

RF80



rapidBio
freezer

Ultra Fast Specimen
Freezing System

 Alpha Metrix
Biotech

RapidFreezer - Ultra Fast Specimen Freezing System

The freezing method chosen for your tissue specimen has a critical impact on the preservation and quality of both morphology and molecular components.

RapidFreezer guarantees ultra fast and reproducible artefact free specimen freezing. The system uses an iso-pentane freezing bath cooled down to -80°C. Iso Pentane does not degas in the same way as liquid Nitrogen and as such the temperature is transmitted to the specimen faster and in a more controlled, reproducible manner.



Molecular components do not have time to migrate into the specimen, cell membranes are preserved and tissue lesions are avoided. The bath temperature is strongly reducing the risk of damage to the tissue by

large ice crystals. Ice crystals can form and degrade the structures and walls of the specimen. Staining will not remain in the targeted compartments, structures will almost all look the same making the identification of the different morphologies more difficult and partly approximative. Cryostat freezing bar or liquid nitrogen deep freezing are not controlled freezing procedures and frozen specimen of variable quality can be produced.



RapidFreezer Features

Freezing Chamber

The freezing chamber is conveniently located on the top of the unit. It has a key operated lockable lid. The RapidFreezer has two independent chambers. The upper chamber is kept at -40°C, the lower chamber is temperature controlled between -40°C and -80°C. The temperature can be selected depending on the specimen. For use the lid is removed and the specimen

is simply lowered into the freezing liquid of the lower chamber. The volume of the lower chamber is 680 ml and can be reduced using inserts down to 11ml. Frozen samples can be temporarily stored in the upper chamber with a volume of 5300 ml until being picked up for transport to the permanent storage.

Auto Timer Option

RapidFreezer is available in either with or without timer option. The freezing unit can be programmed to start and stop at any time during the day or night.



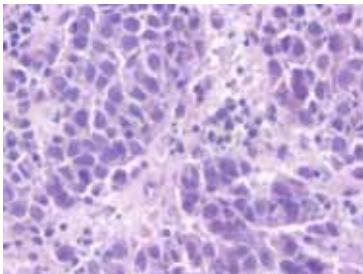
Self Contained, Compact Unit

The RapidFreezer is a compact floor standing unit. It is equipped with wheels and can easily be moved around. It incorporates powerful compressors and needs no external services apart from a standard power socket. The system is robust and requires little maintenance beyond cleaning of the air filter located on the front of the unit.

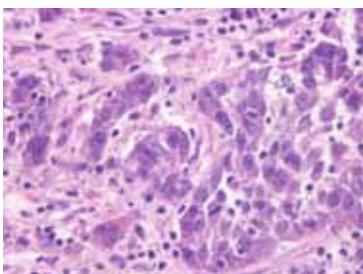
The image on top left is typically demonstrating such artefacts created by a low quality freezing procedure. The image on the bottom is generated from a RapidFreezer frozen specimen. Staining is sharp and diagnosis far easier and reliable.

For the diagnosis of frozen sections and also frequently used for tissue banking in research and diagnostic, liquid nitrogen freezing remains a well used deep freezing procedure. Although the method is fast, due to ultra low temperature, the conditions are not controlled. Moreover, operations are not safe for the operator and the lab. Regulations have been established defining the environment conditions for liquid nitrogen freezing.

The regulations tend to make liquid nitrogen freezing more and more complex and less flexible. The necessary environment cannot easily be established close to the surgery room when you need to freeze as quickly as possible after resection to reduce RNA degradation while keeping morphology intact.



H&E section of human bladder frozen on a freezing bar at -40°C in a cryostat



H&E section of human bladder frozen with RapidFreezer at -80°C.

Summary

RapidFreezer is a compact deep freezer that can be moved anywhere you need it to do your freezing. It is safe to operate, and allows immediate freezing to generate frozen specimens of very high visual and molecular content. RapidFreezer is also very economical, the coolant used, isopentane, is much cheaper than liquid nitrogen and a lot safer to handle and store.

Order number RapidFreezer:

RF80 Tissue RapidFreezer

RF80nt Tissue RapidFreezer
(without timer option)

RapidFreezer Specifications

Power & Dimensions			
Compressor type	2 x 15 cc displacement	Total instrument dimensions	H1000 x W450 x D500 mm
Compressor media	Ozone friendly HFC refrigerants	Upper chamber dimensions	Diameter 275 x 90 mm height
Freezing media	Iso Pentane	Lower chamber dimensions	Diameter 98 x 90 mm height
Cooling power	300 Watt Main Freezer at -40°C	Lower chamber dimensions, reduced	Diameter 27 x 20 mm height
Temperature Range upper chamber	-40°C (+-2°C)	Upper chamber volume	5300 ml
chamber	-40°C to -80°C (+-2°C)	Lower chamber volume	680 ml
Main freezer to -40°C	45 minutes	Lower chamber volume (reduced)	11 ml
RapidFreezer to -80°C	15 minutes with main freezer at -35°C	Total power consumption	1100 watts
Total instrument weight	85 kg		

Literature

Steu, S., M. Baucamp, G. von Dach, M. Bawohl, S. Dettwiler, M. Storz, H. Moch, and P. Schraml, A procedure for tissue freezing and processing applicable to both intra-operative frozen section diagnosis and tissue banking in surgical pathology. Virchows Arch 2008.



Support from Cells to Function



AlphaMetrix Biotech GmbH
Carl-Zeiss-Straße 41
63322 Rödermark
www.alphametrix.de
info@alphametrix.de
Phone +49 60 74 211 62 40
Fax +49 60 74 211 62 41