

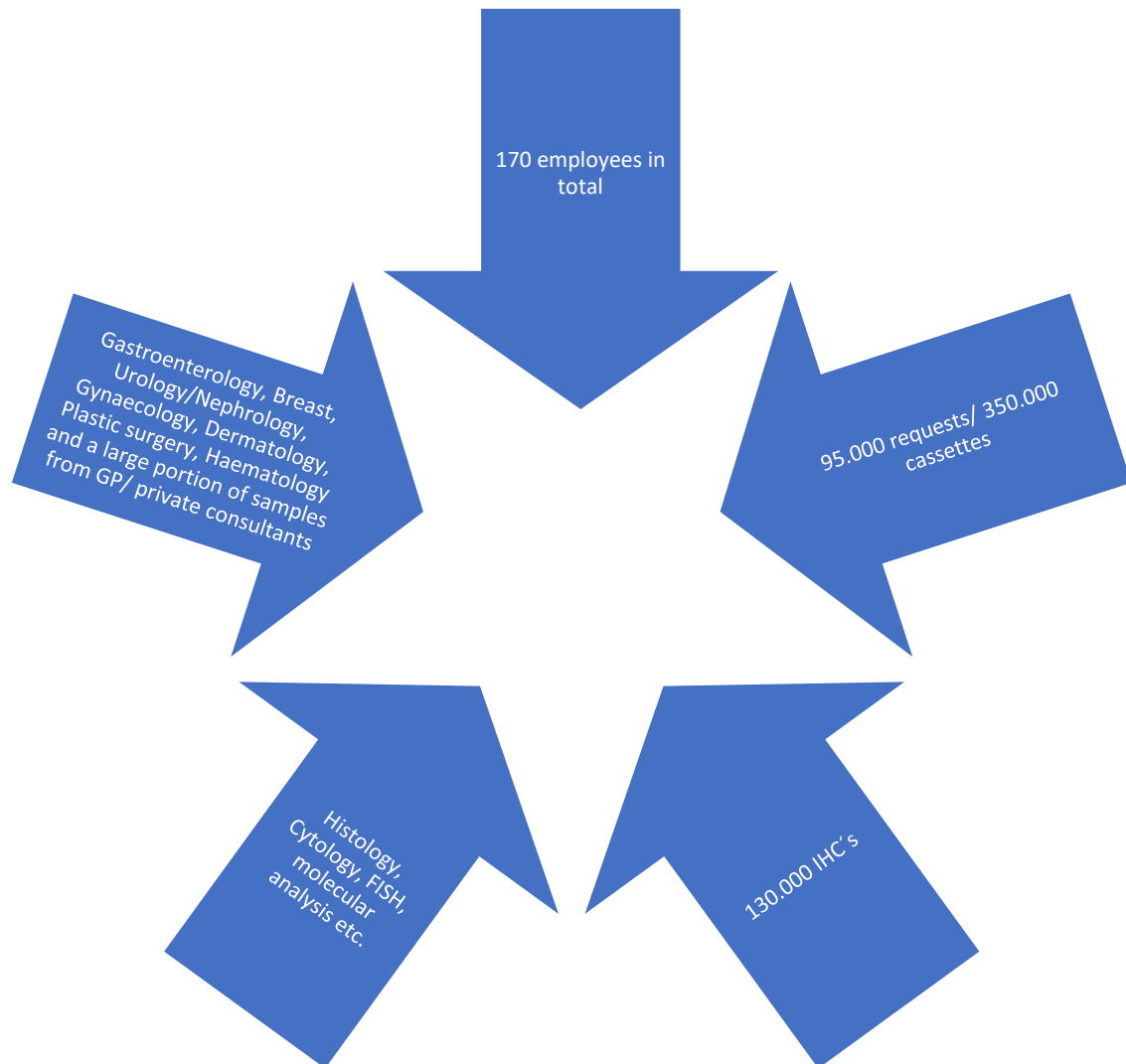
AS-410M, Auto Slide Preparation System

Department of Pathology
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Our department



Purpose of automation:

- Creating value by sufficient turn around times and high quality results in a high through-put laboratory
- Work-environment
- Digital pathology
- Knowledge-sharing
- Motivation




