

Cryostat MEV / MEV + and MNT

Tips and tricks - tissue sectioning

The temperature of the cryostat plays an important role in the quality of the tissue sections obtained. Each type of tissue requires a different temperature. The following list provides an indication.

Please note that the temperature ranges indicated in the table below are approximate values and may require adjustments for individual tissues.

Type of tissue	Recommended temperature range at the knife or blade edge (°C)	
Bone marrow	-16 down to -25	 MEV / MEV +
Brain	-7 down to -10	
Breast with fat	-25 down to -30	
Breast without fat	-16 down to -20	
Cartilage	-13 down to -20	 MNT
Fat	-30 down to -40	
Heart	-20 down to -25	
Intestinal	-13 down to -20	
Kidney	-13 down to -20	 Consumables
Larynx	-13 down to -16	
Lip	-10 down to -20	
Liver	-7 down to -13	
Lung	-13 down to -20	 www.slee.de/en
Lymph-node	-13 down to -20	
Lymphatic	-13 down to -20	
Lymphoid	-13 down to -20	
Muscle	-13 down to -20	 Mail Slee here!
Nose	-13 down to -20	
Rectal	-13 down to -20	
Scrapings	-16 down to -25	
Skin with fat	-16 down to -25	
Skin without fat	-10 down to -16	
Spleen	-7 down to -10	
Testicle	-10 down to -13	
Tongue	-13 down to -20	
Uterine-curettage	-7 down to -10	
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Find blades, paraffin etc. here:

Tips and tricks – cutting angle

Cutting artifact	Cause	Remediation
Hard tissue does not cut well	cutting angle is too small	tilting the blade away from the specimen increases the clearance angle
Soft tissue does not cut well	cutting angle is too big	tilting the blade towards the specimen reduces the clearance angle

Cutting artifact	Cause	Remediation
Alternating thin and thick cuts	wrong temperature of the cutting edge / blade	select temperature according to the tissue type
	wrong temperature of the cryo chamber	adjust temperature
	sample is not optimally fixed on specimen holder	remove sample and freeze again
Squeaking sound when cutting, cuts show chattering	sample is not optimally fixed on specimen holder, vibrates during cutting	remove sample and freeze again
Formation of fractures in frozen tissue	freezing was too fast	freeze new sample, if possible
	sample is too big	
Feed takes place but no sections emerge	loose blade	check clamping
	sample is not optimally fixed on specimen holder	remove sample and freeze again
	wrong blade angle	correct angle
	anti-roll plate is too far in the front	adjust anti-roll plate with the adjusting screw
	specimen is not frozen yet	let tissue freeze longer
Sections distort or roll up	gap of the anti-roll plate is too small	set up / adjust
	thickness of sections is too thin	increase thickness of sections
	blunt blade	change blade and / or move laterally
Section cracks up	sample is over frozen	freeze new sample, if possible
	destroyed or dirty blade / edge	change anti-roll blade
Cuts thaw during cutting	cryostat or cutting temperature is too high	correct temperature
Frost on the blade	cryostat was open too long	close the cryo chamber
Section sticks to the anti-roll blade	gap of the anti-roll plate is too small	set up / adjust
	tissue or fat covers the anti-roll plate	clean anti-roll plate
	inappropriate cryostat or blade temperature	correct temperature
Section twists to one side	deposits on cutting edge	clean blade / cutting edge
	gash in the blade, blunt blade	change blade and / or move laterally
	anti-roll plate is broken	change anti-roll blade
Section detaches from slide	cut fixed tissue without adhesive	use adhesive
	no adhesive used	
	fat tissue	
	cartilaginous tissue	
Section shows horizontal columns	handling too rough	work more cautiously, more carefully
	specimen is too cold	correct temperature
		warm up specimen