KING'S College LONDON

INSTITUTE OF PSYCHIATRY,
PSYCHOLOGY & NEUROSCIENCE

Module:
Techniques in Neuroscience

Week 3:
Immunohistochemistry: Preserving and studying cells of the brain

Carl Hobbs

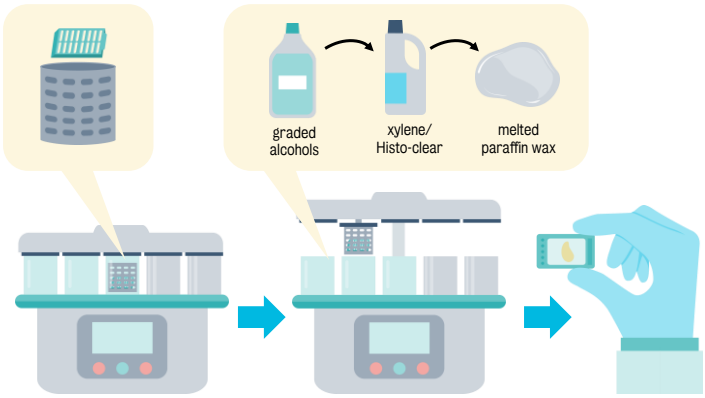
Topic 1:
An introduction to immunohistochemistry
Part 2 of 4

Part 2

Tissue processor (1)

'Dip and dunk' machine:
12 stations

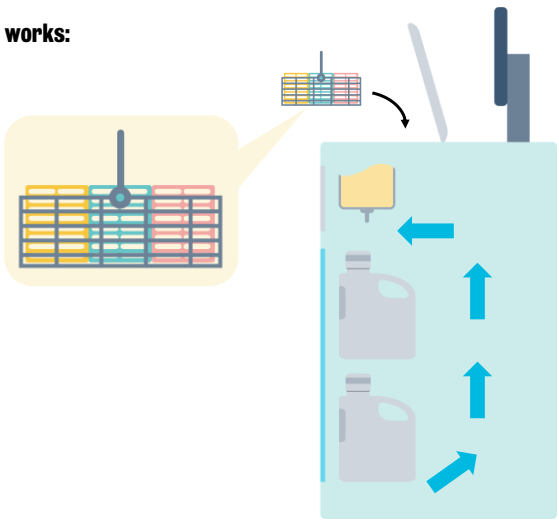
How it works:



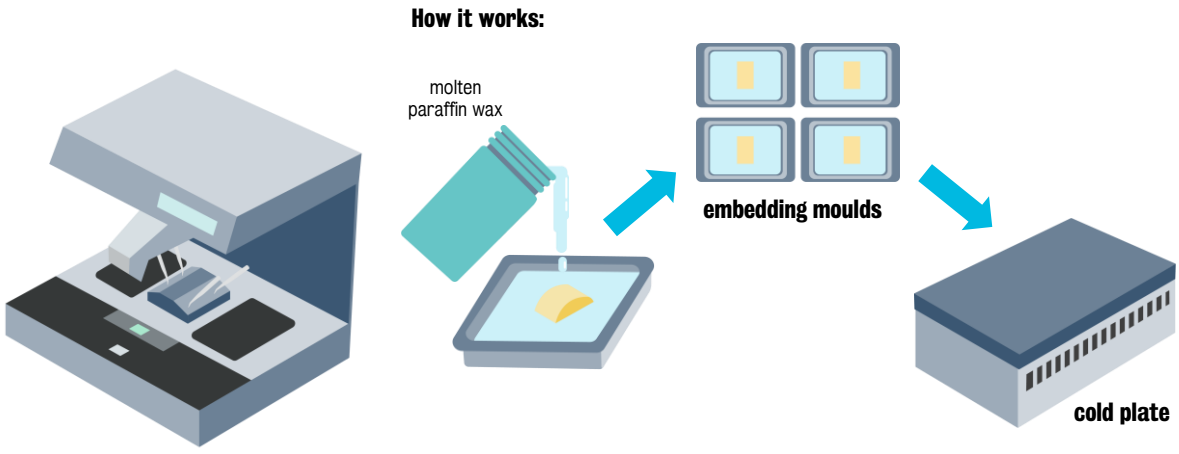
Tissue processor (2)