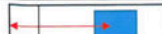




Original testing Period –2 months (2016)

Preanalytical	Processing	Post
Net: Different net types (biopsy, skin-shaved and orientation)	Cutting angle: 60° & 90°	Section evaluation: Sections viewed under microscope according to thickness and angle by 3 pathologists, and qualified biomedical laboratory scientist
Blocks: Trimmed manually on rotation and sledge microtomes	Tape: Speed & mounting strength on carrier tape	
	Tissue thickness: Cutting thickness 3-5µm	
	Blades: Frequency of changing blades	
	Slides: Text and QR-codes on slides (yellow, pink, white and coated)	

Original goal (2016)

Standardized program:

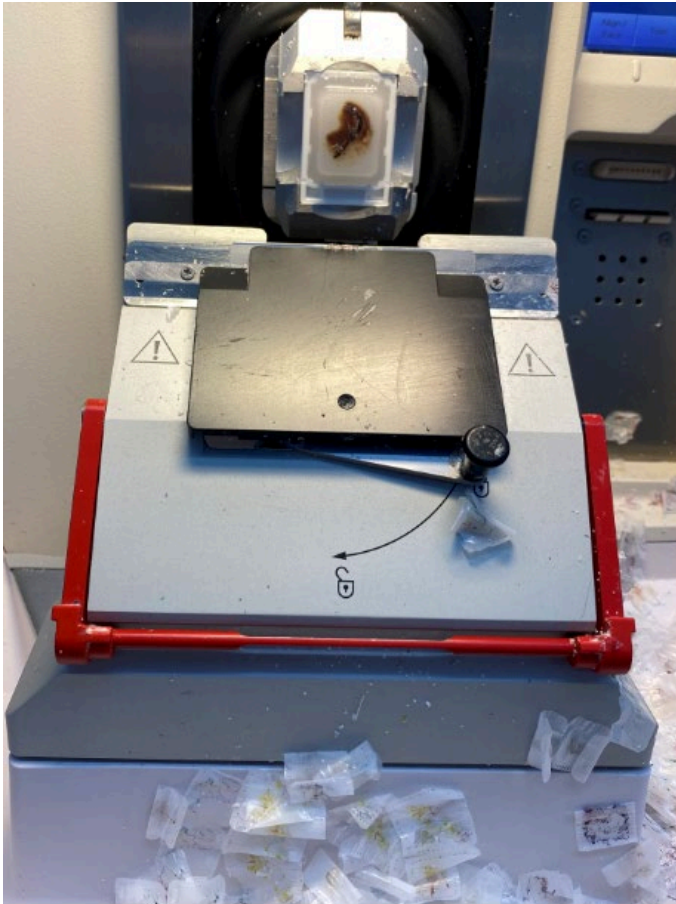
Thickness 4 μ

Parameter NO,	Cut angle	Drip rate	Knife change	Dripping spot	Mount strength	Mount position
1 STANDARD 9 O M	90°	12 μ l	Block 18	○●○●●●●●○●	Medium	 45mm
2 STANDARD 6 O M	60°	12 μ l	Block 12	○●○●●●●●○●	Medium	 45mm
3 STANDARD 9 O L	90°	12 μ l	Block 18	○●○●●●●●○●	Low	 45mm
4 STANDARD 6 O L	60°	12 μ l	Block 12	○●○●●●●●○●	Low	 45mm
5 SNMM (Extension 40s)	60°	12 μ l	Block 1	○●●●●●●●●	Medium	 45mm
6 NORMAL	60°	12 μ l		○●○●●●●●○●	Medium	 45mm
7 IHC KONTROL 1	90°	14 μ l	Section/1 1 0 0	○●●●●●○●○●	Medium	 22mm
8 IHC KONTROL 2	60°	14 μ l	Section/1 1 0 0	○●●●●●○●○●	Medium	 22mm
9 Dual slide mounting	60°	First 12 μ l Second 14 μ l		○●○●●●●●○●	Medium	 24mm

