Name:	Sakura Tissue-Tek VIP 5 Tissue Processor Procedure	**Created:**	September 9, 2025
Number:	Histo-2	**Revised:**	September 19, 2025
Category:	Instrument Operation	**Author(s):**	Katie Tooley

1.0 Purpose

The purpose of this SOP is to describe the proper procedure of use of the Sakura Tissue-Tek VIP 5 tissue processor located in the histology core, Bertelsmeyer 220.

2.0 Policy

2.1 The use of all histology equipment in the histology core lab at Missouri S&T is currently managed by the Center for Biomedical Research (CBR) staff.

2.2 All personnel working in the histology core are required to complete general laboratory safety and BSL-2 training through EHS.

- 2.2.1 More training may be required in the future. Please check with CBR staff before beginning work to ensure all required training is complete.

2.3 Eating or drinking is not permitted in the lab.

2.4 PPE is required for all users. This includes, at minimum, gloves and a lab coat. A mask and/or goggles should also be worn if working with noxious chemicals (i.e. xylene) or chemicals with the potential to splash.

2.5 Bertelsmeyer 220 is a shared lab space, therefore all users must be familiar with the supplies and equipment available to them before keycard access to the lab will be granted.

2.6 All samples should be labeled with your name, date, and sample identification. **Any samples not labeled will be thrown out.**

2.7 Each user is required to sign in and out of each equipment logbook while working in the histology core.

- 2.7.1 Please also schedule all equipment use through the online Outlook calendar for the Histology Users – MST Outlook group.
  - 2.7.1.1 Please view the Outlook calendar instructions pdf sent with the Outlook group invite for further information.

2.8 Each person working in the lab is responsible for cleaning work surfaces, such as benches, and any used equipment before leaving.

- 2.8.1 Cleaning tasks must be documented daily on the provided checklist.

2.9 Each person leaving the lab, including temporary visitors, is required to wash their hands before leaving.

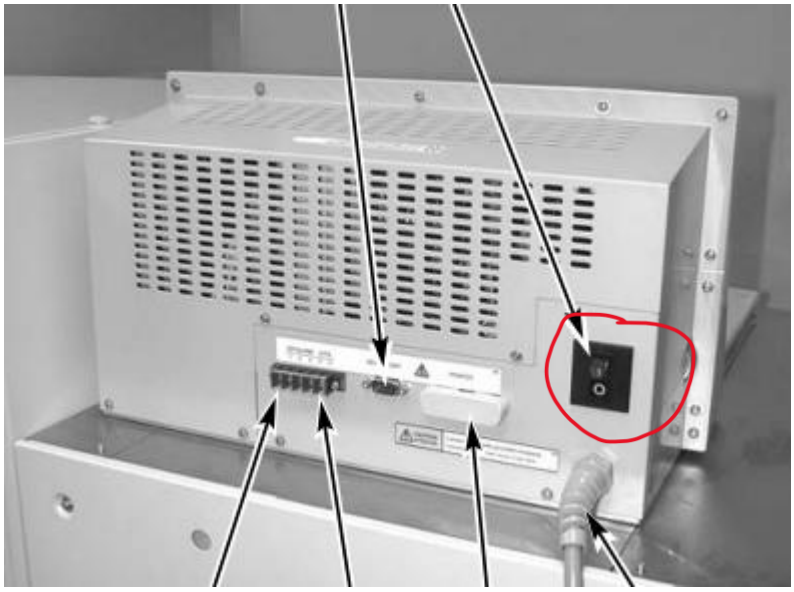
2.10 No user fee is currently being charged, however, a list of supplies to be provided by users is outlined in the Supplies section below.

2.11 The operator is responsible for carefully following all steps outlined in this SOP, performing the required cleaning after each use, and immediately reporting any equipment malfunctions, damage, or safety concerns to the lab supervisor.

2.12 Please contact Anna Chernatynskaya or Katie Tooley if you have any questions.

3.0 Procedure

3.1 The tissue processor should be on for at least 48 hours before processing samples to allow the paraffin to fully melt. If the tissue processor is not on, turn it on using the switch in the back and contact Anna Chernatynskaya or Katie Tooley to alert staff to the situation.

