

## Viewing Custom Programs

Programs 11-90 are user-defined custom slots. If you've created or modified custom programs, they will appear in this list with their set parameters. Selecting a program displays its current configuration.

Steps to view the Custom Programs (11-90)

1. Click the "Oper." button on the left menu (Figure 18).
2. The "Programmer" Interface will appear with Programs 1-90 as a list. The parameters for single-step programs are also visible to the right of the list.

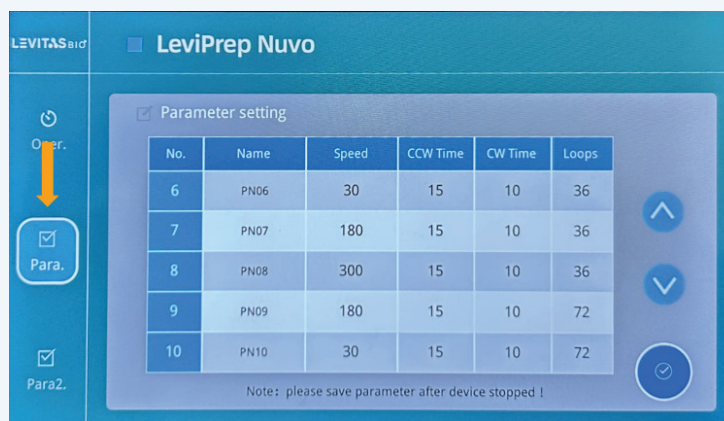


**Figure 18:** Operation Interface with Program List

## Setting Up Customizable Single-Step Programs

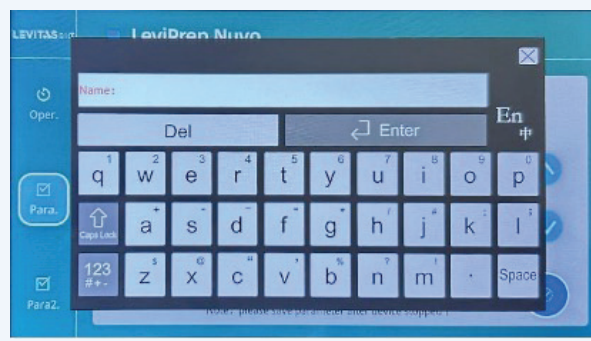
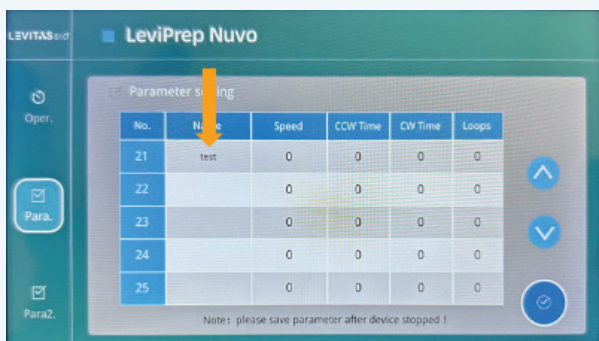
The LeviPrep Nuvo allows you to create and save up to 80 custom single-step programs (Programs 11–90). These customizable programs let you set specific rotor speeds, rotation times, and the number of loops to match your exact dissociation needs. See Section System Operation, Table 4 for the available programs.

To set up a custom single-step program:



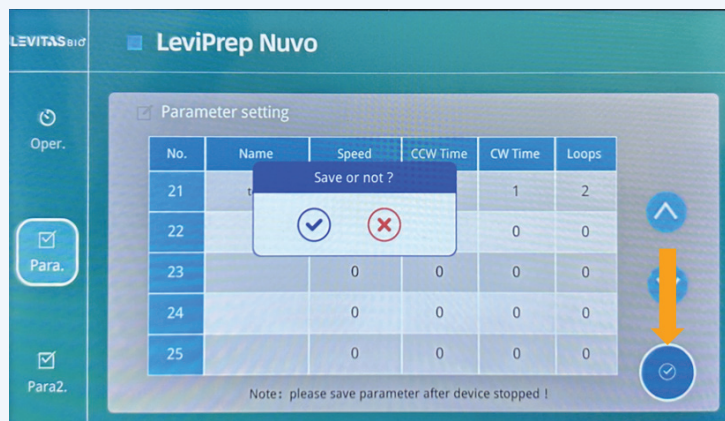
**Figure 19:** Parameter setting interface.

1. Click the “Para.” button on the left menu (orange arrow, Figure 19). The Parameter Setting Interface will appear.
2. Use the up/down arrows to scroll through the program list (11-90) until you reach an empty slot, or an existing custom slot to modify.
3. Click directly in the program name field or any parameter field (Speed, CCW Time, CW Time, Loops). A dialog box will appear for you to enter the desired value (Figure 20). The original parameter settings for the preset programs 1-10 are provided in Appendix C for your reference.



**Figure 20:** Customizing a program and its parameters

- When finished click the “✓” symbol indicated (orange arrow, Figure 21). A “Save or not?” dialog box will appear.
- Click “✓” to save your new or updated program. The new program will appear in the program selection list. Click “X” to discard changes.