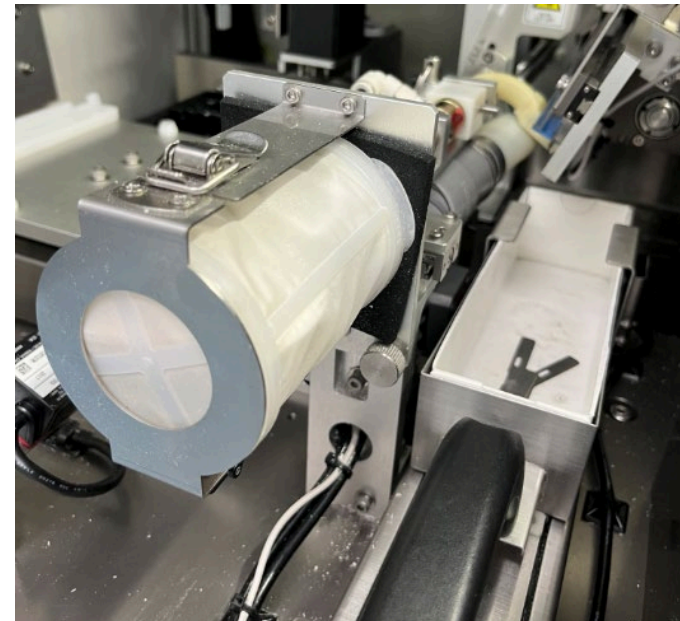
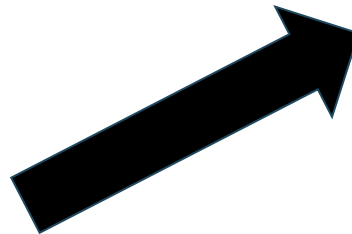
IHC controls (goal: min. 400 slides/block)