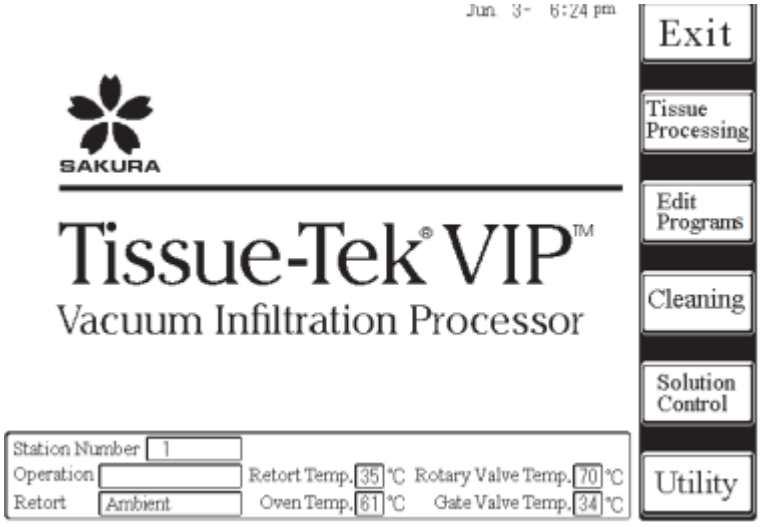


3.2 Sign in to the logbook located on the tissue processor.

3.3 Before starting any processing, check the reagent bottles to make sure they are fully connected.

3.3.1 Press each bottle towards the back of the tissue processor. If any bottles are loose, they will click into place.

3.4 Press the "Tissue Processing" button from the main menu (If you are planning a Delayed Start, select Edit Programs and follow the instructions outlined in 3.9.2 before proceeding).



3.5 Enter the manager password in the tissue processor, 1234.

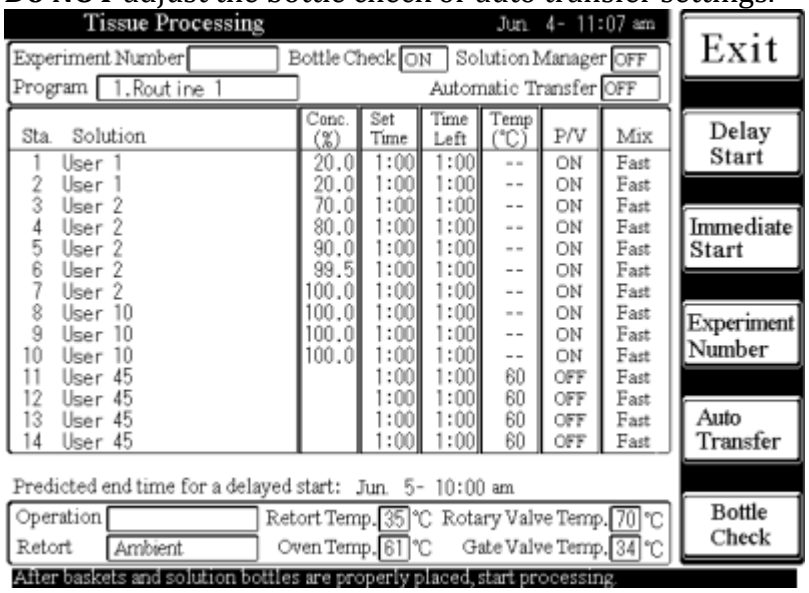
3.6 Enter your desired program number and press "Enter".

3.6.1 The tissue processor can run up to 300 cassettes at a time. If you have more than 300 samples, you will have to run multiple cycles.

3.6.2 A program should have already been set up for the tissues you are working with, listed under your PI's name. If there is not a program listed under your PI's name, or you require a different program, contact Anna Chernatynskaya or Katie. **Do NOT** change any other programs in the machine.

3.7 You can enter in an experiment number to name the run, but this is not required.

3.8 **Do NOT** adjust the bottle check or auto transfer settings.



3.9 Select either Immediate Start or Delayed Start.

3.9.1 Immediate Start immediately starts the processing run without a delay.

3.9.2 Delayed Start allows you to program the desired end time for the processing run (this must be done from the Edit Programs screen which can be accessed from the main menu).

3.9.2.1 If you want the run to end at a specific time the next day, select Edit Programs from the main menu. Select the program listed under your PI's name. Scroll to the bottom of the editing screen until you reach the End Time box. Type in the time you want processing to end (if you want it to end at 9AM, type in 9, 0, 0). Click Save and proceed to the Tissue Processing window.

3.9.2.2 Make sure to double check the programmed end time before selecting Delayed Start. This is located near the bottom of the screen shown above.

3.10 Allow the bottle check to run (applies to both start methods but will occur after pumping in the first reagent if Delayed Start is selected).

3.10.1 **Do NOT** leave until bottle check is complete. The reagent sensors may trigger a warning during bottle check and stop the run. If this happens, contact Anna Chernatynskaya or Katie Tooley for help.