Enclosed tissue processor

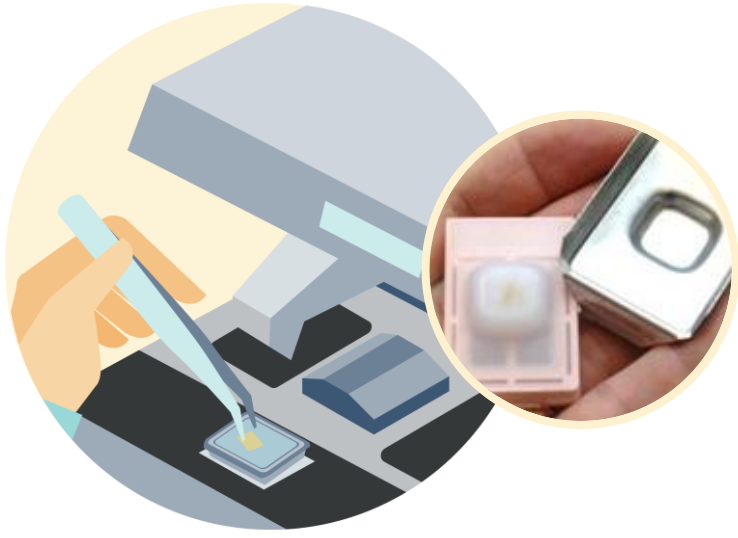
How it works:



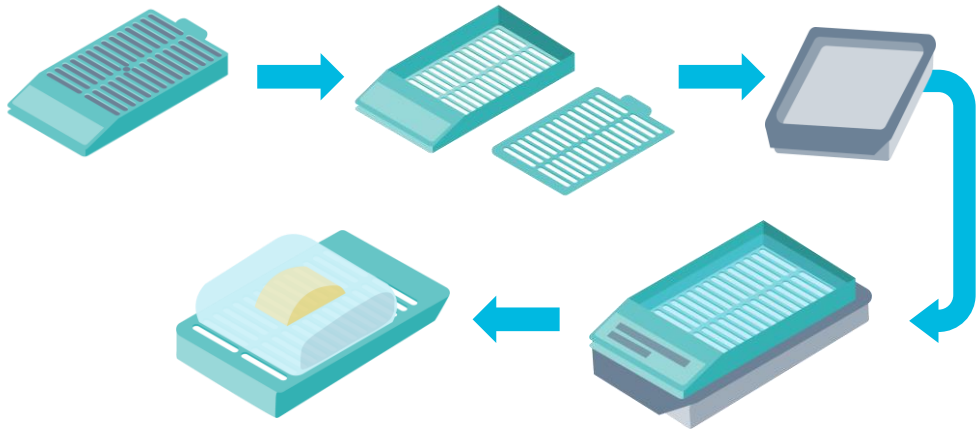
Paraffin wax embedding station



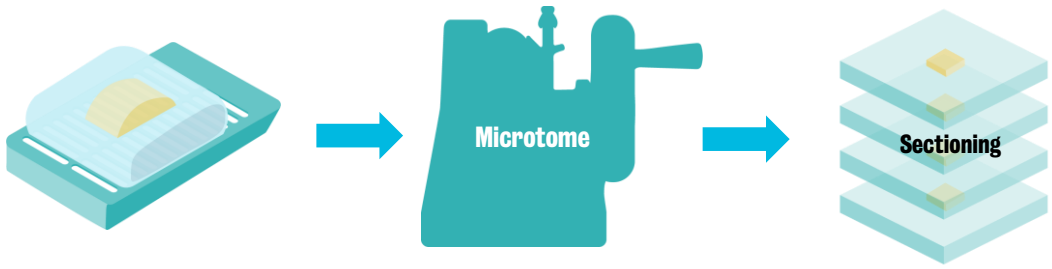
Embedding tissue in mould filled with paraffin wax