***ALL BLOCKS WITH NETS ARE PRE-TRIMMED
BEFORE LOADED ON THE AS!***



Small suction bag



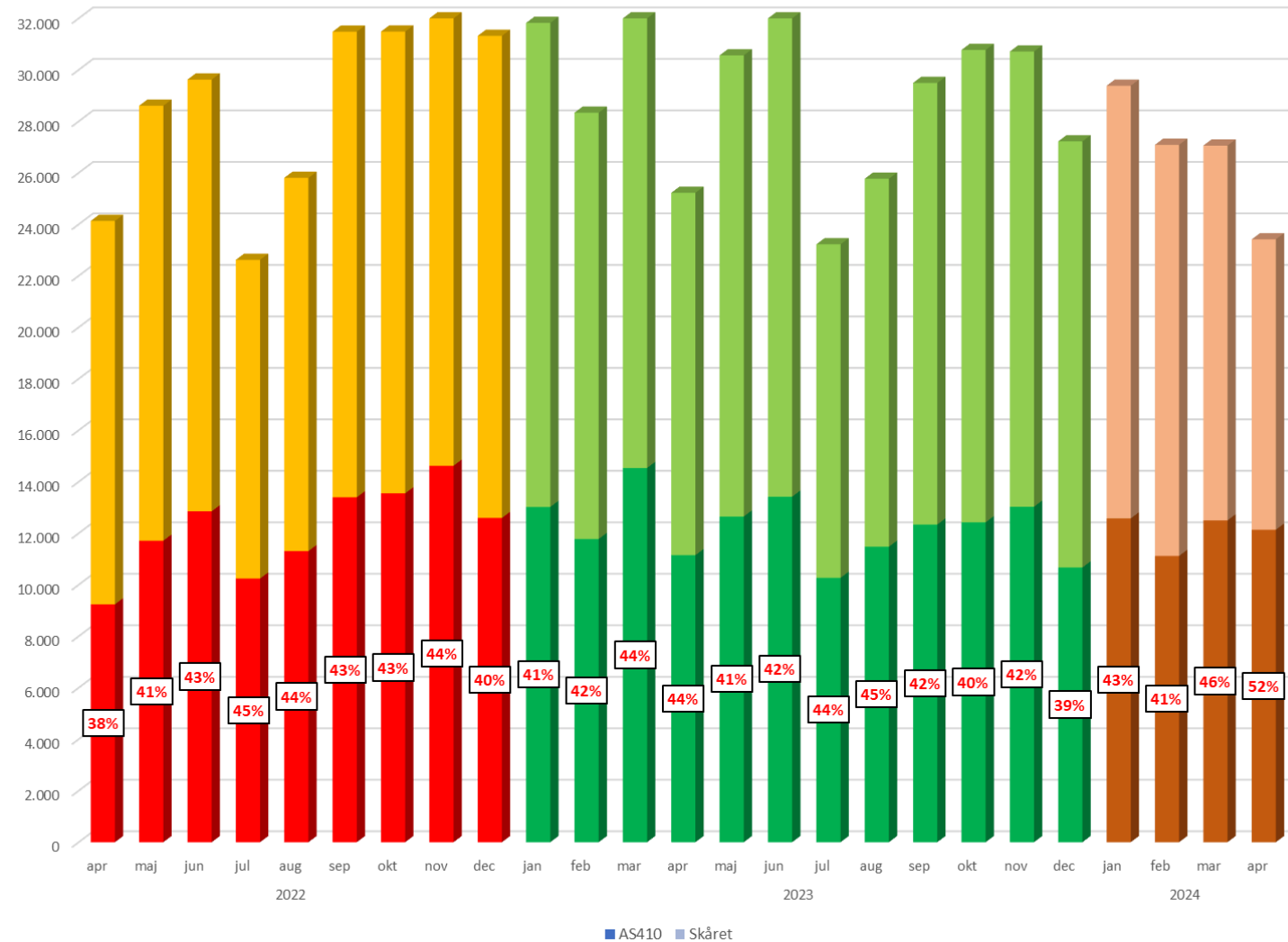
Production

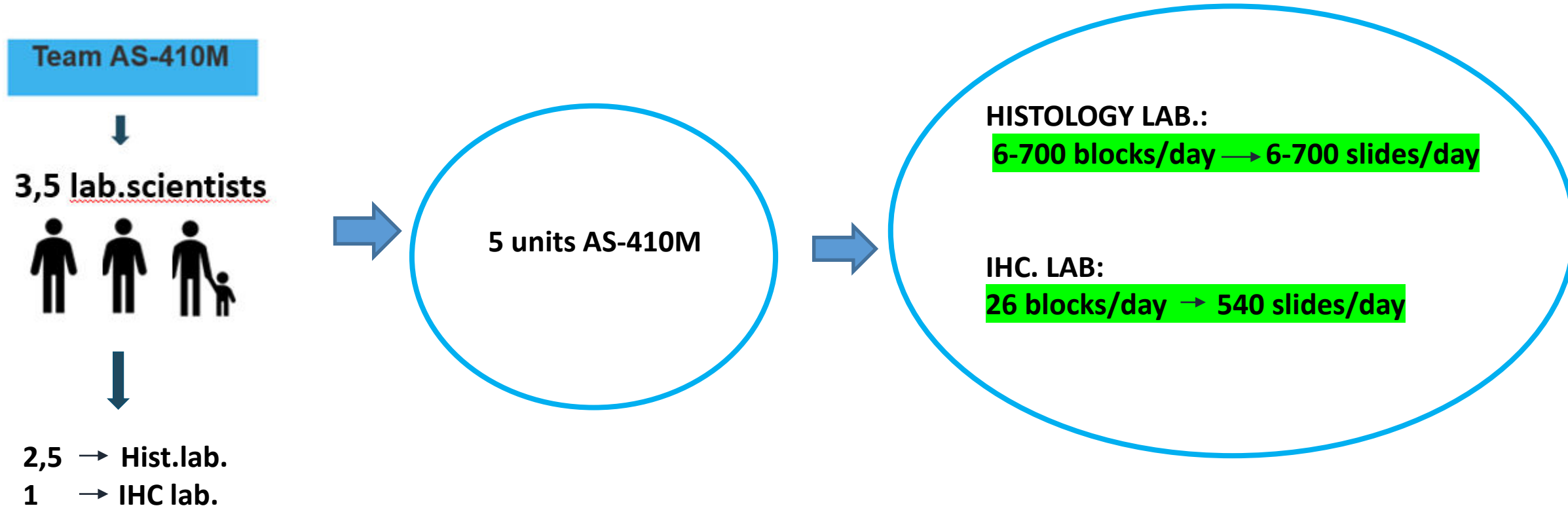
Histology		2020	2021	2022	2023
	Samples	89.426	89.217	92.694	94.063
	Blocks	322.959	319.398	334.676	346.320
	Frozen blocks	3.161	3.429	3.268	2.614
	Slides	642.514	655.795	670.948	647.222
IHC	Slides	117.476	119.242	122.276	119.878
IHC on AS	Slides	-	132.203	131.562	134.636
	Blocks	-	4.409	5.805	6.668