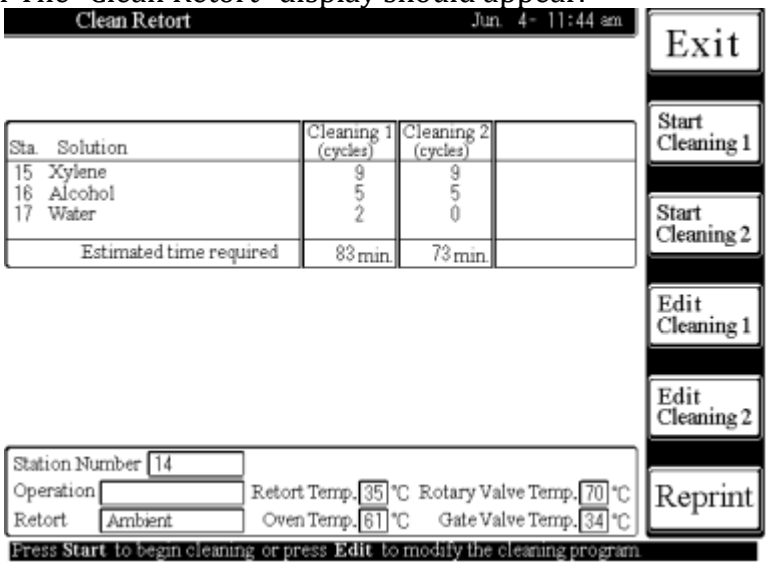
3.11 Allow the processing to complete.

3.12 After processing completion, press "Drain Retort". Pump-out will begin.

3.13 After the retort is drain, remove your samples and replace the sample baskets

back in the retort.

3.14 The “Clean Retort” display should appear.



3.15 Press “Start Cleaning 1”.

3.16 Allow the cleaning cycle to run.

3.17 After the cleaning cycle is completed, open the retort and wipe the inside with a clean paper towel.

3.18 Empty the waste bottle.

3.19 Empty the fume control water bottle and refill with 3L of tap water.

3.20 Remove the retort drain and clean it with xylene, then return the drain.

3.20.1 All daily cleaning tasks must be completed after processing any samples.

3.21 The screen may return to the main menu or to the “Solutions” screen.

3.21.1 If the “Solutions” screen is displayed, contact Anna Chernatynskaya or Katie Tooley to perform reagent exchange.

3.22 Check off cleaning tasks and sign your initials in the Histology Maintenance Logbook located in the drawer underneath the embedder (will be created soon).

3.23 Sign out of the tissue processor logbook.

3.24 **Do NOT** turn off the tissue processor.

4.0 Supplies provided by users:

4.1 **Blades for microtome and cryostat**: Epredia HP35 Ultra microtome blades (please stick with this exact product, our microtome is set up for easy change-outs of these specific blades) - $289.09 for a pack of 50, Catalog #31-537-35, https://www.fishersci.com/shop/products/thermo-scientific-ultra-disposable-microtome-blades-2/3153735?searchHijack=true&searchTerm=thermo-scientific-ultra-disposable-microtome-blades-2&searchType=Rapid&matchedCatNo=3153735

4.2 **Camel hair brushes, small** (links include what we use, but feel free to shop around, must be camel hair) - $70.75 for a pack of 12, Catalog #1910, https://www.fishersci.com/shop/products/cryotome-cryostat-accessories-camel-hair-brush/1910#?keyword=1910%20brush

4.3 **Camel hair brushes, large** - $26.28 each, Catalog #03-661, https://www.fishersci.com/shop/products/fisherbrand-long-handled-camel-s-hair-brush/03661#?keyword=03661

4.4 **1 gallon of Fisher histological grade ethanol** (only needed if you'll be processing more than 50 samples) - $113.10, Catalog #A405F-1GAL, https://www.fishersci.com/shop/products/ethanol-anhydrous-histological-fisher-chemical-3/A405F1GAL?searchHijack=true&searchTerm=ethanol-anhydrous-histological-fisher-chemical-3&searchType=Rapid&matchedCatNo=A405F1GAL

4.5 **Glass microscope slides** (charged slides are best for tissue retention during staining) – Fisherbrand Superfrost Plus Microscope Slides, $47.66 for pack of 144 slides, Catalog # 22-034979, https://www.fishersci.com/shop/products/fisherbrand-superfrost-plus-stain-slides/22034979?searchHijack=true&searchTerm=fisherbrand-superfrost-plus-stain-slides&searchType=Rapid&matchedCatNo=22034979

4.6 **Glass cover slips** (personal preference, but this is what we use) - Epredia Signature Series Cover Glass, $83.55 for a pack of 10 boxes, Catalog #22-050-232, https://www.fishersci.com/shop/products/signature-series-cover-glass-24-x-50mm/22050232#?keyword=22050232

4.7 **Microscope slide box** (feel free to shop around, item linked is an example) – Fisherbrand Microscope Slide Box, 100 slots, $9.58, Catalog #03-446, https://www.fishersci.com/shop/products/fisherbrand-microscope-slide-boxes-numbered-slots-3/03446#?keyword=03-446

5.0 References

5.1 Rankin Biomedical Sakura Tissue-Tek VIP 5 Operator's Manual https://cdn.shopify.com/s/files/1/0252/1759/7519/files/Sakura_VIP_5_Operator_Manual_1.pdf?v=1646347020

5.2 Missouri S&T EHS Laboratory Safety Training https://ehs.mst.edu/trainingindex/

SOP REVISION HISTORY

VERSION #	APPROVED	DETAILS
1	9/9/25	Created
2	9/19/25	Edited Section 3 for more Delayed Start information
3		