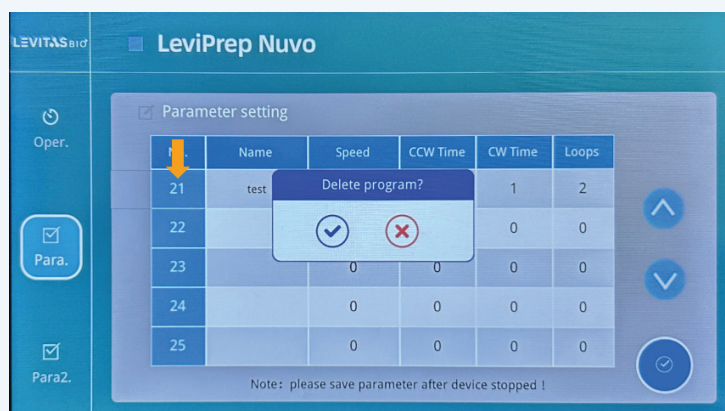


**Figure 21:** Parameter setting Interface before saving new parameters.

## Deleting a Program

To delete a saved program, follow these steps:

- Press and hold the number corresponding to the program you want to delete (orange arrow, Figure 22). The “Delete program?” box will appear.
- Click “✓” to confirm.



**Figure 22:** Parameter setting interface before deleting a program.  
No.: number, CCW: counterclockwise rotation, CW: clockwise rotation

## Pausing a Program

1. To pause a program during a run, press the “Suspend” button for each of the channels corresponding to the run you want to pause (orange arrow, Figure 23).
2. The corresponding channel will pause. Click “Open” to open the tray if needed.



**Figure 23:** Active program before pausing

3. To continue the dissociation, click the “Close” button if the tray is open.
4. Once the tray retracts, click the “Start” button to continue the dissociation and resume the run (orange arrow, Figure 24).



**Figure 24:** Operation Interface before restarting the run after pausing

## Manually Terminating a Run

To manually terminate a run, follow these steps:

1. Press and hold the “Stop” button (orange arrow, Figure 25). A “Stop or not?” dialog box will appear.
2. Click “V” to terminate the run. Click “X” to cancel and return to the run without terminating.



**Figure 25:** Operation Interface after pressing the “Stop” button.

3. The selected channel will stop, the system will beep, and the tray will automatically open ending the run (Figure 26).



**Figure 26:** Operation Interface after the program has stopped, with the tray open

## APPENDIX B – TISSUE DISSOCIATION KITS

### Catalog Numbers

| Item                                         | Size    | Catalog number |
|----------------------------------------------|---------|----------------|
| LeviPrep Nuvo Series Tissue Dissociation Kit | 24 rxns | 1005020        |

### Product Composition and Storage

| Item                                     | Size      | Storage        | Catalog number |
|------------------------------------------|-----------|----------------|----------------|
| Enzymatic Tissue Dissociation Solution   | 12 x 6 mL | -25°C to -15°C | 6000125        |
| Single-use mechanical dissociation tubes | 24 units  | 2°C to 35°C    | 6000126        |



**NOTE:** Store the components at the indicated temperature. LeviPrep Nuvo Dissociation Units are single-use disposables, and cannot be reused.

## APPENDIX C – PRESET PROGRAM PARAMETERS

### Multi-step Programs 1-5

#### PN01

| Step | Speed | CCW(s) | CW(s) | Loops | Stop Times(s) |
|------|-------|--------|-------|-------|---------------|
| S1   | 180   | 15     | 10    | 36    | 5             |
| S2   | 30    | 15     | 10    | 3     | 5             |

#### PN02

| Step | Speed | CCW(s) | CW(s) | Loops | Stop Times(s) |
|------|-------|--------|-------|-------|---------------|
| S1   | 30    | 15     | 10    | 36    | 5             |
| S2   | 300   | 15     | 10    | 15    | 5             |
| S3   | 30    | 15     | 10    | 36    | 5             |

#### PN03

| Step | Speed | CCW(s) | CW(s) | Loops | Stop Times(s) |
|------|-------|--------|-------|-------|---------------|
| S1   | 30    | 15     | 10    | 36    | 5             |
| S2   | 300   | 15     | 10    | 10    | 5             |
| S3   | 30    | 15     | 10    | 36    | 5             |

#### PN04

| Step | Speed | CCW(s) | CW(s) | Loops | Stop Times(s) |
|------|-------|--------|-------|-------|---------------|
| S1   | 300   | 15     | 10    | 12    | 5             |
| S2   | 30    | 15     | 10    | 36    | 5             |

#### PN05

| Step | Speed | CCW(s) | CW(s) | Loops | Stop Times(s) |
|------|-------|--------|-------|-------|---------------|
| S1   | 180   | 15     | 10    | 10    | 5             |
| S2   | 60    | 600    | 300   | 2     | 5             |

### Single-step Programs 6-10

| Step | Speed | CCW(s) | CW(s) | Loops |
|------|-------|--------|-------|-------|
| 6    | 30    | 15     | 10    | 36    |
| 7    | 180   | 15     | 10    | 36    |
| 8    | 300   | 15     | 10    | 36    |
| 9    | 180   | 15     | 10    | 72    |
| 10   | 30    | 15     | 10    | 72    |

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