43% on AS-410M
←

Sectioned on AS-410M
←

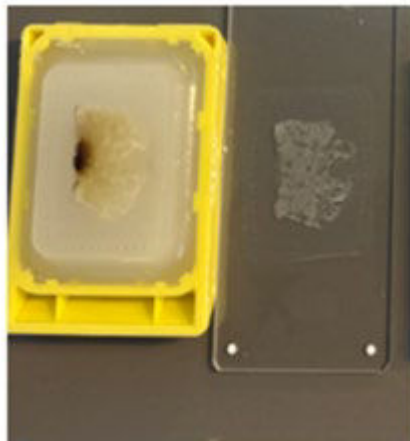
Percentage of sectioned cassettes in total





Histology lab.

Settings	Routine Blocks
Thickness	4
Slide per block	1



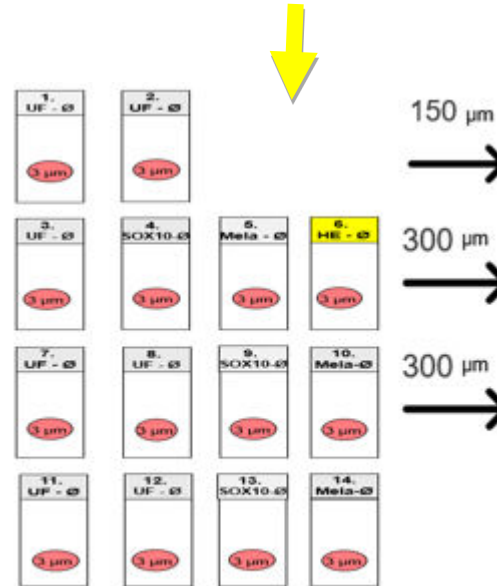
- 3,5 units
- Dayrun 8-14.30 – between 300 - 500 blocks/day
- Night run 3-400 blocks
- Depends on in-take/work hours

IHC Lab.

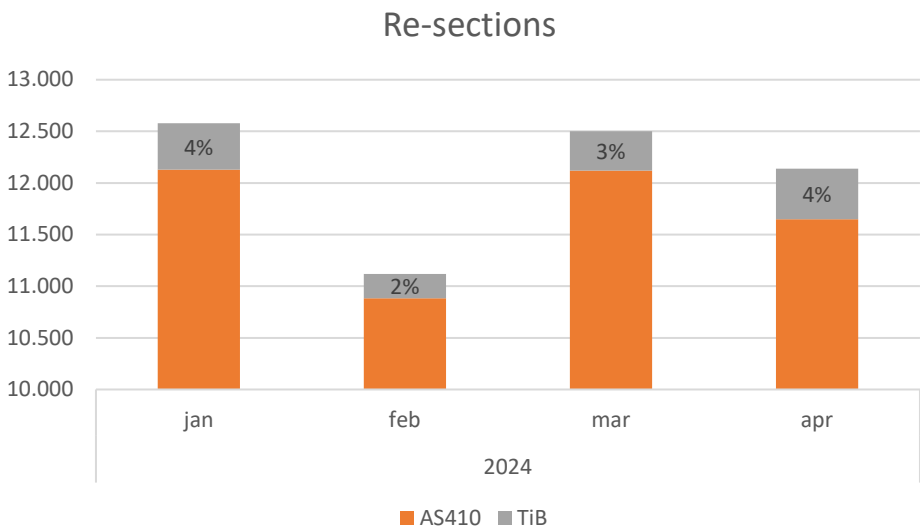
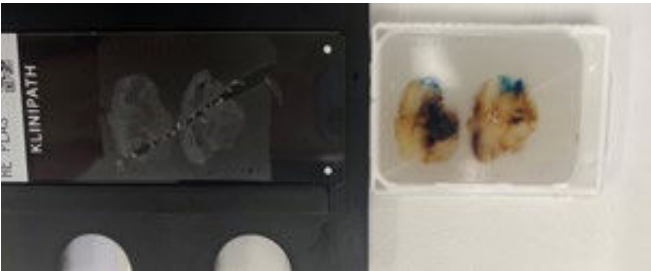
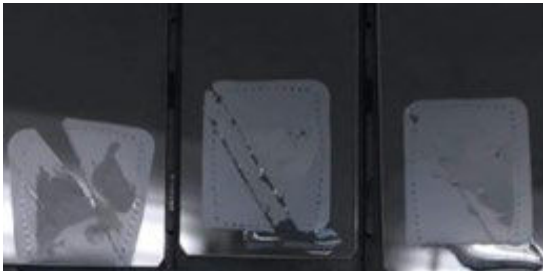
Production data