Wax-embedded tissues: process

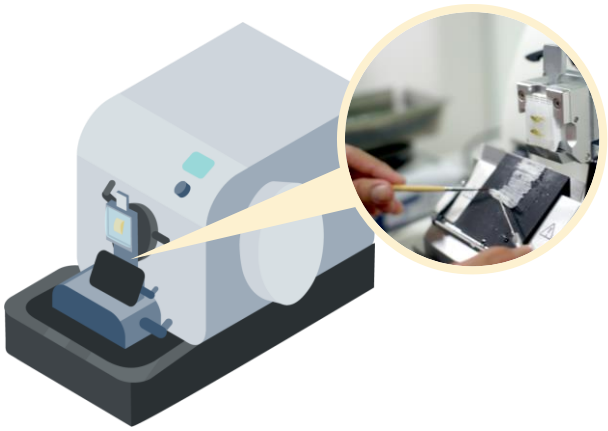


Sectioning



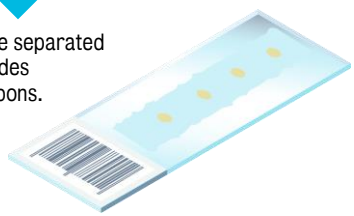
Microtomes: rotary (1)

Benchtop rotary microtome



Sections are floated onto water in a bath (~40°C).

Sections may then be separated to be mounted on slides individually or as ribbons.



Microtomes: rotary (2)

Microtomes: vibrating (1)

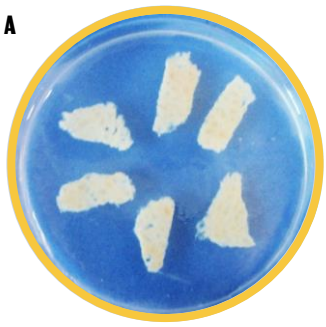
Vibrating microtome (vibratome)

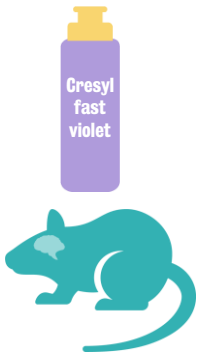
Characteristics:

- embedding media: agarose or gelatine
- section thickness: 50-500 micron thin sections

Sections are collected and are stained as free-floating and then mounted onto slides for microscopic examination.

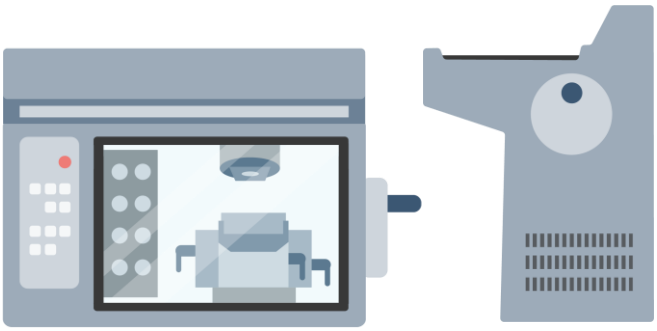
Microtomes: vibrating (2)





Microtomes: freezing/cryostat

Cryostat



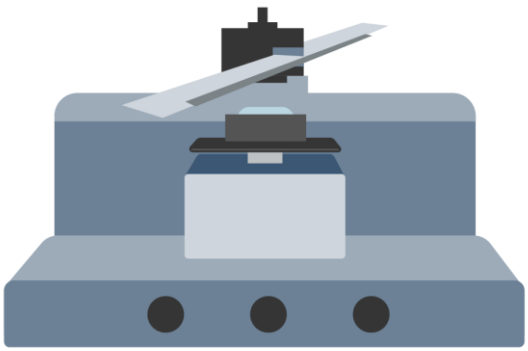
top view side view

Characteristics:

- used for sectioning frozen tissues
- temperature: -20°C
- cut sections can be immediately fixed (if frozen as fresh tissue) or stored
- vitreous water is hard enough for cutting sections
- embedding medium may be used if required

Microtomes: sliding

Sliding microtome



Characteristics:

- used to section frozen samples without the need for a relatively more expensive cryostat
- fitted to the benchtop
- tissue is kept frozen by blasting with CO_2 or solid CO_2
- can produce 15-200 micron sections which are stained as free-floating sections

End of part 2