Settings	SNMAM 25 min	SNMM 20-25 min	SNGYN 25-30 min
Layer	4	3	4
Interval	350	150/300	350
Thickness	4	4	4
Slide per layer	2	2-4	3

- 1,5 units
- Dayrun 8-14.00 sentinel nodes
- 15-20 blocks/day 180-240 slides pr day (400 controlslide)
- Night run (control/sentinel nodes)



Re-sectioning?



	Mdr.	AS410- Total	AS410	TiB	% TiB
2024	jan	12.577	12.130	447	4%
	feb	11.120	10.882	238	2%
	mar	12.500	12.120	380	3%
	apr	12.137	11.650	487	4%
	maj		0		
	jun		0		
	jul		0		
	aug		0		
	sep		0		
	okt		0		
	nov		0		
	dec		0		
I alt		48.334	46.782	1.552	13%



Future goals:

- 70-75% of all cassettes on AS410
- Digital Pathology Q1 2025
- Re-sections at XX% ?
- Discussion of required quality- based on data

Starting with:

More small tissues on AS

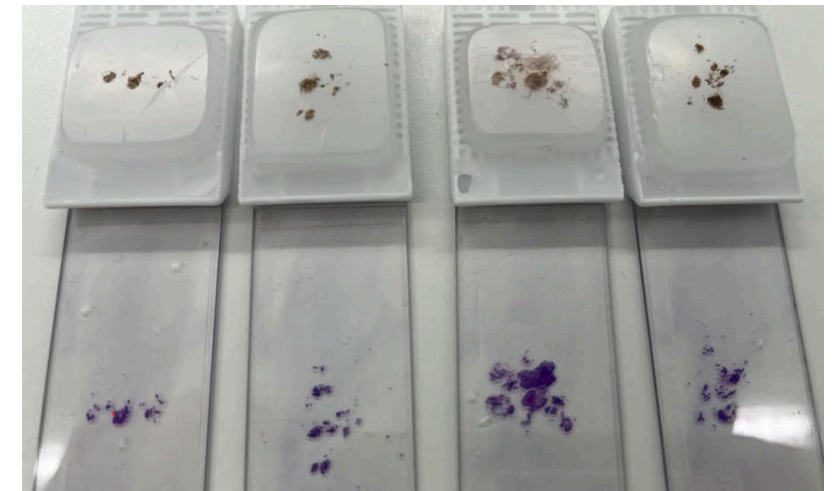
- Small biopsies
- Small nets
- Sentinel nodes (Interval-Routine)

HE 1 - Ø	PAS 2 - Ø	HE 3 - Ø	UF 4 - Ø	HE 5 - Ø	Jern 6 - Ø	HE 7 - Ø
3 µm	3 µm	3 µm	TOMO	3 µm	3 µm	3 µm
3 µm	3 µm	3 µm	3 µm	3 µm	3 µm	3 µm

Punch biopsies



lymphnodes



Small skin biopsies